Developing a Conceptual Framework of Online Learning for Youth (OLY) through Grounded Theory: Young Learners' Experiences in a Croatian School

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Abstract

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Whilst the theoretical underpinnings, learners' experiences, and the overall impact of online learning (OL) in Higher Education (HE) has been well documented, learners' OL experiences in pre-tertiary education have not been fully explored in educational research. In particular, scant focus has been directed towards developing a comprehensive framework for OL in the K-12 sector (primary and secondary school education). Due to the differences between K-12 and HE, the need for a conceptual framework and theory tailored to OL in K-12 has been identified (Picciano, 2017), but little progress has been made. Nevertheless, for OL practice to continue to evolve for pre-tertiary education, such a framework should serve as a fundamental reference point, providing confidence in making critical decisions pertaining to OL at these levels (Keegan, 1983), especially considering that in post-pandemic education, OL will remain part of many educational institutions.

The research described in this thesis aims to address this gap by developing a holistic conceptual framework of OL for young individuals aged between 13 and 14 years old (falling under primary education in Croatia, secondary in the United Kingdom). From existing themes in educational literature about OL, I have developed research questions that underpin the empirical research presented in this thesis. The purposive literature review also served to build the provisional framework of OL - a literature-informed and comprehensive, initial conceptual framework of OL for youth that was, to a point, validated in the empirical study. Based on in-depth interviews with 15 participants (13 and 14 years of age) in the pilot online course created for the purpose of the study, following a grounded theory (hereafter GT) approach to data collection and analysis, I identified the relevant characteristics and dimensions of learning

online from the students' experiences. During the process of theorising, I related the subjective conceptual understanding stemming from the analysed data to existing research (provisional framework). Thus, the pre-existing theory (analysed and summarised in my initial provisional OL framework) was used as a building block to support the empirical findings, forming a newly constructed theory - the holistic conceptual framework of Online Learning for Youth: OLY framework.

Designed around an initial literature-informed framework and the empirical study data, the OLY framework conceptualises optimal OL experiences for 13–14-year-old students as a *process of acquiring new knowledge, skills and attitudes with the help of technology in one's own time, pace, and place*. OLY sees learning as a part of the *process of becoming* for a student, i.e., a transformation, that relates to: a) developing self-concept; b) change in perception; and c) behavioural change. In that way, OLY illuminates the *educating the whole child* dimension at its centre, attending to the child's academic, physical, cognitive, psychological, spiritual, socio-emotional, behavioural, ethical, creative and talent development. Further, in OL ecology, learning evolves *synchronously and asynchronously*, between *autonomous learning and learning with others*, involving appropriate *human interactions* mediated by an *involved and caring teacher* in an overall *positive climate for learning*.

Additionally, OL reach and effectiveness is affected by twelve domains representing the factors/inputs and features of OL ecology. As a holistic approach to conceptualising OL for youth, OLY postulates that the complex interplay of all twelve OL factors must be considered to an equal extent. Likewise, a holistic approach appreciates the needs and experiences of the learners themselves, it ensures a responsive and inclusive OL experiences, and recognises that learning takes place within a broader context, including the student's family, community, and cultural background.

As such, OLY is intended to serve as a potential roadmap for the integration of OL in schools, supporting upper primary and lower high school education,

teachers, researchers, policymakers, and course designers to better understand the concept and characteristics of OL at the intersection of students' experiences and literature recommendations in the spirit of a grounded theory. It serves as a foundation for design of future online courses to ultimately set the standard for OL in this level of education.

Keywords: online learning; primary and high school education; K-12 education; conceptual framework; grounded theory; dance education; technology; TEL; dance history online.

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List of abbreviations

CGT	Constructivist Grounded Theory
EdTech	Educational technology
FLVS	Florida Virtual School
GT	Grounded Theory
HAD	History and Appreciation of Dance
HE	Higher Education
ICT	Information and communications technology
ICH	Intangible cultural heritage
K-12	Primary and secondary school education.
LLL	Life-long learning
LMS	Learning Management System
OL	Online learning
PE	Primary education
PPT	PowerPoint
RQ	Research questions
TEL	Technology-enhanced Learning
VLE	Virtual learning environment
WBL	Web-based learning

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Author's declaration

I declare that this thesis is my own work and has not been submitted in the same form for any other award or degree elsewhere. The word count for this thesis is 69,127. This thesis exceeds the permitted maximum. I confirm that this has been formally approved by the Student Registry.

Tina Zubovic

Chapter 1: Introduction

1.1 Ubiquity of Online Learning and the Global Shift Triggered by COVID-19

The first wave of COVID-19 at the beginning of 2020 made us experience dramatic effects. The education sector was impacted by the pandemic as much as our daily lives, whole societies, and the global economy. COVID-19 created mass disruption of schooling as institutions closed in the spring of 2020 in the hope of minimising the spread of the virus. Whilst we were navigating disruption and the unknown, online teaching and learning became the single viable way to reach students, allowing instruction to continue despite school closures. Online teaching and learning were used on an unprecedented scale. UNESCO (2020) reported that one and a half billion students around the world were engaged in remote learning in March 2020. Nevertheless, already prior to the pandemic, the worldwide adoption of the Internet and technology had been impacting upon almost all aspects of our lives including methods for delivering education, with online learning (OL) steadily evolving and growing over the preceding thirty years (OBHE, 2018; Xie, Siau, and Nah, 2020). Unsurprisingly, in 2018, a substantial body of research examining worldwide status, challenges, and implications of online education showed that it was well on its way to becoming mainstream (Palvia et al., 2018). Indeed, it did; overnight and unexpectedly, as a valid option and antidote to the COVID-19 outbreak (UN, 2020).

The term OL has had a plethora of meanings, therefore a definition for the purpose of this study is required. In the literature, it is sometimes used interchangeably with ‘e-learning’ and ‘web-based learning’ (Hall, 1997), and associated with Internet and online education, virtual education, cyber-learning, and asynchronous learning (Office of Sustainable Development, 2000). In the simplest sense, the term refers to the mediation of learning through technology and the Internet (Aljawarneh, 2020; Gros and García-Peñalvo, 2016). An OL course is defined as a type of course in which all of the instruction/materials are presented online and learning is accomplished on an electronic device (Allen and Seaman, 2011). The concept, however, continues to evolve and has

reached a new scale as technology has advanced. Haythornthwaite and Andrews (2011, p. 2) describe e-learning as flowing across physical, geographical, and disciplinary borders, multifaceted, daily and lifelong online engagement, mobile and centred on how teachers and learners use technology across virtual and physical spaces.

Furthermore, the term e-learning can be observed as the transformation of learning practice at individual, group, institutional, and societal levels (Haythornthwaite et al., 2016). Therefore, the metaphor of 'ecology' and 'learning ecology' provides a useful lens to consider e-learning (Andrews and Haythonthwaithe, 2011; Ellis and Goodyear, 2009). Key attributes of ecology, such as 'complex', 'self-organised' and 'adaptive', are applied to digital ecosystems for exchanging information and knowledge in the open Web (Louviere, 2012). The notion of 'learning ecology' refers to the activities occurring among learners and digital tools, concerned with the technology change to which users and educational institutions are subject and must respond to. Cope and Kalantzis (2010) capture that change and its gravity in their characterisation of ubiquitous learning as making sense of "the world around us through blogs, wikis, mash-ups, podcasts, social software, online worlds, open-source and open-access media, and a whole host of other current and emergent online practices" (p. x).

Indeed, the global reliance on the Internet during COVID-19 suggests that people's relationship with technology will keep deepening as larger segments of the population come to rely more on digital connections for work, health-care, daily commercial transactions and essential social interactions. Likewise, the use of information and communication technology (ICT) and the Internet has become increasingly important in education - from kindergartens (HITSA, 2020) and primary grades, to secondary schools and university programmes (Murphy, DePasquale and McNamara, 2003; Harrell and Bynum, 2018). Furthermore, OL is now ubiquitous in academic institutions where teaching was typically delivered in-person - such as performing arts, as is the context of this thesis, that were reluctant to change their traditional pedagogical approaches. Yet,

they too had no choice but to shift entirely to online delivery due to immediate challenges brought about by the pandemic.

The focus of this research is young learners' experiences of OL in the context of a performing arts programme, namely dance history education. As any other area of study, with the outbreak of COVID-19, the dance education sector was faced with the necessity to deliver courses via the Internet.

1.2 Dance Education Moving Online

Considering the alternative of no schooling, dance educators, many with no previous experience of teaching online or at a distance (Coelho and Menon, 2020), adopted web-based delivery to sustain students' skills development during the pandemic-induced lockdown. Although the experience clearly brought a number of challenges, both educators and students have identified benefits brought about with the shift to OL in the dance education sector (Pike, Neideck and Kelly, 2020). It has been argued that embracing technology in dance programmes supports diverse learning approaches and development of skills critical for success in the future, as well as creates opportunities that, among other purposes, acknowledge OL as a valuable terrain for widening the context of learning in dance and improving educational outcomes (Diamond and Willan, 2020; Weber, 2020).

Following the increase in the number of studies exploring the influence of technology on student learning in HE dance departments, a number of educators and researchers have recognised the need to develop an interest in the ways the dance education sector could exploit technological affordances in all stages and forms of dance education (Gratsiouni et al., 2016). Huddy (2017) for example, advised the use of ICTs within early dance training as it promotes alignment between dance education experiences and dance industry trends and supports a smoother transition into the professional dance sector where the presence of technology in creation and performance already exists. More recently (Li, 2020; Tariao and Yang, 2021), a similar argument was made

supporting earlier calls to fully embrace technology and OL for different stages of learning in dance.

One of the main goals of this research was to continue addressing the development of the ambitions for technology-enhanced learning (TEL) in dance in Croatian primary dance schools (ages 7 – 14 years), which was considered essential in the light of a new European policy report, *The Digital Education Action Plan* (2021-2027) (European Commission, 2021b), when, overnight, the coronavirus forced all institutions to switch to OL.

It was previously noted that ICT resources and online study offer different ways and formats to extend a student's study of dance (Risner, 2014), providing easier access to information, music, and footage of dance from all over the world, additional contact with teachers and peers, and opportunities to develop reflective skills, communication and ICT skills (Gratsiouni et al., 2016; Huddy, 2017). Dance scholars also emphasised the ability of digital tools to offer a space for practitioners to research, document, publish, distribute and critically engage with digital dance materials and development; and they stressed the use of ICTs for collaboration and professional connections for students, educators, scholars and artists, regardless of the stage of career or learning (Weber, 2020). Furthermore, Huddy (2017) advises the utilisation of ICT within early dance training believing it promotes alignment between dance education experiences and dance industry trends, and supports a smoother transition into the professional dance sector where the presence of technology in creation and performance is well-established.

Considering the proliferation of digital technologies in everyday life, increasing levels of digital interventions and interactions and the shift to digital collaboration, creation, production, and promotion - especially during the pandemic - there is a need for more research that explores the opportunities for dance in online environments (Birringer, 2002; Dania et al., 2011) with the support of a valid theoretical framework (Yi, 2018) which can identify and incorporate the complexities of the learning model.

The reviewed literature indicated a similar thrust towards understanding OL across the K-12 educational sector. Due to high rates of adoption, popularity, and perceived benefits, OL is regarded by many as “the new normal” in education (Dziuban et al., 2018; Hew et al., 2020; Tria, 2020; Xie et al., 2020). The efficacy, merits and benefits of an OL approach in optimising teaching and learning for K-12 students is apparent from a number of influential studies (Barbour, 2013; Barrot, 2020; Cavanaugh et al., 2009; DiPietro et al., 2008; Tallent-Runnels et al., 2006). In the United States of America (USA), for example, The Elementary and Secondary Education Act of 2001 - the *No Child Left Behind Act* (U.S. Department of Education, 2001), reinforced by the *National Education Technology Plan* (U.S. Department of Education, 2010), mandated an emphasis on technology integration in all areas of K–12 education. Finally, as a result of Covid-19, OL for pre-tertiary education is even more rapidly generating interest, debate, and scholarship as the demand and necessity for OL increases (European Commission, 2021b). Accordingly, global conversations indicate a consensus that widespread digital teaching and learning is not just an emergency stopgap, but will have an important role in the future across K-12 schools (Barber et al., 2021).

1.3 Addressing the Gap in the Literature: Research Questions and Contribution

In comparison to large volumes of research from HE, relatively little research has been conducted to illuminate how young learners perceive OL environments and in what ways online modes of study assist or hinder K-12 students in their learning (Cavanaugh, Barbour and Clark, 2009; Chen and Macredie, 2002; Ferdig and Kennedy, 2014; Kenney, 2011; Moore and Aspden, 2004; Powell and Patrick, 2006). Further, not enough is known about the skill-sets that are unique to learning online at the K-12 level (DiPietro et al., 2008). Moreover, Imel (2002) claims that much OL fails to live up to learner expectations.

It has been argued that understanding a practice requires understanding of theories and principles that are assumed – sometimes implicitly – in the

practices (Mayes and De Freitas, 2004). Looking for theories of K-12 OL, upon the examination of existing literature, I encountered a dearth of useful resources, with all available theories coming from HE (see e.g., Anderson, 2011; Bosch, 2017; Mayes and De Freitas, 2004). My sense was that these were inadequate for young learners and that more questions were raised than answered by these studies.

Overall, my review confirmed previous arguments that not enough is known about different factors that play important roles in OL for children (Barbour, 2017; Cavanaugh, 2013; Gedik and Goktas, 2011; Packard, 2013; Toppin and Toppin, 2015). Also, the reviewed frameworks/models and theories coming from HE fail to explicitly emphasise that OL (similarly to education in general), should not be just about acquiring knowledge and skills, but also about developing the whole person in the learning process - their intellectual, physical, practical, creative, social, and emotional capacities, as highlighted by philosophers, educational reformers, and leading proponents of holistic education (Dewey, 1916; Gardner, 2004; 2006; Miller, 1991; 2005; 2007; Montessori, 2019; Steiner, 1995). While the reviewed works acknowledge the importance of critical thinking, problem-solving, networking, and collaboration in the learning process, they do not emphasise the whole-child development, and overlook that the essence of learning includes transformation and identity development too. Thus, I recognised a gap in the literature in the form of a conceptual framework of OL for young learners that is pedagogically driven but sensitive to technological features, stakeholders, and other factors taking part in and impacting upon the students' experiences for their holistic development (Barbour, 2019; Davies and West, 2014; Phipps and Merisotis, 1999).

A call has been made across the sector for guidance, vision, and leadership, and further studies to understand the impact of this learning model on students in different stages of learning (Valverde-Berrocoso et al., 2020). Importantly, educators call for OL to be discussed with and amongst students (Ehlers, 2004; Gamage, Femando and Perera, 2015; Zariski and Styles, 2000), due to a belief that students can contribute to OL research as users, testers, informants and/or design partners (Druin, 2002; Ehlers, 2004).

The research presented in this thesis aims to address the outlined growing interest into understanding young students' experiences in OL. Believing that the shift of practices to online environment forced through lockdown may lead to lasting and positive change for both K-12 dance education and K-12 education in general, the study outlined in this thesis had the following aims:

1) To review the relevant literature on OL and most applied OL theories/models/frameworks, and in the context of young people's education, devise key constituents/inputs of the OL experiences towards creating an integrated holistic conceptual OL framework for youth;

2) Analyse the experiences of OL in upper primary education (or lower secondary in British system terms), in order to understand youth experiences better, and embed these findings into a framework that was developed based on the literature and pre-existing approaches to OL.

To address the identified gaps in knowledge, the following research questions (RQ) guided my inquiry and served as the focus of my analysis, discussion, and conclusions:

RQ 1: What factors/inputs must be considered when designing, delivering and analysing an online course in the K–12 education context as per relevant literature, theoretical and conceptual frameworks and models of OL utilised to date?

RQ 2: What are upper primary students' needs and preferences regarding OL through the studied History and Appreciation of Dance (HAD) online module?

RQ 3: What is the conceptual understanding of OL in upper primary education stemming from the upper primary students' experiences in the HAD online module?

RQ 4: Based on RQ 1, RQ 2 and RQ 3 - How can online learning experiences of upper primary or lower high school age students (13-14 years) be conceptualised and integrated into a holistic framework of OL for youth (OLY)?

To research this learning model which lacks a theoretical foundation, the constructivist grounded theory (CGT) developed by Kathy Charmaz (2006) was selected as a suitable methodological approach for the study. Charmaz defines GT as “a method of conducting qualitative research that focuses on creating conceptual frameworks or theories through building inductive analysis from the data” (2006, p. 187). For Koro-Ljungberg, Yendol-Hoppey, Smith, and Hayes (2009), working within a social constructionist perspective is “a view of knowledge as being generated from groups of participants; having multifaceted, participatory roles, and conducting research that aims to “negotiate and transform the practice” (p. 690). Accordingly, CGT methodology was seen as appropriate for uncovering meanings and processes inherent to the area of inquiry that incorporates the complexity of learning powered by technology, whilst allowing future readers to engage and connect with the research participants as well as gain insight into their experiences (Bryant and Charmaz, 2007; Guba and Lincoln, 2005).

This study utilised qualitative methods, semi-structured interviews, to investigate students’ experiences. For the purpose of investigation, I created History and Appreciation of Dance (HAD), a pilot online course for upper primary students of a state dance school in Croatia, where I was invited as both the course developer and guest teacher. I was also a researcher in this study, thus, an insider researcher conducting a GT study which I will comment on in Chapter 3. The collection of data was interwoven with data analysis (Birks and Mills, 2015; Glaser and Strauss, 1967). After the initial coding of data, based on the preliminary concepts and categories, I returned to the participants for further interviews using theoretical sampling that ensured further discussion of the constructs being already studied and data saturation (Birks and Mills, 2015). The theoretical sampling is considered one of the essential GT methods along with the concurrent data collection and constant comparative analysis, writing of memos, theoretical coding, and theoretical saturation (Birks and Mills, 2015).

In this study, GT has proven a useful methodology in developing appropriately abstract, context-specific, process orientated constructs seeking to conceptualise OL phenomena (Palmer, 2019; Urquhart, 2010).

I present next the background of the study, to illuminate the research landscape and the specific context in which this study was situated. This exploration will lay the foundation for discussion of the recognised need to gain a more comprehensive conceptual insight into OL.

1.4 Background and Study Context

Educators have moved to a point where digital technology integrates with and underpins their lives and the work they do. Choreographer Carol Brown echoes this perspective when she states that “our habitat is technological as much as geographical; we live in a digital infrastructure as much as a physical one” (2006, p.87). Today’s primary school children are “growing up digital” (Tapscott, 1998), immersed from a young age (Burnett et al., 2016). They use ICT to socialise and, to some degree, has been aiding their study since their first Google search (Brown, 2001). They are demanding of technology (Corbett and Spinello, 2020).

Reflecting student profiles and dynamic changes occurring in society resulting from the rapid spread of technology, learning environments seek to evolve by integrating digital tools and technology-based pedagogies. Accordingly, already before the pandemic, governmental guidelines advocated the expansion of technology in schools including learning online, with the aim of improving educational practices across different subjects in primary education (hereafter PE) (European Commission, 2016; MSES, 2010).

The European Commission advocated the use of online and distance education since the 1990s (Kumar at al., 2017). Considering the compelling evidence about the advantages and utility of TEL for young learners (UNESCO, 2002; 2004a; 2004b; 2005), over the past 15 years there was an increasing pressure from policy-makers to utilise OL in addition to face-to-face instruction (Picciano and Seaman, 2009; US Department of Education, 2017; Zagami et al., 2018) in different countries, including Croatia (MSES, 2014).

In my efforts to respond to the use of ICTs as ‘the new normal’ in education, for the purpose of a) enhancing learning and teaching, b) to address the

governmental policy requirements for realising the potential of technology in education in Croatia (MSES, 2010), and c) address the call from dance sector for a greater focus on Technology-Enhanced Learning (TEL) in the context of K-12 dance education (Dania et al., 2011; Risner, 2010), I kept exploring and evaluating how and if TEL is making a positive difference for students during my previous ten years of working as a teacher and e-learning development co-ordinator at the state-run primary (7-14 years) dance school “Vezica”.

In Croatia (the context of this research), children enrol in public schools at the age of seven years and spend 8 years at elementary level. Dance school in Rijeka, a city in the coastal region of Croatia, operates as part of the regular public primary school “Vezica” - the first *iSchool* in the country that implemented iPads in all grades and subjects. Following Vezica’s example, I firstly initiated extra-curricular iPad Lab sessions and implemented virtual learning platform *Edmodo* to engage students in out-of-classroom dance-related experiences. Next, students learned how to create e-portfolios using the school’s iPads and *Evernote* application. I also incorporated video-review as an additional, visual feedback component to supplement verbal feedback and instruction in lessons, advancing my formative assessment practices as a useful method for performance analysis and self-evaluation. Finally, I trialled flipped learning to explore how it impacts learning outcomes. Students’ experiences of all these TEL scenarios was very positive; it improved their learning and narrowed the gap between their extensive out-of-school ICT use and its limited use for learning in dance.

The motivation for the next initiative – the implementation of the History and Appreciation of Dance (HAD) online course segment- came from the school’s decision to address the European guidelines (European Commission, 2021a; 2021b) that came during the COVID-19 pandemic and the unprecedented scale of OL adoption across all levels of schooling. Equally so, beyond the necessity to respond to challenges resulting from the pandemic, and address the European recommendations for implementing online and blended learning in K-12 (European Commission, 2021b), Vezica was determined to fulfil the national ambitions for the development of TEL in Croatia, as previously mentioned.

In 2010, *The Croatian National Curriculum Framework for Pre-school Education and General Compulsory and Secondary Education* document, designed as a basis for the restructuring of syllabi and subject curricula for all pre-tertiary education, listed digital competence amongst key competences for lifelong learning, and the status of ICT has been changed into an interdisciplinary theme (MSES, 2010). However, the policy was not acted upon in practice; thus, the background of this research is set in the framework of a continuation of the TEL initiatives I designed whilst previously working at the school, and the school's dedication to continue addressing the ambitions for development of TEL in Croatian schools.

To address the gap between a desired and actual curriculum, i.e., policy and provision, and seeing how the COVID-19 crisis had forced schools to react to the challenges that erupted in 2020, as a guest expert, I created and implemented a segment/section of the online HAD course for upper primary students at "Vezica". Additional argument for delivering HAD as an online course was grounded in a belief that OL is a good option when learners have limited daily time to devote to learning (FAO, 2011). It was hoped that delivering the course online and enabling convenience and flexibility of home-based learning, might be helpful for the students balancing two schools – their dance school and compulsory/regular school. Finally, ensuring that the students experienced course content in interactive ways, another goal was to afford the students with the opportunities to take the HAD in ways that speak directly to their youth culture - using technology and the Internet for an interactive and multimodal learning experience, leveraging technology to create learning experiences that mirror students' daily lives and the reality of their futures. Recognising that technology can help students engage actively as learners (U.S. Department of Education, 2010), it was hoped that online study would not only add value by becoming a useful means for progress in subject-specific knowledge, but also become a means of their development of transferable, problem solving, self-regulation, and digital skills, in addition to an opportunity for cognitive, procedural, and interpersonal skills development.

1.4.1 Summary

I have embarked on this study against the previously outlined key drivers. As previously discussed, although OL in K-12 schools is growing significantly (Barbour, 2013; Barbour and Harrison, 2016; Picciano and Seaman, 2009; Picciano, Seaman and Allen, 2010; US Department of Education, 2017), the availability of theory to help guide this growth is lacking (Barbour, 2019). Accordingly, my research objective was to create a holistic conceptual framework of OL for upper primary education that is pedagogically-led and learner-centred, serving as a general guide to decision-making when creating, delivering and evaluating OL for a whole-child education and development.

1.5 Thesis Structure

Following this introductory chapter, the thesis is presented in five further chapters. First, an extensive review of the literature is conducted in Chapter 2. Chapter 2 specifies the context for this thesis by exploring characteristics of OL, the emergent central position of OL in education due to Covid-19, the advantages and challenges faced by students as online learners and factors that influence its success that are in turn of interest to OL users. Chapter 2 also reviews the OL models/frameworks that conceptualise the characteristics and meaning attached to learning online and discusses the gaps in knowledge. Further, learning theories and various schools of learning focused on what we know from research about children's learning and development were discussed alongside the OL models and frameworks. Importantly, these insights have implications for teaching and learning online as well as course development and implementation. Next, the chapter outlines specific gaps that I identified upon studying the reviewed literature and the chosen existing frameworks and models of OL. Lastly, from the existing models/frameworks and theoretical perspectives reviewed in Chapter 2, I have created the provisional conceptual framework of OL. It identified critical factors related to positive student outcomes and effective OL experiences, prior to investigating OL and its features/inputs from students' narratives, as explored in the next Chapter. The created nine domains in the initial framework not only provided a guide for the

interview questions for the empirical study, but also - as later became apparent - corroborated the relevance of the themes identified in the interviews.

Chapter 3 outlines key methodological choices; it justifies the constructivist approach to GT as the research methodology used in this study and the ontological and epistemological assumptions which underpin it. It also presents the study data collection and analysis. By investigating students' perspectives on key elements of effective and successful OL, the study illuminated students' needs that have to be satisfied to be successful online learners. In addition to detailing the method of data collection – semi-structured interviews- Chapter 3 provides an overview of the participants and setting, and briefly outlines design of the HAD course created for the purpose of the investigation.

Chapter 4 – Results, provides an overview of the findings obtained from the data analysis and development of the holistic subjective conceptual framework. Findings are presented as categories that link the evidence to the conclusions, and are supplemented by excerpts from the data (participants' quotations) and maps that support to the visualisation of the data. Chapter 4 ends with the revision of the initial framework by adding the findings of the empirical data analysis (subjective framework), resulting in the presentation of the Online Learning for Youth, OLY framework, and its dimensions.

Chapter 5 – Discussion and Conclusions, draws together and elaborates the findings of the research discussing them in relation to the research questions and the literature. In particular, this chapter underscores the importance of a 'whole child' approach to OL and 'learning as becoming' in addition to discussing the other overarching study themes. This chapter goes on to highlight the benefits of utilising this framework to provide a lens through which to approach online course design, delivery, and evaluation. It finally brings this thesis to a conclusion by discussing the contribution of this work to existing knowledge and making clear the implications of findings to K-12 education and other relevant stakeholders. Concluding remarks account for the limitations of the research and recommendations for further study before outlining the study's contributions to knowledge.

Chapter 2: Literature Review – Online Learning and Theories, Frameworks and Models of Online Learning

2.1 A Grounded Theory Approach to Literature Review

The role, place and timing of a literature review for a Grounded Theory (GT) inquiry is often debated in the methodology literature (Dunne, 2011). Classical grounded theorists advised against engagement with existing literature prior to commencing data collection (Glaser and Holton, 2004), the strongest phrasing being the advice to "at first, literally ignore the literature of theory and fact on the area under study" (Glaser and Strauss, 1967/2010, p. 37). Nevertheless, in line with Conlon, Carney, Timonen, and Scharf (2015) and Foley and Timonen (2015), and agreeing with Charmaz (2014) that the idea of the researcher as a blank slate is no longer a realistic proposition, I recognised the necessity of engaging with extant literature prior to data collection in order to identify the area of focus and to justify the research questions. Thus, the position adopted for the literature review in this study is that of a context-setting, orientating review (Bryant and Charmaz, 2007). This approach is now widely described in GT research with the proviso that, while informed by contextual literature, the researcher remains open to her data in due course (Timonen, Foley and Conlon, 2018).

The contextual background presented as follows, was conducted combining a traditional database search with searching for qualitative and more informal approaches to literature and wider resource browsing (Booth, 2008; Greenhalgh and Peacock, 2005). This has included snowball methods, such as pursuing references of references and electronic citation tracking. In common with the experiences of Greenhalgh and Peacock (2005), some useful resources came to light, while surprisingly, Google Scholar alerts have proved more productive than traditional database and journal alerts - a phenomenon acknowledged by Grayson and Gomersall (2003). This combination of approaches is similar to that of a scoping review (Davis, Drey and Gould, 2009) in that it provides a sufficient contextual overview of the breadth of the literature, involving the synthesis and analysis of a wide range of research and

non-research material to provide greater conceptual clarity about the topic and field of evidence (Davis et al., 2009). The objective of this scoping review was to capture a comprehensive view of the assortment of Online Learning (OL) research, as well as the peer-reviewed practical and commentary writing on the use of OL in both HE and K–12 education. This was done to place the study in context and inform me of what has been done in the field, and included an overview of existing theories and frameworks of OL. The last section explores the implications of learning theories on OL.

2.2 Educational Research about OL

2.2.1 The Effectiveness and Benefits of OL

Having introduced the concept of OL in Chapter 1 (see section 1.1), I continue reviewing the literature on OL in this section. OL has steadily evolved over the last thirty years (OBHE, 2018). Looking at it globally, OL has become a critical part of most institutions' long-term strategy and marked a before-and-after point in education (Allen and Seaman, 2016; Kentnor, 2015). The meta-analysis of the literature from 1996 to 2008 by Means et al. (2009) who identified more than a thousand studies of OL, found that, on average, students' learning online showed better results than those in traditional classes. It has been repeatedly argued that OL enriches traditional education and has many advantages (Cope and Kalantzis, 2017; Erickson and Siau, 2003; Makarem, 2015). These advantages include convenience and more flexible choices of learning that are not constrained by time and place; accessibility of course and expanded resources anytime and anywhere (Ally, 2004; Chizmar and Walbert, 1999; Kerka, 1996; Poole, 2000); availability of a variety of course and degree-granting programme offerings from around the world; equity in accessibility; greater innovation; and more efficiency associated with teaching and instruction (Cope and Kalantzis, 2013; Xie et al., 2020). OL can utilise teaching styles and methods adapted to students' needs, a variety of open-source OL tools, and the knowledge capital of a community of learners to enhance education by maximising both resources and productivity and, as was proven, can continue without disruption even during a pandemic (Xie et al., 2020).

In its various modes, OL is also used to facilitate differentiated instruction, increase opportunities for practice, and accelerate student learning when it is used to scale up access to quality content (Ganimian, Vegas, and Hess, 2020). Further, studies demonstrated that OL allows students access to coursework and potentially high-quality teaching that they may lack in their local institution (Hart et al., 2019); that is effective in supporting interaction among learners, educators, and content, learner engagement, active and collaborative learning and learning efficiency (Ganimian et al., 2020; Girlando and Eduljee, 2016; Hung, Chou, Chen and Own, 2010; Levi et al. 2016); diverse learning approaches (Greener, 2007) and multiple forms of intelligence (Brown, 2001). Among other purposes, OL is used to increase student technological skills (Popovich and Neel, 2005).

Additionally, ICT and the Internet are educationally appealing to teachers for reasons such as the multimedia presentation of content, their search capacity and their interactivity which have vast educational potential (Alsoudi and Adaieleh, 2005). Another benefit is that OL lets participants study at their own pace (Berge and Clark, 2005; Tallent-Runnels et al., 2006) and autonomously search for meaning within their courses (Blake, 2013). It has been argued, therefore, that such a learning environment becomes increasingly student-centred and develops students' self-sufficiency and agency - skills that could also be desirable in the workplace (Roberge and Gagnon, 2014).

Learning materials that were formerly unavailable (e.g., interactive quizzes and educational games) are common features of OL and have shown that they can positively impact the effectiveness of web-based learning (NCIHE, 1997). Beyond this, if teachers are 'doing it right', then OL can support community building and accommodate student interaction even more successfully than face-to-face classes (ICAO, 2019). Providing the opportunity for students to engage in tasks that promote collaboration may also bring the benefits of the social nature of learning to the experience of studying online and development of social capital (Shen et al., 2006).

In systematic literature reviews of trends in educational research about OL, different authors argue that factors influencing OL should be the object of study in the research on OL (Al-Fraihat, Joy and Sinclair, 2020; Valverde-Berrocoso et al., 2020). Thus, evidenced benefits of ICT use and the rise in learning outcomes for students engaged in OL should be viewed as resulting from a complex interaction of factors that contribute to a learning context (Osborne, 2014). In other words, the actualisation of potential affordances of OL can be understood only with reference to different contextual factors that act to promote or constrain them (Means et al., 2009).

Importantly, research suggests that a critical OL success factor is the teacher (Volery and Lord, 2000) and teacher competencies/readiness required for effective online teaching (Oomen-Early and Murphy, 2009). Teachers' competencies such as communication and administrative skills, technological competence, provision of support and informative feedback; promoting learners' internal motivation (Easton, 2003; Gilbert, 2015; Goodyear et al., 2001; Harris, Mishra and Koehler, 2009; Mishra and Koehler, 2006; Oncu and Cakir, 2011; Oomen-Early and Murphy, 2009), and their role in establishing social presence, designing effective instruction, communicating with learners, facilitating learning, and being involved and present in the course, influence the effectiveness of OL and consequently learners' course perception, satisfaction, and impression of ease of use and usefulness toward the mode of programme delivery (Borup, Graham and Velasquez, 2011; Borup at al., 2014; Darabi et al., 2006; Shen et al., 2006; Valverde-Berrocoso et al., 2020).

As previously demonstrated, however, successfully developed and delivered OL environments should take into account a number of different elements/factors that lead to effective learning experiences for students, positive learning outcomes (Lei, 2010; McPhee and Söderström, 2012), and increased student satisfaction (Palmer, 2012). Nevertheless, it is important to note that online study may not be suitable for everybody and some elements may hinder student success in online courses, which is explored in the subsequent section.

2.2.2 Barriers Students Encounter during OL

OL is not for everyone. To be successful in online courses, a learner needs to have basic technical skills and access to the minimum technological requirements specified by the program (Xie, Siau and Nah, 2020). Those skills include the ability to create online platform accounts, install the necessary software/programs, download and upload documents, navigate the Internet, use word processing software, and utilise Internet search engines. The minimum technological requirements typically include a computer or laptop, access to high-speed Internet, and professional software applications such as the Microsoft Office suite. Also, learners need to be self-motivated and driven to be successful (Xie, Siau and Nah, 2020). OL requires discipline, independence, persistence, intrinsic motivation, responsibility, and a certain level of maturity (Xie, Siau and Nah, 2020). Furthermore, the Internet gives access to vast amounts of information, therefore, help and support in how to navigate the Web should be provided (Pacheco, 2005). Finally, students need access to a learning environment that is free from distractions (Xie, Siau and Nah, 2020).

Research suggests a number of factors pose challenges for OL, with the main barriers relating to:

1. Student characteristics (Ali, Uppal and Gulliver, 2018; Andersson and Grönlund, 2009; Berenson, Boyles, and Weaver, 2008; Reynolds, Becker and Fleming, 2013; Schrum and Hong, 2002);

2. Teacher characteristics (Ali, Uppal and Gulliver, 2018; Andersson and Grönlund, 2009; Manson, 2000; Roddy et al., 2017; Russo et al., 1999; Sang, Valcke, van Braak and Tondeur, 2009; Xie, Siau and Nah, 2020);

3. Technology factors (Ali, Uppal and Gulliver, 2018; Andersson and Grönlund, 2009; Prakasam, 2013; Qureshi et al., 2012);

4. Course related issues (Berenson, Boyles, and Weaver, 2008; Li, Marsh and Rienties, 2016; Manson, 2000; Roddy et al., 2017; Russo et al., 1999; Sang et al., 2009; Xie, Siau and Nah, 2020); and

5. Other Conditions (as unique barriers that support multiple categories, e.g., administrative support) (Ali, Uppal and Gulliver, 2018; Mahanta and Ahmed, 2012).

With the COVID-19 outbreak, social media was filled with anecdotes of frustrations with OL. The digital shift was sudden, so for example, teaching timetables were rejigged in such a way that material that could be taught online came first; assessments changed giving more weight to weekly assignments than to final examinations which some institutions struggled to hold online (Lau, Yang and Dasgupta, 2020). For some disciplines, practical applications of knowledge learned - such as laboratory-based classes in medicine, fieldwork in archaeology, rehearsals and partner work in performing arts, were postponed until the end of modules, hoping that the campus and schools would have reopened (Xie, Siau and Nah, 2020). Further, the findings of Suryaman et al. (2020) and Kapasia et al. (2020) showed that students faced many obstacles in their home learning environment, such as a lack of mastery of technology, high Internet cost, and limited interaction/socialisation among students. The students themselves reported anxiety, depression, poor Internet service, and an unfavourable home learning environment, challenges that were further aggravated when students were from remote areas (Xie, Siau and Nah, 2020). Frustration and negative emotions can in turn lead to poor academic success and a decrease of motivation and persistence (Kauffman, 2015; Moras, 2001).

A number of studies examined the impact of OL on students' mental health and coping mechanisms during the pandemic. Copeland et al. (2021) reported that OL adversely affected college students' behavioural and emotional functioning, particularly attention and externalising problems (i.e., mood and wellness behaviour), which were caused by isolation, economic/health effects, and uncertainties. In Fawaz et al.'s (2021) study, students raised concerns about learning and evaluation methods, overwhelming task load, technical difficulties, and confinement. Khalil et al. (2020) also reported technical (Internet connectivity and poor utility of tools), methodological (content delivery), and behavioural (individual personality) challenges of OL experienced by students in a medical school in Saudi Arabia. Their findings highlighted the failure of the

OL environment to address the needs of courses that require hands-on practice despite efforts to adopt virtual laboratories. A parallel study of Ghanaian students' OL experiences during the pandemic indicated that Ghanaian students considered OL ineffective due to a lack of social interaction among students, poor communication, lack of ICT resources, and poor learning outcomes (Adarkwah, 2021). Similarly, the results by Singh et al. (2020) demonstrated that half of the students believed that the traditional classroom setting was more effective than OL.

Contrary to the studies that report students' OL challenges during the pandemic, Gonzalez et al. (2020) reported that the OL of students in HE during the pandemic had significant positive effects on their performance. They attributed these results to students' continuous use of appropriate learning strategies which, in turn, improved their learning efficiency. Some positive experiences were revealed by Khalil et al. (2020) too, who qualitatively explored the efficacy of synchronised OL in a medical school in Saudi Arabia. The results indicated that students generally perceived synchronous OL positively, particularly in terms of time management and efficacy. Similarly, participants in a study by Singh et al. (2020) appreciated the use of OL during the pandemic.

Thus, whilst the suspension of face-to-face instruction in schools during the pandemic has led to concerns about consequences for students' learning, perceptions have been mixed, and not only in studies reporting challenges with OL during the COVID-19 outbreak, but from those prior to the pandemic too. Despite the previously described drawbacks, studies are consistently evidencing both challenges and perceived benefits of OL. This is supported by earlier findings by Nguyen (2015) who examined the meta-analyses on the effectiveness of OL to conclude that, taken as a whole, there is robust evidence to suggest OL is generally at least as effective as the traditional format. Relatedly, a recent systematic review of studies in the field of ICT in education from 2009–2018 by Ganimian, Vegas and Hess (2020), indicates that TEL can positively affect instruction and improve student learning in a myriad of ways.

2.3 Online Learning in Schools (Primary and Secondary)

With the Internet, smartphones, laptops, tablets, multimedia, and computer games as a key and intuitive component of students' day-by-day activities, it has been argued that the majority of young students in classrooms today await to use ICT in education (Frand, 2000; Oblinger 2003, Papp, 2010). They crave stimulation and to explore online environments through active discovery, and have developed a trial-and-error style of experiential learning that has its roots in computer gaming wherein the fastest way to learn (i.e., master the game) is to fail and try again (Arhin and Johnson-Mallard 2003, Frand, 2000; Matulich, Papp and Haytko, 2008). In a way, technology is already so well integrated into general instruction in the form of a research tool that students use to teach themselves, that it has disappeared into the background (Donahue-Wallace, La Follette and Pappas, 2009). As a result, these young learners respond well to any-time-any-place learning and learning environments in which they 'stay connected' (Frand, 2000), participate in dynamic, interactive courses, collaborate, receive real-time feedback, and control the pace and depth of their learning (Arhin and Johnson-Mallard, 2003; Frand, 2000; Papp, 2010). Accordingly, it has been argued that OL is an essential part of children's 'multimodal lifeworld' and that should be contextualised and capitalised to support children to develop agentic multimodal practices (Hayes and Whitebread, 2006; O'Hara, 2004).

OL rapidly expanded in the past decade reaching millions of young learners at an unprecedented speed (Ambient Insights, 2011; National Centre for Education Statistics, 2018; Nelson, 2016). More and more online programmes have been developed and delivered to support children living in remote areas and learners with disabilities, providing learning flexibility (Smith et al., 2016; Zalaznick, 2019). The review of relevant literature stemming from the field of TEL in K-12 education shows that the benefits of OL for young students have long been acknowledged by the education community (Barbour, 2013; Barrot, 2020; Burnett et al., 2016; Cavanaugh et al., 2009; DiPietro et al., 2008; Tallent-Runnels et al., 2006). The positive aspects include:

• expanding educational access;

• providing high-quality learning opportunities;

• improving student outcomes and skills;

• technology-enabled assessment;

• providing opportunities to personalise instruction;

• higher levels of motivation;

• allowing for educational choice, collaborative learning, reasoning, and problem-solving activities; and

• administrative efficiency (Baker, Bouras, Hartwig and McNair, 2005; Berge and Clark, 2005; Clements and Sarama, 2003; Davies and West, 2014; Freedman, Darrow, Watson, and Lorenzo, 2002; Keeler, 2003; Kellogg and Politoski, 2002; Russo 2001; Thomas, 2008; 2009; Vail, 2001; Yelland, 2006; Zucker, 2005).

The importance, efficacy and usefulness of ICT and OL in primary education have been also reflected in many cross-national and national comparative research studies. Some examples include *Computers in Education* (COMPED, 1989-1992), *Second Information Technology in Education Study* (Carstens and Pelgrum, 2009), *Study of the Impact of Technology in Primary School* (Balanskat, 2007), the *Virtual schools and colleges project Volume 1 and 2* by the European Commission, representing one of the largest international efforts to explore K-12 OL (Bacsich et al., 2011; 2012), and the more recent *International Computer and Information Literacy Study* (Fraillon et al., 2014; 2019).

An additional important data set about technology use in the classroom, for homework, and more broadly, is that from the Programme for International Student Assessment (PISA) (Schleicher, 2019). Every three years, PISA tests 15-year-olds around the world on mathematics, reading, and science and

includes an optional student survey on ICT. Whilst the PISA survey shows that most students use computers and the Internet regularly for a variety of purposes including for learning and communication, it highlights the importance of bolstering students' ability to navigate through digital texts. In 2018, more than 340,000 students in 51 countries took the PISA ICT survey. One of the key findings (OECD, 2020) was that students who reported using computers for schoolwork at least once a week scored higher in financial literacy than students who reported using computers less frequently. Notably, the finding that students who use technology for learning tend to perform better academically is based on PISA data from various years. For example, the PISA 2015 report, *Students, Computers and Learning* (Peña-López, 2015), found that students who use computers frequently at school for educational purposes scored higher in reading, mathematics, and science, even after accounting for socio-economic status and other factors.

Five key findings from the 2019 PISA results (Schleicher, 2019) suggest potential links between technology and student outcomes:

1. The type of device matters

2. Geography matters - technology is associated with higher student outcomes in the United States than in other regions

3. Who is using the technology matters - technology in the hands of teachers is associated with higher scores than technology in the hands of students

4. Intensity matters

5. A school system's current performance level matters (Schleicher, 2019).

Thus, it can be concluded that the effectiveness of OL is complex and context-dependent, and there is no one-size-fits-all answer.

In addition to examining how education systems and schools are integrating ICT into students' learning experiences (Peña-López, 2015), in recent years

research regarding the use of technologies in children's lives and learning includes thinking through:

• the pedagogies that enable learning with technological devices (Fleer, 2017, 2018);

• comparisons between technology use at home versus schools (Edwards et al., 2017; Gillen and Kucirkova, 2018; Henderson, 2011);

• digital play and how it is implemented (Arnott, 2016; Bird and Edwards, 2015; Danby, Evaldsson, Melander, and Aarsand, 2018; Hatzigianni, Gregoriadis, Karagiorgou, and Chatzigeorgiadou, 2018; Marsh et al., 2018);

• virtual schools and the changing nature of literacy in the 21st century to incorporate multiliteracies (Flewitt, Messer and Kucirkova, 2015; Harrison and McTavish, 2018; Sefton-Green, Marsh, Erstad and Flewitt, 2016; Selwyn, 2012; Yelland and Gilbert, 2018).

• safety and privacy rights of users, and the potential 'datafication' of childhood (Lupton and Williamson, 2017; Mascheroni, 2020; Mascheroni and Holloway, 2019).

A general agreement is, however, that several themes have been dominant in the research conducted on K-12 OL to date. Rice (2006) described the research into K-12 OL as either being comparisons of student performance between those enrolled in online and face-to-face environments, or examinations of the qualities and characteristics of the OL experiences, with the comparative research being the dominant of the two groups. Similarly, Cavanaugh et al. (2009) indicated that the research into K-12 OL fell into two categories: effectiveness and issues related to student readiness and retention, with the majority of the research focusing on the effectiveness category.

The results of studies comparing K-12 students' experiences in OL environments versus traditional classrooms have been inconsistent, as illustrated in Table 2.1 on the following page.

Study	Finding
Ballas & Belyk (2000)	Performance of virtual and classroom students in Alberta were similar in English and Social Studies courses, but that classroom students performed better overall in all other subject areas.
Bigbie & McCarroll (2000)	Over half of the students who completed FLVS courses (Florida Virtual School is one of the world's leading online learning providers) scored an A in their course and only 7% received a failing grade.
Barker & Wendel (2001)	Students in the six virtual schools in three different provinces performed no worse than the students from the three conventional schools.
Bernard et al. (2004)	No significant differences in effectiveness between distance education and face-to-face education, suggesting that virtual learning can successfully replicate face-to-face instruction.
Cavanaugh et al. (2005)	FLVS students performed better on a non-mandatory assessment tool than students from the traditional classroom.
McLeod et al. (2005)	FLVS students performed better on an assessment of algebraic understanding than their classroom counterparts.
Barbour & Mulcahy (2008)	Little difference in the overall performance of students based upon delivery model.
Barbour & Mulcahy (2009)	No difference in student performance based upon method of course delivery.
Chingos & Schwerdt (2014)	FLVS students perform about the same or somewhat better on state tests once their pre-high-school characteristics are taken into account.
VanPortfliet & Anderson, (2013)	Research into hybrid instruction indicates that students achieve outcomes that match, if not exceed, outcomes from other instructional modalities.

Table 2.1: Summary of Research Related to the Effectiveness of K-12 OL

Similarly, Means et al.'s (2010) systematic search of the research literature from 1994 through 2006, and Watson's (2007) report, *A National Primer on K12 Online Learning*, support the mixed findings of the outlined comparison as well as the findings of a meta-analysis by Cavanaugh et al. (2004), evidencing no significant difference in outcomes between virtual and face-to-face schools.

The reasons for these mixed findings are complex and multifaceted. Arguably, as Rice (2006) noted, "the effectiveness of distance education appears to have more to do with who is teaching, who is learning, and how that learning is accomplished, and less to do with the medium" (p. 440). It seems, thus, it is the differences in how K-12 OL is designed, delivered, and supported, whether teachers and students are optimally utilising the tools afforded to them, along with the characteristics of the individual student and teacher that account for

whether the online students perform at comparable levels to traditional classroom students (Barbour, 2019; Cavanaugh 2013; Kerr, 2011).

Nevertheless, despite the growing demand for more flexible options of access to education and the increased use of technologies, young students' experiences are not all positive, and the negative connotation of K-12 OL is still very real (Benard et al., 2004).

The use of digital technologies to learn online in early years has been debated among scholars, educators, and policymakers in the past decades (Aubrey and Dahl, 2008; Elkind, 1998; Plowman et al., 2012). Notably, some scholars (e.g., Brady and Hill, 1984; Elkind, 2007; House, 2012) have insisted that children should not be exposed to OL because the latter cannot prepare children to be socially and emotionally ready for school (Edwards et al., 2012; Zalaznick, 2019), negatively impacting their health and growth. Other researchers have expressed their concerns about OL (e.g., Jiang and Monk, 2015; Hill et al., 2016), highlighting that the main difficulties are in creating an OL community with a high degree of social presence and engagement (Chen, 2010; O'Doherty et al., 2018). In addition, some scholars are concerned about isolation and delayed or insubstantial feedback (Khurana, 2016). Indeed, in a study by Bernard et al. (2004), learners themselves stated they felt a distance from other students and that they miss classroom interactions with an instructor and classmates.

More recently, in light of the adoption of OL in a situation of global emergency, the most widely discussed challenge by experts was that socially disadvantaged groups face difficulties in meeting the basic conditions required by OL (Eyles, Gibbons and Montebruno, 2020). The report by Cachia et al. (2021) for the Joint Research Centre (JRC) for the EU Commission issued upon the COVID-19 crisis, outlined different challenges and perceptions of remote schooling across Europe. Most children interviewed said they enjoyed using digital technologies but were critical of the way they were used for remote schooling. Children thought learning online was less engaging than face-to-face instruction and found themselves bored during schooling. When children were

motivated to learn and had a supportive environment, they found various ways to self-teach themselves; however, most students wanted to go back to school to face-to-face learning and playing. Parents faced the challenge of becoming more involved in their children's school tasks whilst balancing family needs and work life, raising concerns about children's physical and mental health and digital tiredness during this period (Cachia et al., 2021).

Recently, however, Arnott and Yelland (2020) suggested shifting this argument away from moral panic, reconceptualising digital technologies like social, cultural, and personal artefacts that inhabit the contemporary child's lifeworld and contribute to their learning ecologies, and moving beyond the why towards the how technologies can be beneficial and skilfully integrated. Similarly, Watson et al. (2012) suggest shifting the question from "Does OL work?" to "Under what conditions does it work?".

As K-12 OL has continued to mature and evolve, the best practice standards that include aspects of course design have also been released (iNACOL, 2011a; Quality Matters, 2014). The first Quality Matters (QM) rubric was formed in 2004 with QM gradually becoming an entire process for online course review (Shattuck, 2007). The current rubric utilises eight general standards (i.e., course overview and introduction, learning objectives, assessment and measurement, instructional materials, learner interaction and engagement, course technology, learner support, and accessibility), while the programme offers to train staff for peer reviews, course design, etc. (MarylandOnline, 2013). Thus, although the research about K-12 OL characteristics and online course design has been limited (Barbour, 2013; Barbour and Adelstein, 2013), the iNACOL (2011a) standards represent an easy, publicly available place for K-12 online course designers to begin.

Nevertheless, as previously outlined, the field of OL in K-12 education lacks theoretical guidance to support and advance OL in schools. In light of this, my conclusion was that to keep informing continued efforts for improvement of OL experiences for K-12 students, a conceptual framing, embedding the critical factors that course designers and educators should be mindful of when

designing and delivering online courses, is needed; a framework that considers the whole child in the learning process and is embedded in a paradigm of OL ecology (Blaschke, Bozkurt and Cormier, 2021; Bozkurt and Hilbelink, 2019; Frielick, 2004; McCalla, 2004).

Next, I examined the existing theories and frameworks/models of OL in HE. I identified elements and critical components of OL from some of the pre-existing conceptualisations of OL that informed the development of a provisional conceptual framework of OL for youth, prior to examining learners' OL experiences in the empirical study.

2.4 Theories, Frameworks and Models of Online Learning in HE

2.4.1 Introduction

The following discussion explores some of the influential theories and frameworks/models of OL to identify a complex assemblage of technologies, people, support services, institutions, purposes, and embedding contexts of OL. As previously noted, all available models come from HE. They range from very broad teaching frameworks within which OL is assigned functional roles, to technically-oriented accounts which focus primarily on tools (Mayes and De Freitas, 2004) and more pedagogy-centric approaches (Dabbagh, 2005). In such frameworks, the role of web/technologies shifted from a delivery tool for the content and an 'add-on', to one focused on connected and social communities, encouraging participatory models of education to ensure learners' success (Barab, Thomas, and Merrill, 2001).

The frameworks and theories are presented on the following page, starting from the provisional model that embeds all examined models and theories in conjunction with the review of literature on OL in the context of schools, mindful of my goal to develop and provide an encompassing, integrated framework that would account for a great scope of factors that play a role in OL. Therefore, I will first introduce the framework I have devised and then address each key OL theory and model in terms of their key characteristics and how they inform my initial Online Learning for Youth - OLY - framework.

2.4.2 The Provisional Framework of Online Learning for Youth

Before empirically analysing how 13-14-years-old students experience learning online, I developed an initial framework of K-12 OL from the reviewed literature. My decision was guided by Becker's (1986, p.141) argument that prior work provides "modules" that one can use in building their conceptual framework, suggesting that sources for these modules can be one's own experiential knowledge, existing theory and research, and exploratory studies. Thus, my rationale for creating an initial/provisional framework was to provide the context in which my empirical findings will be linked with the existing understanding of OL and to explicate how they inform the existing knowledge.

The tentative/provisional framework that stems from the reviewed literature is presented in Figure 2.1 on the following page. In addition to the key themes: *learning outcomes and learning processes*, and *educating the whole-child* dimension, twelve factors were identified:

1. Course content, design and delivery; 2. Support; 3. Pedagogy; 4. Student; 5. Technology; 6. Ongoing course/programme evaluation, adaptation and improvement; 7. Planning; 8. Context acknowledgement; 9. Accessibility and inclusiveness; 10. Teacher; 11. Mosaic of learning theories; and 12. Socio-Affective dimension of learning.

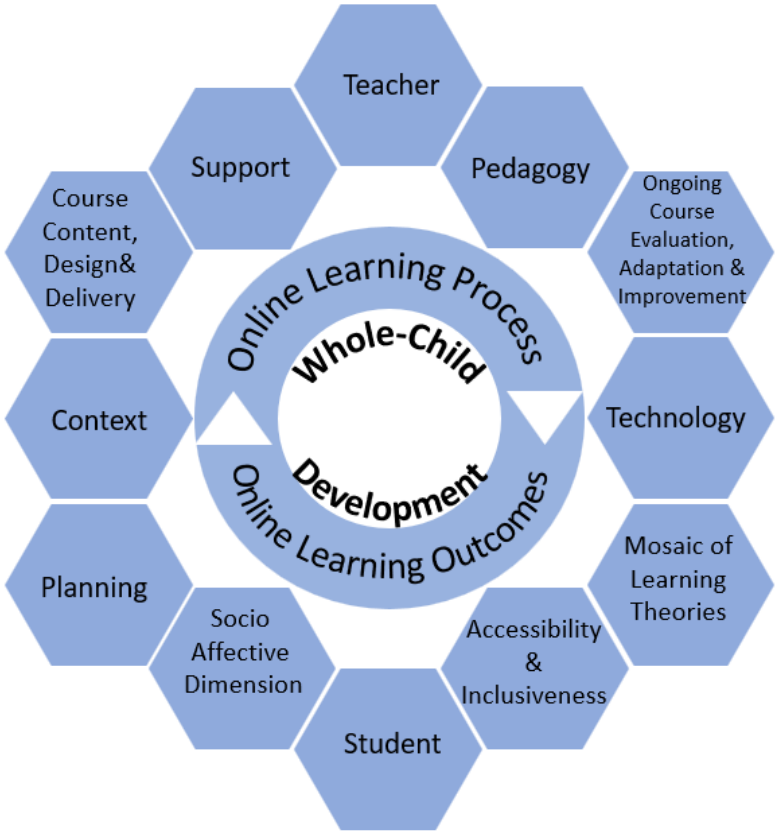

Figure 2.1. Provisional Holistic Framework of OL in Upper Primary/Lower Secondary Education

Nine existing influential approaches for designing and evaluating OL were considered based on their potential of outlining essential factors, evaluating the success of OL, and helping educators understand, support, and enhance their OL courses. Further, since the reviewed frameworks and models did not identify sub-themes for each identified category, I reviewed previous studies from the outstanding literature which highlighted the key considerations for creating a holistic OL experience for young learners. Finally, a broad range of reviewed relevant studies stemming from the theoretical perspectives on learning were summarised to ensure alignment of the provisional conceptual framework with the theories on children's learning and development and OL theory. In terms of diagrammatic representation of the model, I built on the *Dimensions of E-learning* by Al-Fraihat, Joy and Sinclair (2017) as this model comprehensively integrates different factors of e-learning – with my aim being

to make it holistic and detailed in terms of the characteristics of each factor, in order to create a rich environment for successful and fulfilling OL experiences.

2.4.3 Development of the Provisional Framework

The process of identifying the major dimensions and clusters of factors affecting the understanding, design, and implementation of OL in K-12 education is discussed on the following pages. The selected theories and frameworks/models that I reviewed, namely seven well-known and researched models for understanding dimensions of effective OL, and two approaches to studying OL grouped as: a) OL quality approaches, and b) OL satisfaction models, were analysed for the purpose of developing the initial OLY conceptual framework. In addition to 9 frameworks/models and approaches to understanding OL experience, I have also analysed theoretical perspectives on learning. At the end of the following review, I present the summary of theoretical perspectives on learning that, as a *Mosaic of learning theories*, constitute one of the key dimensions of the provisional OLY framework.

Next, I present the essential dimensions and factors sourced from some of the most relevant OL frameworks/models and theories, including:

1) DeLone and McLean (1992) information systems success model;

2) User satisfaction models;

3) Community of Inquiry (CoI);

4) Technology acceptance (TAM);

5) Technological Pedagogical Content Knowledge (TPACK) model;

6) Communities of practice (CoP);

7) OL quality frameworks;

8) Anderson's (2011) Online Learning Model; and

9) Picciano's (2017) Multimodal Model for Online Education.

The selection was made based on their robustness, confidence in the studies' results, the area of concern, novelty, and also that sources contained information pertinent to the research questions of this study.

1. DeLone and McLean's (1992) Information Systems (IS) Success Model

Since its introduction in 1992, the model has created a broad response in the literature, being identified as the most heavily cited article in the IS literature (Lowry et al., 2007). Researchers adopted it to better understand the success of a variety of information systems including OL (see Figure 2.2). The model's principal constituents and their relations have been investigated in a broad spectrum of settings (Petter et al., 2008; Urbach et al., 2009).

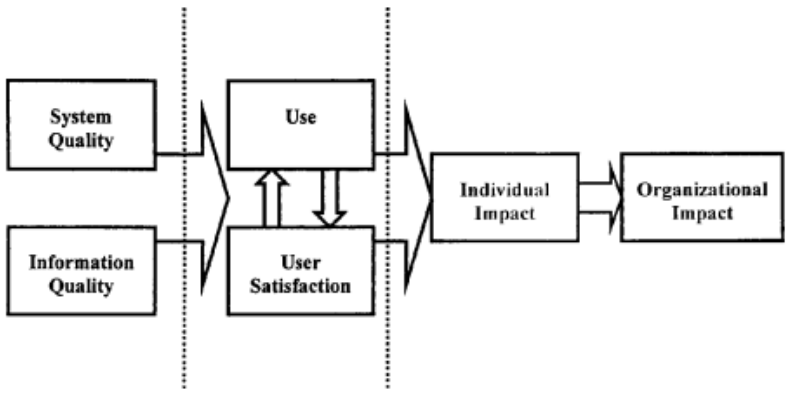

Figure 2.2 DeLone and McLean IS Success Model

Later, the model was updated (see DeLone and McLean, 2003) to reflect and integrate some of the empirical work investigating the model's propositions (see the following Figure 2.3). The updated model consists of Information Quality, System Quality, Service Quality, Intention to Use, Use, User Satisfaction, and Net Benefits as main dependent constructs/factors in measuring IS success.

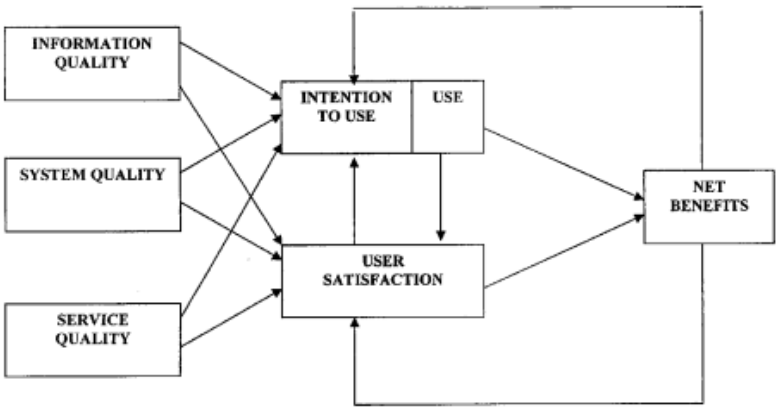

Figure 2.3. Updated DeLone and McLean IS Success Model

A study by Lin (2007) on the use of an OL system found a significant effect of system quality, information quality, and service quality on the actual use through user satisfaction and behavioural intention to use an OL system. A year later, a meta-study has shown that this updated version of the model has not only received great appreciation in the IS community, but that most of its propositions explaining the success of an IS are supported (Petter et al., 2008).

On the other hand, researchers from Australian (Klobas and McGill, 2010) and Brazilian universities (Cidral et al., 2018), reported the absence of any significant relationship between quality aspects and use. Eom et al. (2012) proposed that the contradiction among studies could be due to the mandatory or voluntary nature of using the system: in a mandatory context, students use the e-learning system regardless of its quality because it is the only place to access learning resources, while in a voluntary context, the quality aspects of the system influence the users' decisions to use the system or not. Another reason might be due to other intervening variables not explained by the model, or the context of the study and sample differences. For that reason, Eom et al. (2012) stated that the model has "limited explanatory power for explaining the role of e-learning systems on the outcomes of e-learning" (p. 147). Researchers have called for further research to investigate e-learning quality factors to increase the explanatory power of the DeLone and McLean model (Awang, Osman and Aji, 2018; Eom, 2012; Eom et al., 2012).

From the DeLone and McLean model, I added *Information quality* as a component of the initial framework and reworded it as the *Course content* dimension. Information quality is defined as the fitness for use of data and information (Wang and Strong, 1996). This means that *Information quality* is a user-centric concept, strongly depending on the context of usage. However, the term is problematic as not all content and information can provide assets of the same 'amount of quality'. Amongst many types of definitions for the term 'quality' and meanings in use, the definitions of 'academic quality' fall under the following spectrum:

• Quality as excellence

• Quality as fitness for purpose

• Quality as enhancement or improvement (Vlăsceanu, Grünberg and Pârlea, 2004).

Each approach has advantages and disadvantages, being more or less suitable for a specific period of time or national context (Vlăsceanu, Grünberg and Pârlea, 2004). To avoid confusion, I reworded *Information quality* to *Course content,* referring to the subject matter, knowledge, and skills that are being taught (Hosie, Schibeci and Backhaus, 2005).

Content is a fundamental aspect in assessing the success of a learning experience, as poor content quality may generate serious problems in attaining learning goals (Al-Fraihat, Joy and Sinclair, 2020). Further, OL is perceived as useful when constantly updated rich course content is provided, and when the content is customised to learners' needs (Al-Adwan et al., 2021). Accordingly, I added it into the initial framework to reflect its importance.

In order to identify sub-themes and key considerations for this OL factor, I reviewed previous studies from the outstanding literature (Baldwin, Ching and Hsu, 2018; Barab et al., 2001; Coates, 2007; Cyrs, 1997; Hassanzadeh et al.,

2012; Hosie, Schibeci and Backhaus, 2005; Justice et al., 2007; Ozkan and Koseler, 2009; Online Learning Consortium, 2017), which highlight that *Course Content* needs to be:

1. Accessible and inclusive; 2. Relevant and challenging; 3. Well-organised 4. Understandable; 5. Concise on-time content; and available in manageable segments; 6. Useful; 7. Up-to-date and comprehensive; 8. Displayed in multiple ways, using purposeful multiple media; 9. Updated; 10. With links to existing and new information on the subject matter and related knowledge.

The *Service quality* domain in DeLone and McLean's model was also incorporated into the provisional framework and reworded to *Support.* According to Cheng (2014), in OL, service quality is the assistance provided by teachers and support service technicians. Thus, service quality can be decomposed into two key dimensions: *teacher quality* and *support service quality*. The literature confirms the vital role support plays in the success of OL, therefore, the domain was reworded to reflect that. The aspects related to the teacher quality dimension of the *Service quality* element were recognised as essential aspects - it is the teacher that contributes to the overall student satisfaction, management of the learning process, and perceptions towards the learning outcomes (Collision, Elbaum, Haavind, and Tinker, 2000; Muirhead, 2004). Accordingly, I added the *Teacher* dimension to the initial framework, acknowledging their importance on student learning and satisfaction.

System quality in the DeLone and McLean's model has two dimensions: *educational system quality* and *technical system quality*. Educational system quality is related to the presence of education-related features such as diverse learning preferences, evaluation styles, and communication and interactivity tools, whereas technical system quality is concerned with technology-related aspects such as usability, availability, and reliability (Mohammadi, 2015). Accordingly, *system quality* was broken down into the two original dimensions and reworded as follows: *educational system quality* was reworded into *Pedagogy* and technology-related aspects into the *Technology* category for the provisional framework.

Overall, from the DeLone and McLean's model I added: 1. Course content; 2. Support; 3. Pedagogy; 4. Teacher; and 5. Technology. The model, however, does not account for the context of OL, although the effectiveness and success of OL is influenced by a given context of implementation. Further, DeLone and McLean's model does not mention the important role of human and social factors. Finally, the model was introduced as a linear map of the information systems success dimensions; nevertheless, such linear framing is limiting as learning is a complex activity of the multilevel phenomena and processes and the complex relations between them. In contrast, a more holistic perspective on learning as ecology, for example, draws attention to the complexity of interacting elements. Thus, whilst the focus of an OL model could be on developing a greater understanding of several elements, this should be done without denying the existence of the other important dimensions. Therefore, my understanding is that the DeLone and McLean model should be broadened to enhance its explanatory power.

2. User satisfaction models

User satisfaction, also one of the dimensions in the previously analysed D&M model, is another important consideration for successful OL. Student and teacher satisfaction can be defined as an attitude resulting from an evaluation of educational experience, facilities, and services (Weerasinghe and Fernando, 2017). It has been found a fundamental measure in the success, effectiveness, usage, and acceptance of ISs (Bailey and Pearsons, 1983; DeLone and McLean, 1992; Doll and Torkzadeh, 1988; Igbaria and Tan, 1997; Ives, Olson and Baroudi, 1983; Seddon, 1997; Thong and Yap, 1996). Importantly, it has been found that a lower satisfaction level with the IS will hinder system usage (Evans cited in Thong and Yap, 1996). Accordingly, Seddon and Kiew (1994) consider user satisfaction the most general and important measure of IS success.

Indeed, during the COVID-19 pandemic when OL was the only available solution, student and teacher satisfaction was crucial for a successful and effective learning process (Elshami et al., 2021). All this implies satisfaction is

an underlying indicator of success in various learning environments, including online (Dziuban et al., 2015). It can impact students' engagement, motivation, learning, performance, success, and ultimately retention and graduation rates (Arbaugh, 2000; Astin, 1993; Sahin and Shelley, 2008; Wickersham and McGee, 2008).

Sun et al. (2008) proposed an integrated model covering a variety of factors influencing e-Learners' satisfaction (see Figure 2.4). The authors identified and gained empirical support for thirteen factors related to the satisfaction with the e-learning experience, grouped under 6 key dimensions: 1. Learners; 2. Instructor; 3. Course; 4. Technology; 5. Environment; and 6. Design.

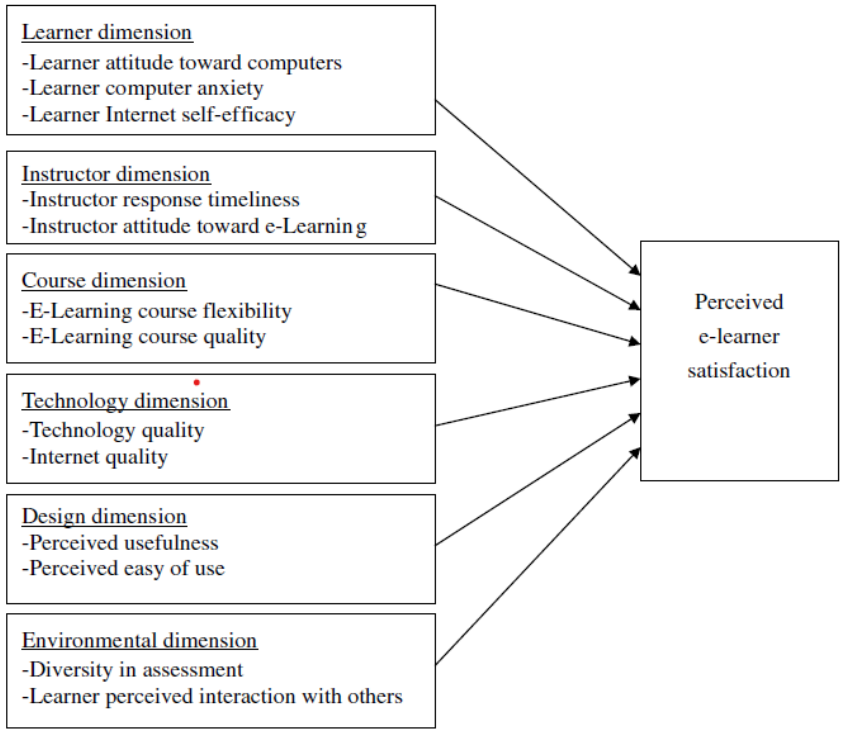

Figure 2.4: Dimensions of Perceived E-learner Satisfaction (Sun et al., 2008)

From Sun et al. 's (2008) model, the *Learners* dimension was added and renamed to the *Student* category. The Learner attitude toward ICT and OL, and Internet self-efficacy dimensions were added under the *Student* category; *Instructor attitude toward e-Learning* was reworded as *Attitude toward ICT and OL* and added under the *Teacher* category. In their model, the authors

assumed two indicators in the environmental dimension: *Diversity in assessment* and *Interaction* as determinants of satisfaction. These two indicators were also added to my initial framework and grouped together under the *Pedagogy* dimension.

More recently, Martin and Bolliger (2022) examined 98 articles which studied various aspects of OL satisfaction. This framework summarises what has been learned in the last decade about the important aspects of OL satisfaction, demonstrating that most of the satisfaction factors examined pertained to learner characteristics, engagement, and course delivery. Their framework (see Figure 2.5) includes four overarching themes identified in their systematic review: 1. Learner-Related Satisfaction, 2. Instructor-Related Satisfaction, 3. Course-Related Satisfaction, and 4. Programme and Organisation-related Satisfaction, in addition to 12 sub-themes, that, all together, represent important aspects of OL.

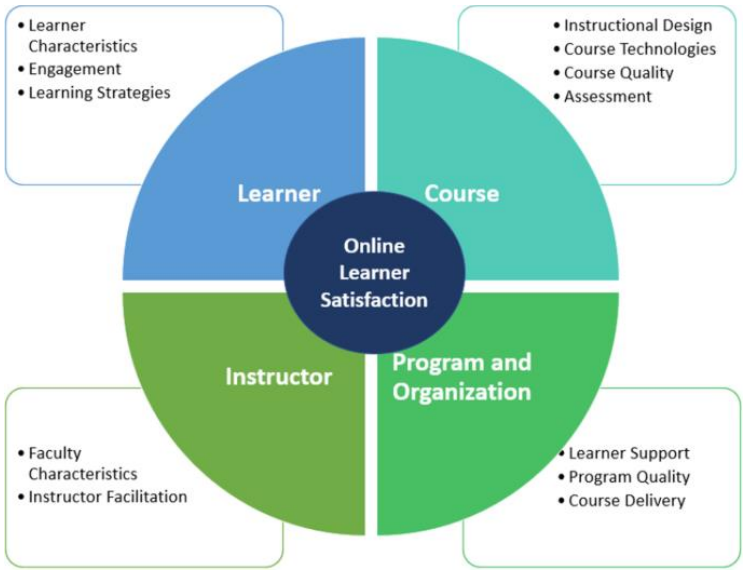

Figure 2.5: Online Learner Satisfaction Framework (Martin and Bolliger, 2022)

From the plethora of factors contributing to students' satisfaction in the model, *Instructional design* was added under the *Pedagogy* dimension of my initial framework and reworded as *Variety of instructional strategies*. Considering that OL incorporates a range of instructional strategies and techniques to cater to different learning preferences, engage students, and enhance the learning

experience (Ally, 2004), the *Variety of instructional strategies* refers to the use of diverse and multifaceted teaching methods and approaches within an online educational setting. In turn, from their *Learner characteristics* dimension I incorporated *Prior knowledge of OL and ICT skills* as sub-dimensions of the *Student* category.

Course delivery was added next to the *Course content* dimension. The course delivery characteristics pertain to the actual implementation and facilitation of the online course and issues associated with the ways in which the course is delivered to the learners (Hosie, Schibeci and Backhaus, 2005). Delivery focuses on the activities and interactions that take place during the course, such as: facilitation and engagement, communication channels used, activities that promote collaboration and interaction among students, timelines and deadlines, the provision of feedback on student work and assessments (Martin and Bolliger, 2022). Following is a breakdown of the factors under the *Course delivery* category that were identified through examining the relevant, outstanding research literature (Blass and Davis, 2003; Hosie, Schibeci and Backhaus, 2005):

1. Reliable and robust interface (the materials are accurate and error free in their operation);

2. Clear goals, directions and learning plans (unit information and expectation of student roles are clear);

3. Communication (the unit provides opportunities and encourages dialogue between students and between teachers and students);

4. Appropriate institutional style for units and web sites to ensure a benchmark quality of presentation.

Another important theory-based contribution to OL success is the *System's view of the e-learning success* model by Eom and Ashill (2018). Eom and Ashill's model extends the earlier study of Eom and Ashill (2016), which provided a theoretically grounded conceptualisation of e-learning success

derived from three models - constructivism, collaboration and cognitive information processing model. The authors view e-learning as an open system of human entities (students and instructors) and nonhuman entities (learning management systems and information systems) (see Figure 2.6).

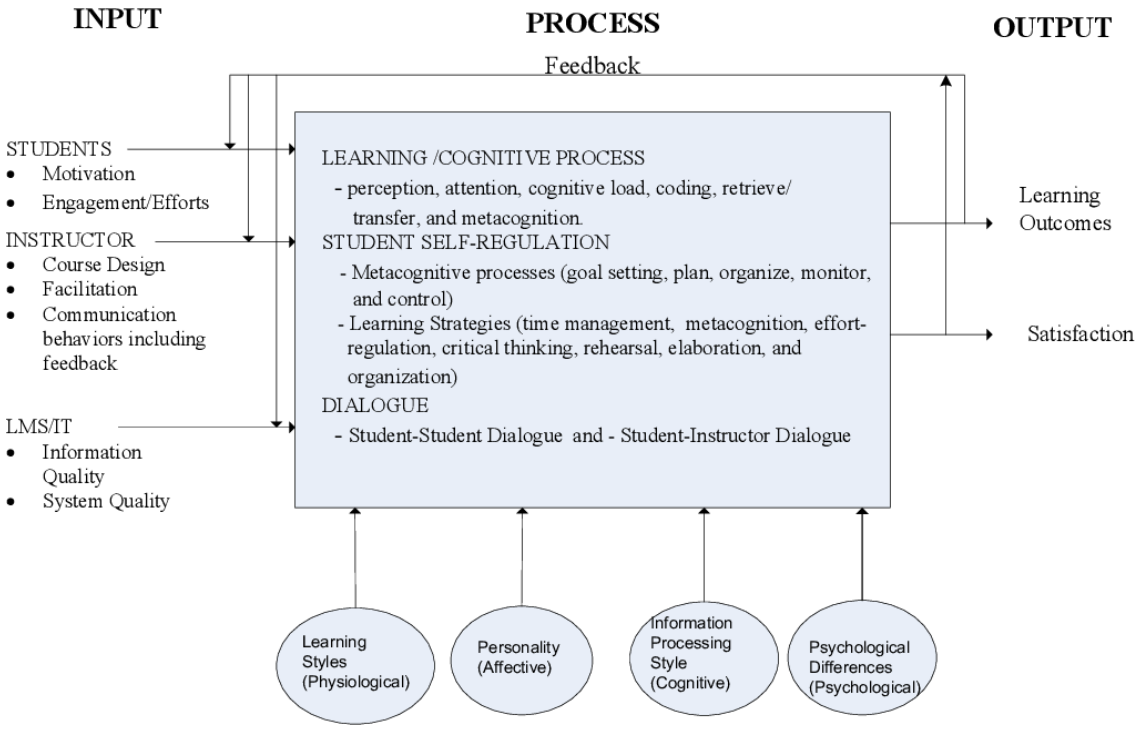

Figure 2.6: System's View of E-learning Success (Eom and Ashill, 2018)

The model can be employed to better understand relationships between a set of constructs (course design quality, instructor, and motivation) and perceived learning outcomes, by exploring the underlying process by which constructs on the left-hand side influence perceived learning outcomes through mediator variables (student-instructor dialogue, student-student dialogue, and student self-regulation).

For Eom and Ashill, an e-learning system, as a purposeful system, is synergistic. There exists a dynamic relationship between student motivation, course design quality, an instructor's facilitating roles and students' academic engagement. Considering the dynamic nature of e-learning success factors, Eom and Ashill describe an e-learning system's behaviour as a set of states that occur in a defined sequence of inputs, processes, and outputs over time

(e.g., a semester). Thus, the students' perceived learning outcomes and satisfaction are results of the systemic process of e-learning over time, where a system is considered a whole that cannot be taken apart without the loss of its essential characteristics; hence, it must be studied as a whole. Further, this model evidenced that dialogue and self-regulatory behaviours facilitate higher student learning outcomes. Accordingly, the *Dialogue: student-teacher and student-student dialogue* dimension was added to my *Pedagogy* dimension. The *Course design quality* was reworded as *Course design* and together with the following *Learner characteristics - motivation, engagement and effort, self-regulation, and learning preferences* and *Teacher characteristics - teacher's communication and feedback*, included in my initial framework.

The reviewed frameworks did not identify sub-themes for the *Course design* dimension, therefore, I reviewed additional relevant, related studies which highlighted the key considerations and decisions to be made about online course design in order to support student learning. The *Course design* dimension focuses on the logistics and technical aspects of how courses are structured and accessed within the online course platform (Hosie, Schibeci and Backhaus, 2005). It involves decisions made prior to the course delivery and encompasses the foundational elements of a course that shape the overall learning experience. Baldwin, Ching and Hsu (2018) reviewed six of the United States (U.S.) national and state-wide online course design evaluation instruments, and multimedia and instructional design research, to develop an online course design checklist. Their list contains the following criteria that were found in all the reviewed evaluation instruments:

• Objectives are available

• Expectations regarding behaviour, communication and participation are provided

• Student-to-student interaction is supported

• Communication and activities are used to build community

• Rubrics for assignments are provided

• Technology is used to promote learner engagement/facilitate learning

• Instructor contact information is stated

• Links to institutional services are provided

• Assessments align with objectives

• Navigation is intuitive

• Appealing course appearance (Baldwin and Ching, 2019, p. 162).

Based on the robustness of study and empirical support for each criterion of Baldwin et al.'s online course design checklist, the initial framework incorporates all criteria as sub-dimensions of the *Course design* category.

As evidenced from the reviewed literature, satisfaction in OL is a complex and multidimensional construct including many factors. Importantly, as Dziuban et al. (2015) suggest, students simultaneously evaluate multiple aspects of online courses to make decisions about their satisfaction. Because of the complex interaction of many constructs, the literature shows mixed results on how to improve learner satisfaction thus, it was argued that such suggestions are impractical, making OL implementation and change nearly impossible (Sun et al., 2008).

Also, it must be noted that student satisfaction as the general measure of OL success assumes that all students enter their learning journey in equilibrium, with similar experiences, contexts, expectations, affective responses, and objectives (Bowden, Tickle and Naumann, 2021). Education, however, should not be separated from 'holistic experience' or leaving the notion of the student learning in "a social, cultural and political vacuum, discontinuous with what has come before it and insulated from all that is around it"(Sabri, 2011, p. 664). Therefore, I again reiterate the need for a more holistic approach to conceptualising the OL journey that takes into account students' prior

knowledge and individual needs, the way in which OL shapes students' academic and personal outcomes and, indeed, them as people.

3. Community of Inquiry (CoI) Model

The Community of Inquiry model (Garrison 2008; 2009; Garrison, Anderson and Archer, 1999) emphasises the importance of a collaborative and reflective learning community, where learners engage in critical discourse and inquiry-based learning. This model proposes that effective OL requires the presence of three overlapping and interdependent elements - social, cognitive, and teaching presence (see Figure 2.7).

Figure 2.7: CoI Model (Garrison, Anderson and Archer, 1999)

Social presence refers to the ability of learners to identify with the community, communicate purposefully in a trusting environment and connect with each other; cognitive presence relates to the development of critical thinking skills and ability to construct and confirm meaning through sustained reflection and discourse; and teaching presence involves the design, facilitation, and direction of the learning experience (cognitive and social) by the teacher (Garrison, 2009; Garrison, Anderson and Archer,1999). Undoubtedly, the acknowledgment of the social, cognitive, and instructional aspects is highly appealing, and one can easily argue that the three identified components could equally apply to any educational setting whether face-to-face or online.

Including the inquiry-based learning strategies from the CoI framework is important in OL as it promotes cognitive presence - the extent of learners' engagement in critical thinking, reflection, and knowledge construction (Shea, Li and Pickett, 2006). Through inquiry-based approaches, learners are actively involved in formulating questions, seeking solutions, analysing information, and generating new insights. Research suggests that inquiry-based learning in online environments enhances cognitive presence by encouraging deep learning, promoting problem-solving skills, and facilitating higher-order thinking (Garrison, Anderson and Archer, 1999; Hung, 2013; Swan, 2002). In turn, inquiry-based learning activities such as collaborative problem-solving, discussions, and group projects, enhance social presence (i.e., the sense of connectedness and interaction among learners and instructors). Several studies have indicated that inquiry-based learning within the CoI framework strengthens social presence, leading to improved learner satisfaction, motivation, and a sense of belonging in OL communities (Garrison and Arbaugh, 2007; Richardson, 2001; Rourke, Anderson, Garrison and Archer, 1999). Further, in OL, where learners have greater control over their learning pace and access to resources, inquiry-based approaches foster self-regulated learning (Magnussen, Ishida and Itano, 2000).

Additionally, inquiry-based learning empowers teachers to guide and scaffold the learning process, fostering deeper understanding and knowledge construction, and empowers learners to take ownership of their learning, promoting autonomy and self-directedness, and enhancing learners' self-efficacy and ability to transfer knowledge (Avsec and Kocijancic, 2014; Blumberg, 2000; Minner, Levy and Century, 2010). That being said, *Inquiry-based learning* was included to the *Pedagogy* dimension, highlighting its significance within a new holistic conceptual understanding of OL for youth.

The CoI model inspired great amounts of research on OL in the past ten years serving as a valuable analytical resource; the significance of this contribution cannot be overstated (Xin, 2012). However, a number of critiques of CoI emerged in recent years, including a self-critique by its principal author Garrison (Garrison and Arbaugh, 2007; Jézégou, 2010; Morgan, 2011; Rourke

and Kanuka, 2009). In these critiques, the authors inspect and extend the model, calling the research community to continue examining the framework to reflect on its strengths and weaknesses, and imagine new ways of advancing OL theories. They recognised a need to identify and consider the interconnectedness of various other factors in addition to CoI elements (e.g., technological capabilities, support services, and accessibility), highlighting that OL is more subtle and complex than the coherent pattern presented in CoI.

4. Technology Acceptance Model and its Expansions

The technology acceptance model (TAM) by Davis, Bagozzi, and Warshaw (1989) has been the most widely used theory to measure the success of new technology in terms of the acceptance and use of technology (Surendran, 2012). Based on this model, external factors, social factors, cultural factors, and political factors, are the determinants of *perceived usefulness* and *perceived ease of use* (Surendran, 2012). In turn, perceived usefulness and perceived ease of use are the major determinants of attitude towards using the technology and intention to use. Successively, behavioural intention to use is the main determinant of actual system usage.

The model has been widely extended using different variables and has also been successfully used to explain usefulness and usage in different contexts, including the context of OL. An important extension to the original was introduced by Venkatesh and Davis (2000) - TAM2. Empirical research showed that TAM2 better-explained user acceptance. Three years later, Venkatesh, Thong and Xu (2012) constructed the *Unified Theory of Acceptance* and *Use of Technology* (UTAUT). UTAUT has further significantly enhanced the explanation power of the variance in usage intention and has been extensively used by researchers. Extensions to TAM have been evolving over time, and in 2008 a new model was released TAM3 (Venkatesh and Bala, 2008); UTAUT2 (Venkatesh et al., 2012).

In its different versions, TAM has received considerable attention from researchers in different fields. At the same time, however, the model has been

widely criticised. Chuttur (2009) noted that “researchers share mixed opinions regarding its theoretical assumptions and practical effectiveness” (p.9), whereas Legris, Ingham and Collerette (2003) concluded that “TAM is a useful model but has to be integrated into a broader one which would include variables related to both human and social change processes” (p.191). Also, researchers criticised limited explanatory and predictive power of this model, the poor fit, and lack of practical value (Legris et al., 2003). Some researchers even claimed that the several attempts to expand this model led to theoretical chaos and confusion (Benbasat and Barki, 2007).

Nevertheless, *acceptance* is considered a necessary element for measuring the success of e-learning (Davis et al., 1989; Roca and Gagné, 2008), resting on evidence that the perceived usefulness of OL could positively influence three constructs: perceived satisfaction, use, and students’ benefits. The findings from the literature empirically support these relations (Al-Sabawy, 2013; Arbaugh, 2000; Limayem and Cheung, 2008; Seddon, 1997). Notably, researchers have suggested that *technical system quality* - related to system *reliability* and the *ease of use* of system features (Butt et al., 2021) - is a valid measure at any stage of implementing OL (Bossman and Agyei, 2022; Stefanovic et al., 2011). Therefore, *Reliability* and *Ease of use* were incorporated into my provisional framework as sub-dimensions under the *Technology* dimension.

Given the diversity and complexity of e-learning ecologies, the spontaneity, ambiguity, and generality of some of the constructs in this approach coupled with its linear framing, make adopting TAM impractical and challenging to define OL more holistically and identify more precise characteristics of OL. Also, whilst TAM allows the acceptance and adoption of new technologies and e-learning systems to be assessed, acceptance does not guarantee success. For example, the aspects related to planning prior to implementing OL also need to be considered to draw the holistic picture of an OL experience.

5. Technological Pedagogical Content Knowledge (TPACK)

The TPACK framework by Mishra and Koehler (2006) emphasises the importance of integrating technology, pedagogy, and content knowledge in teaching and learning to guide the development of OL environments that are both pedagogically sound and technologically effective. Since its publication, TPACK has become one of the leading theories regarding educational technology (EdTech) and EdTech integration; research and professional development activities both draw from it heavily (Kurt, 2016) as evidenced by the fact that the TPACK model is used in over 471 journal articles on the Web of Science (Soler-Costa et al., 2021). The model proposes that effective teaching with technology requires the integration of three types of knowledge – technological knowledge referring to an understanding of how to use technology; pedagogical knowledge, relating to effective teaching strategies; and content knowledge involving expertise in the subject matter being taught.

The TPACK model is often presented as a Venn diagram, with the three types of knowledge overlapping in the middle (see Fig. 2.8). The framework has been applied in various educational contexts - from K-12 classrooms to HE (Mishra and Koehler, 2006). Self-assessment through questionnaires was the most commonly utilised method for examining TPACK (Lee, Chung and Wei, 2022).

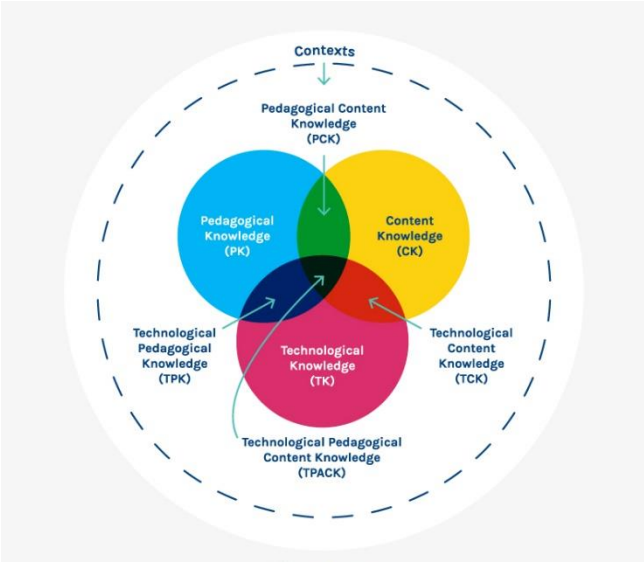

Figure 2.8: TPACK Model (Mishra, and Koehler, 2006)

The framework focuses on designing and evaluating teacher knowledge that is concentrated on effective student learning (AACTE, 2008) and emphasises the need to continuously build teachers' understanding of and capacity in integrating technology. Further, it highlights the importance of teachers being able to modify and adjust their teaching practices to fit the dynamic nature of OL. Accordingly, TPACK informs the *Teacher* dimension of the provisional framework as a sub-category.

TPACK has seen various modifications over the last 15 years (see Angeli and Valanides, 2005; Porras-Hernández and Salinas-Amescua, 2013; Tunjera and Chigona, 2020; Yeh et al., 2014). However, TPACK has received criticism for not being practically useful. Critics argue that the definitions of the different knowledge domains are inaccurate and insufficient (Willermark, 2018), and highlight the lack of references to the impact of contextual factors and discipline on online teaching practices (Schmid, Brianza and Petko, 2020). Whilst content, pedagogy, and technology are essential intertwining areas needed to achieve TEL, this framework focuses solely on the effective online teaching practices that promote conditions in which OL occurs, i.e., the skills required by teachers to create and facilitate an effective online course. Absent, however, is the appreciation of the multiple other factors and stakeholders influencing OL.

6. Communities of Practice (CoP)

The Communities of Practice concept, referring to groups of people who share common interests and who interact regularly to learn from one another, was introduced by Wenger and colleagues in the 1990s. To develop the concept, Wenger (1996) used *Ecological Systems Theory* (Bronfenbrenner, 1979) emphasising the importance of social and cultural factors in shaping learning and knowledge creation in communities of learners. Wenger argued that learning is not just an individual activity, but also a social one, that individuals can learn by observing and modelling other people, and that CoPs are essential for knowledge creation, sharing, and dissemination (Wenger, 1996; Wenger, McDermott and Snyder, 2002). Furthermore, the CoP framework emphasises

the importance of social learning and identity formation in the development of expertise (Wenger, 1999).

Over time, the theory has evolved to become a management tool for improving an organisation's competitiveness (Li et al., 2009); nevertheless, CoP is an important concept in learning and can be leveraged in OL to foster social interactions, collaborative learning and knowledge creation. Notably, the CoP framework highlights the importance of understanding the complex interplay between self-formation and social, cultural, technological, and pedagogical factors in OL (Johnson, 2001). In other words, Wenger's CoP theory aligns with the idea of holistic education. It recognises that learning extends beyond the acquisition of knowledge and skills and includes the development of a student's identity, values, and social integration. By engaging in CoPs, learners not only gain expertise in a particular domain but also cultivate a sense of belonging and identity within that community. This holistic approach to education aligns with the concept of 'educating the whole child', which focuses on fostering intellectual, social, emotional, and moral growth in students.

Upon considering CoP theory, theories on how people learn (National Academies of Sciences, Engineering and Medicine, 2018), and studies about OL reviewed in Chapter Two, the conclusion was reached that the child needs to have a central position in the OL framework. Through allocating the child a central position, an image of the child as a competent and confident learner is created, as espoused by Dewey (1916) and the pedagogy promoted by the *Bioecological Theory* of child development (Bronfenbrenner, 1979; 1986; Bronfenbrenner and Morris, 1998; Hayes, O'Toole and Halpenny, 2017). This view is also promoted by scholars in the learning sciences who, focusing on K–12 schools, summarised what is known about human development and learning and what is known from multiple domains of educational research (Darling-Hammond et al., 2020). Thus, as emphasised in Wenger's theory (Wenger, 1999), social learning and identity formation inform the *Educating the whole child* dimension of the initial/provisional framework.

Creating and sustaining online CoP can be challenging, however, as the lack of face-to-face interaction and social cues can make it harder to build trust and develop relationships among members. In the case of an OL community, issues regarding privacy, user-friendliness of online technologies, and the ability to access a computer can become barriers to an individual's ability to participate (Johnson, 2001). Further, simply 'labelling' a group of students as a learning community does not guarantee that it will function as one, as a number of situations can hinder relationship building and the growth of communities. It's essential, therefore, to have a clear purpose, shared goals, and a structured approach to engagement to foster meaningful interactions and sustain the community over time, ensuring that members are engaged and motivated to participate (Johnson and Johnson, 2002).

7. Online Learning Quality Models

Since quality is a general term and a multi-dimensional space, different approaches and models have emerged, and different aspects of and approaches to quality have been considered in OL quality models (e.g., excellence models, e-learning quality surveys, ISO 9000, benchmarking). Despite the generality of some of these approaches and many interpretations for the term 'quality', and despite the lack of theoretical underpinning in most of the OL quality models category, some of these approaches indeed identify precise and suitable characteristics of OL and its successful practice.

An important model proposed by MacDonald et al. (2001) - the *Demand-Driven Learning Model* (DDLM) - was developed in response to the need to meet users' needs in web-based learning (WBL) (see Figure 2.9 on the following page).

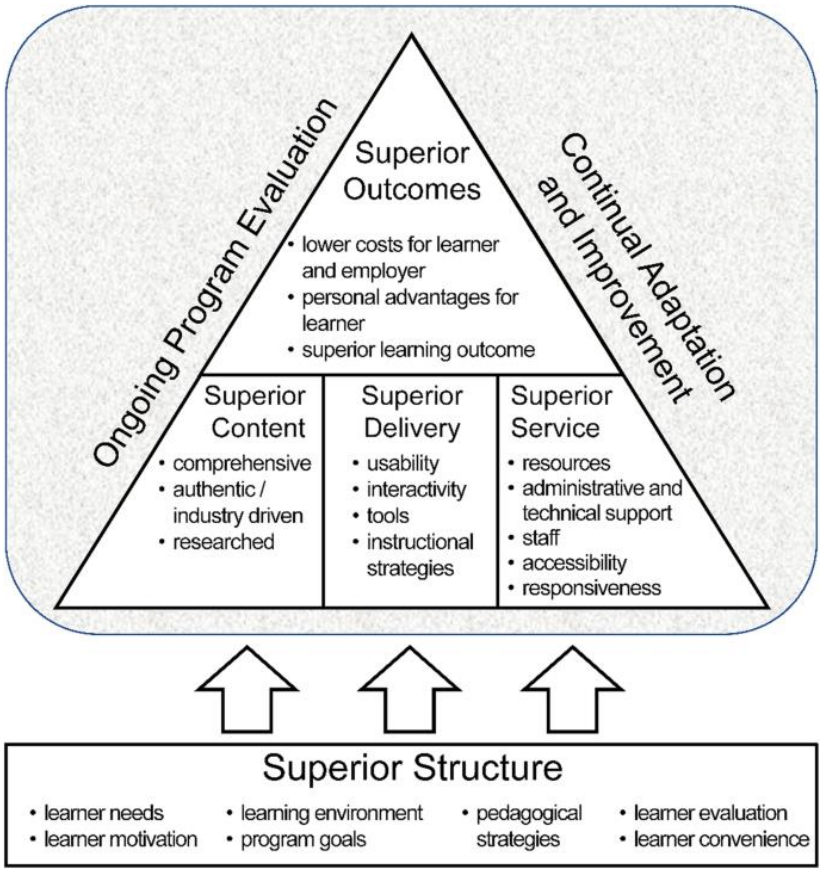

Figure 2.9: The Demand Driven Learning Model (MacDonald et al., 2001)

The model incorporates five dimensions:

1. *Consumer demands*, i.e., superior content, delivery, and service;

2. *Superior structure* as the quality standard, i.e., the required foundation that makes it possible to provide this level of content, delivery and service, which requires understanding the learner's needs, considering the learner's motivation; learning facilitators to establish a healthy collaborative learning environment; pedagogical strategies; conducting regular assessment strategies and evaluation of learners; and ensuring the OL environment is convenient for learners;

3. *Learner outcomes;*

4. *Ongoing programme evaluation;* and

5. *Continual adaptation and improvement.*

The model was empirically validated and tested and the researchers stated that these constructs are the recipe where WBL programmes can succeed (MacDonald and Thompson, 2005).

Amongst five dimensions that the model incorporated, the fourth and fifth layer: *Ongoing programme evaluation* and *Continual adaptation and improvement*, were added to the provisional framework. The importance of programme/course evaluation and its continual adaptation and improvement was highlighted by the substantial number of papers, with the following strategies and processes being proposed for assessing and enhancing the effectiveness of online courses and programmes (Aschbacher, 1999; Bain, 1999; Biggs and Collis, 2014; Biggs and Tang, 2011; Edström, 2008; Joint Committee on Standards for Educational Evaluation, 1981; Juwah, 2003; Lebrun, 2007; Morris, 2008; Nevo, 2013; Stiggins and Conklin, 1992; UN, Online Learning Framework and Toolkit, n.d):

1. Identifying areas for improvement and implementing new pedagogical approaches and instructional methods;

2. Aligning course outcomes and performance with established benchmarks;

3. Evaluating the alignment between course content, activities, and assessments with intended learning objectives;

4. Effectiveness and appropriateness of the technology used;

5. Accessibility of course materials to all learners;

6. Keeping course content and resources up-to-date and relevant; and

7. Adapting the course/programme in response to changing student needs, emerging trends, or external factors.

Another model, Ehlers's (2004) Multi-dimensional Model of Quality Requirements, was similarly constructed to illuminate the quality of e-learning,

but based on learners' perspectives (see Figure 2.10). Notably, Ehlers stressed the necessity to understand learners' needs before starting any OL project.

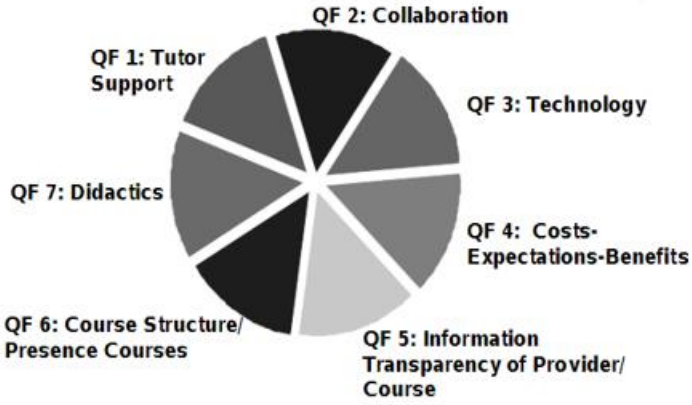

Figure 2.10 Model of Subjective Quality Requirements (Ehlers, 2004)

The model represents 7 Quality Fields – 1. Tutor Support; 2. Collaboration; Cooperation and Communication; 3. Technology; 4. Costs - Expectations - Value; 5. Information/Course; 6. Course structure; and 7. Didactics, with learners' preferences in 30 sub-dimensions, and an analysis and description of four preference profiles. According to this model, the quality of e-learning process is not something that is delivered to a learner by an e-learning provider, but rather constitutes a process of co-production between the learner and the learning environment. That means that the product/outcome of an educational process is not exclusively a result of the production process of an educational institution. In other words, Ehlers acknowledged that quality has to do with empowering and enabling the learner, and concluded that future quality development in OL has to be oriented to the learners' needs and situations.

From the Ehlers's (2004) model based on learners' perspectives, the notion of a learning process as a co-production between the learner and the learning environment was incorporated in the initial framework. Accordingly, the *Student* dimension of the initial framework outlines that learners need to be *engaged, show effort* and work on improving *self-efficacy.*

Another important work in this group is a model by Boud and Prosser (2002), who assumed that OL quality is represented by four aspects:

- Learners' engagement;
- Context acknowledgement;
- Challenge for learners; and
- Involvement of practice (see Figure 2.11).

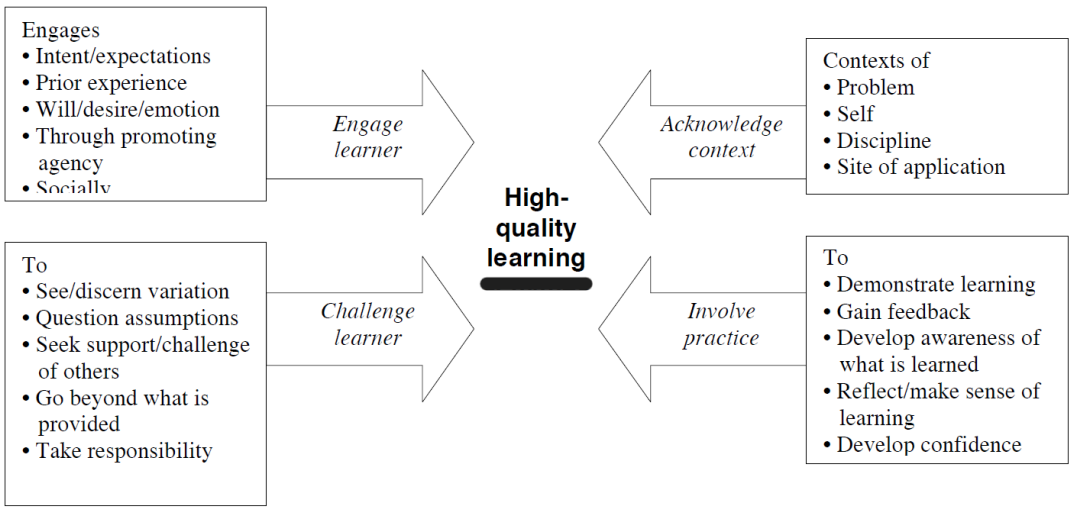

Figure 2.11: Influences on High Quality Learning (Boud and Prosser, 2002)

The authors note that learning is a holistic process, i.e., never solely a cognitive endeavour but one involving the emotions and the will. Boud and Prosser further explain that the principles are holistic in that they incorporate both *learning outcomes* and *learning processes.* Notably, they regard learning as relational and argue how satisfaction derives from engaging as a *whole person*. That is, learning arises through the interactions between a learner and the learning environment, and no environment can be guaranteed to generate learning independent of what the learner brings to the encounter and how the learner perceives the situation.

From Boud and Prosser's framework, I incorporated into my provisional framework the *Context acknowledgement* dimension, their explicit recognition

of both *learning outcomes* and *learning processes* as parts of an educational experience, and their notion of learning as holistic where the learner is engaged as a *whole person*.

The *Quality in e-learning conceptual framework* by Ossiannilsson and Landgren (2012), similarly expresses the importance of a holistic approach. As per Ossiannilsson and Landgren, a holistic approach in this context means that "all of the benchmarks included need to be viewed together, so that they influence one another and provide a sense of consistency" (2012, p.48). In other words, various aspects of the model should be embedded in all levels of management and services within the field of OL to meet students' expectations, demands, and rights (see Figure 2.12).

Authors have identified several main factors that contribute to the quality of e-learning experiences, including: 1. Accessibility, 2. Flexibility, 3. Interactivness, 4. Personalisation, 5. Participation, 6. Productivity, and 7. Transparency, and highlighted the importance of a holistic approach.

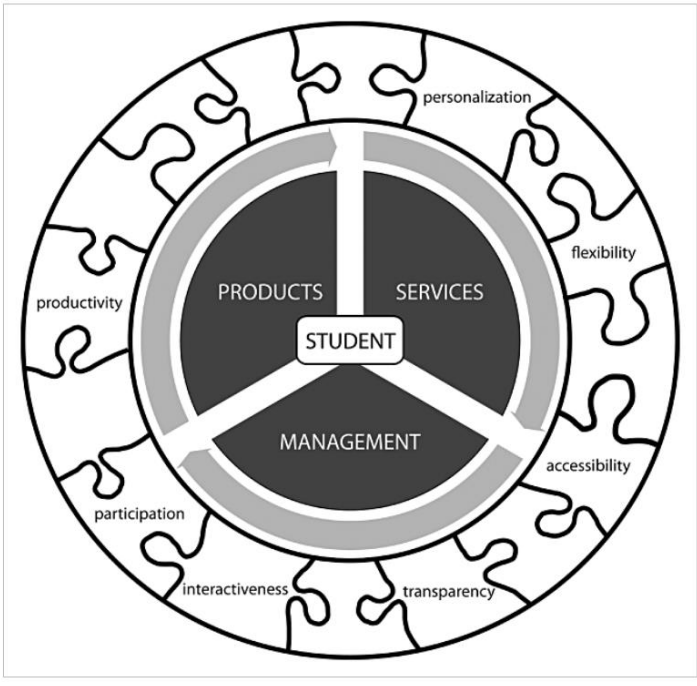

Figure 2.12: Quality in E-learning – A Conceptual Framework (Ossiannilsson and Landgren, 2012)

The model outlines three categories relating to quality in OL – management, products, and service covering the institutional, pedagogical, technical, ethical, and managerial aspects of e-learning. Specifically, the managerial category includes strategic planning and development at both an institutional and programme level. The product category includes the curriculum design, course design, and delivery; and the services domain includes support for teachers and staff and student support (see Figure 2.13).

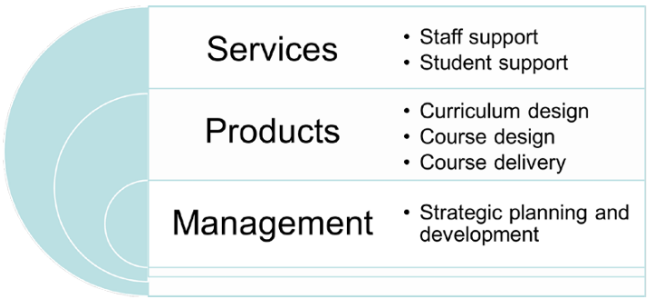

Figure 2.13: Three Main Domains Related to Quality in OL (Ossiannilsson and Landgren, 2012)

The framework proposed by Ossiannilsson and Landgren is unique because it introduces an *Accessibility* dimension which was identified as being of special importance for success in OL, highlighting the necessity to create a more equitable and inclusive learning environment, enabling all students to thrive and reach their full potential.

From Ossiannilsson and Landgren's framework, the *Accessibility* element was included in the provisional framework as one of the key dimensions and renamed *Accessibility and Inclusiveness* to more precisely reflect the ethical considerations of OL relating to learner diversity. Ossiannilsson and Landgren's dimension *Personalisation* - as in considering the learner's prior knowledge, interests, and learning approach to provide tailored instruction, was added to the *Pedagogy* dimension.

Interestingly, *Accessibility* only appeared as one of the key determinant constructs in Ossiannilsson and Landgren's model and included in Al-Fraihat,

Joy and Sinclair's framework (2017) presented next, as part of their ethical considerations of e-learning. None of the two frameworks, however, outlines the sub-dimensions for this category, so I reviewed additional relevant literature to identify factors for this category. The reviewed studies (Al-Fraihat, Joy and Sinclair, 2017; Baker, 1995; DES, 2007; EADSNE, 2003; Gross, 2002; Khan, 2005b; Norwich and Lewis, 2001; Rose and Howley, 2007) emphasised the importance of promoting accessibility and inclusiveness in OL by:

1. Implementing Universal Design for Learning (UDL) principles (the use of instructional strategies and modifications to assessment in order to design learning experiences that provide multiple means of representation, engagement, and expression, ensuring that content and activities are accessible and beneficial to a wide range of learners);

2. Technology accessibility (VLEs, websites, and course materials need to be accessible to individuals with disabilities; this may involve providing alternative formats for content (e.g., transcripts, captions, screen reader compatibility), adjustable display settings, and navigation features that are intuitive and easy to use);

3. Use of modified curricula, underpinned by inclusive practice for students with special educational needs;

4. Presenting information and content in various formats (such as text, audio, video, allowing students to engage with the material in ways that suit their needs);

5. Providing clear and concise instructions, guidelines, and expectations to students by using plain language, avoiding jargon, and offering additional support materials to ensure that all learners can understand and participate effectively;

6. Promoting respectful and inclusive communication, collaboration and interaction among students (creating opportunities for meaningful engagement

and discussion, encouraging considering diverse perspectives, and fostering a supportive learning community);

7. Designing assessments that consider diverse ways of demonstrating knowledge and understanding;

8. Offering access to support such as disability services, technical support, and academic advising; and

9. Regularly evaluating, adapting, and improving the effectiveness of OL practices in promoting accessibility and inclusiveness.

The previously mentioned Al-Fraihat, Joy and Sinclair's framework (2017) identified ten success factors for e-Learning in HE: 1) Planning; 2) Readiness; 3) Management; 4) Support; 5) Pedagogy; 6) Technology; 7) Faculty; 8) Institution; 9) Evaluation; and 10) Ethics (see Figure 2.14).

Figure 2.14: Dimensions of E-learning (Al-Fraihat, Joy and Sinclair, 2017)

Each of the 10 dimensions group together 110 influential factors that can support and enhance the quality of e-learning courses in the context of HE. The framework, thus, presents a valuable contribution to the complex phenomenon

of OL, offering a clear conceptual structure that other researchers, instructional designers, policy advisors and practitioners may find useful.

Of all the studied models so far, only this framework focuses one's attention to the different layers of *Technology* factor affecting the implementation of e-learning, namely: 1. Infrastructure (Hardware and Software); 2. Consistency and Effectiveness of IT; 3. Reliability; 4. Accessibility; 5. Interface Design; 6. Upgrades and Maintenance; 7. Ease of Use; 8. IT Support and Training (for teachers and students); 9. Appropriateness of Technology to the Pedagogical Content. Although most educators have this perspective, this model places technology (and its aspects) as an integral part of the OL environment and an influential factor in delivering courses to learners.

Based on the robustness of Al-Fraihat, Joy and Sinclair's study and empirical support for each dimension of the model, the initial framework incorporates their entire *Technology* dimension as follows. The factors: *1. Infrastructure; 2. Consistency and Effectiveness of IT; 3. Reliability; 4. Accessibility; 5. Upgrades and Maintenance; 6. Ease of Use; and 7. Appropriateness of Technology to the Pedagogical Content,* were added under the *Technology* factor of the initial framework. The remaining two technology sub-factors were incorporated as follows:

• *IT support and training for teachers and students* to the *Support* dimension of my initial framework; and

• *Learner-centred, responsive interface design* to the *Course Design* dimension of the initial framework.

Additionally, Al-Fraihat, Joy and Sinclair studied various contextual factors under the *Ethics* dimension as necessary for the success of e-learning, such as *Social and Political Influence*, and *Cultural and Geographical Diversity*. These critical factors concentrate on the importance of addressing and prioritising the needs and rights of all learners; nevertheless, they also promote the consideration of a learning context.

Context was identified as an essential factor by many other researchers too (Anderson, 2011; Aparicio, Bacao, and Oliveira, 2016; Bates and Sangra, 2011; Boud and Prosser, 2002). Freeman (2010) and Aparicio, Bacao, and Oliveira (2016) argue that context analysis entails the identification of institutions, groups or individuals that can, directly and indirectly, affect an organisation or a process. Under the *Context acknowledgement* category, I identified the following sub-themes:

1. Social and political influence; 2. Socioeconomic conditions; and 3. Geographical location (from Al-Fraihat, Joy and Sinclair's model); and 4. Suppliers (Technology Providers, Educational Institutions, Content Providers, Other Teachers, Accreditation Bodies); 5. Special Interest Groups (e.g., Students' Commissions, Teachers' Associations); 6. School Committee (Board) and Education Ministry (from Aparicio, Bacao, and Oliveira's (2016) model).

Finally, from the Al-Fraihat, Joy and Sinclair's model *Teacher support* was incorporated to the *Support* dimension and their *Planning* factor was added as the *Planning* dimension of the provisional framework. Planning is considered as one of the most important key success factors behind any project (Bothel, 2001; Gellman-Danley and Fetzner, 1998). The authors and additional reviewed literature (Anderson, 2008; Anderson and Middleton, 2002; Arabasz and Baker, 2003; Bates, 2010; Bates and Sangra, 2011; Bothel, 2001; Broadbent, 2002; Ghirardini, 2011; Levy, 2003; McNaught, 2002), outline the following key factors of the planning phase of OL:

1. Examination of the existing context of OL in the institution; 2. Vision, clarity of purpose and measurable goals; 3. Innovation in teaching; 4. Setting priorities; 5. Teacher training and support; 6. Mandates for supporting OL; and 7. Teaching and learning considerations.

As it can be seen, a considerable amount of research has focused on the quality of OL; however, due to the complexity of OL ecology, the diversity of OL stakeholders, and the generality of the 'quality' concept, there is uncertainty and ambiguity among what actually constitutes a quality OL approach (Oliver,

2005). Additionally, it becomes challenging to identify precise measurements suitable to understand, deliver, and evaluate OL based on quality approaches as the criteria vary from one organisation to another.

8. Anderson's Online Learning Model

Terry Anderson (2011) constructed a model with three elements in mind:

1.The Bransford, Brown, and Cocking work (1999) which identified effective learning environments as framed within the convergence of four overlapping lenses: community-centredness, knowledge-centeredness, learner-centredness and assessment-centredness;

2.The affordances and facilities of the Internet; and

3.Interaction (see Figure 2.15).

The model illustrates the two major actors - learners and teachers - and their interactions with each other and with the content.

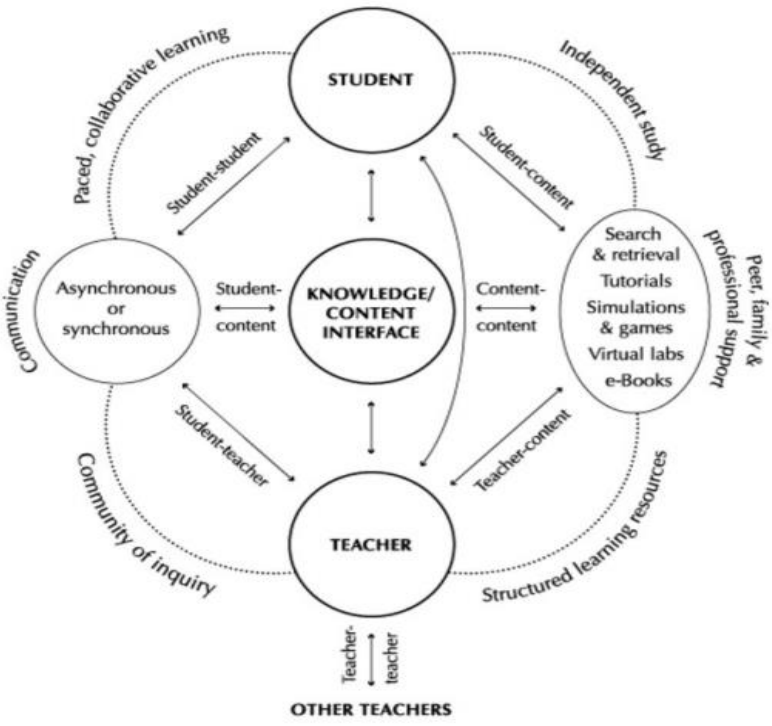

Figure 2.15: Anderson's Online Learning Model (2011)

Anderson extensively examined the importance of interaction in all forms of learning and referred to a number of mostly distance education theorists (e.g., Garrison and Shale; 1990; Holmberg 1989; Moore, 1989; Moore and Kearsley, 1996). Learners can interact directly with content that they find in multiple formats on the Web. This interaction can take place within a community of inquiry, using a variety of net-based synchronous and asynchronous activities. Anderson argues that these particularly rich environments allow for the learning of social skills, the collaborative learning of content, and the development of personal relationships among participants. He concluded that interactions are a critical component of his theory; however, as the model illustrates, learning design also takes into account independent learning.

From Anderson's framework, I have incorporated *Independent study* and *Collaboration* dimensions to the provisional framework under the *Pedagogy* dimension, and *Peer, Family and Professional support* were added to the *Support* element, with Professional support reworded into *Academic and Administrative support.*

The use of *Synchronous and asynchronous activities* from Anderson's framework was added under the *Course delivery* dimension, and *Game-based learning* to the *Pedagogy* dimension of the initial framework as a specific teaching strategy within the OL environment. The use of both synchronous and asynchronous activities is important in OL due to the unique characteristics and benefits they offer (Hrastinski, 2008). Video games, in turn, can provide meaningful learning experiences by immersing students in "transformational play" (Barab, Gresalfi and Ingram-Goble, 2010) and engage them in problem-solving activities that go beyond traditional instruction (Squire, 2006). Several studies have highlighted the significance and benefits of play and game-based learning in online courses for primary students (Barab et al., 2010; Dicheva et al., 2015; Gee, 2003). Accordingly, *Game-based learning* was added to the provisional framework as an educators' pedagogical tool to deliver course content, assess learning, and promote active student participation.

9. Picciano's (2017) Multimodal Model for Online Education

In the *Multimodal Model for Online Education* by Picciano (2017) (see Figure 2.16), a course is conceived of as a learning community - the concept promoted by Garrison, Anderson and Archer (1999) and Wenger and Lave (1991).

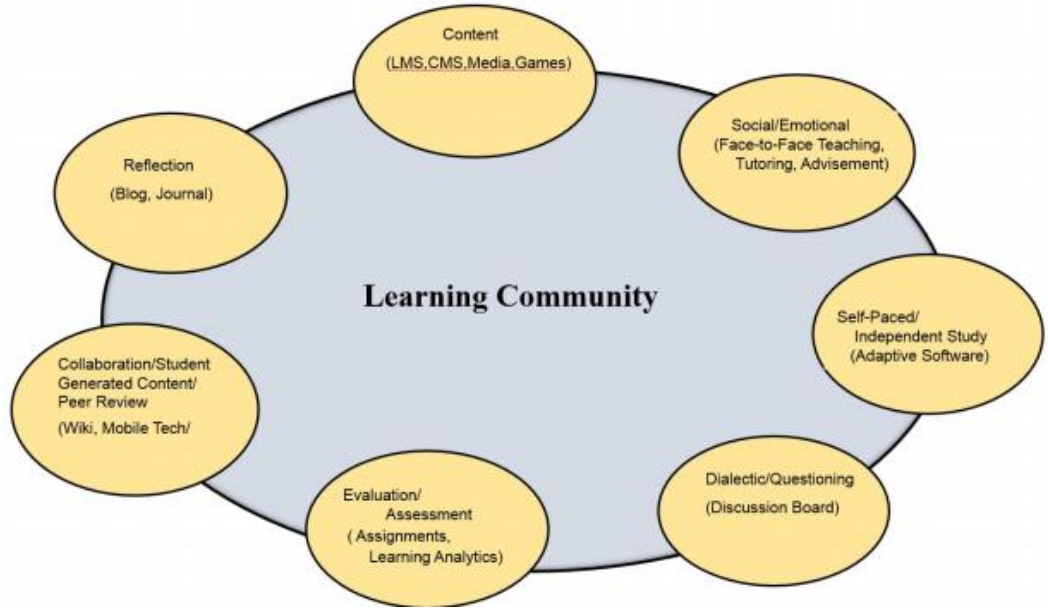

Figure 2.16: Multimodal Model for Online Education (Picciano, 2017)

As in Anderson's model, interaction is understood as a basic characteristic of the community and permeates the model to the extent needed. From Picciano's perspective, the teacher should construct the learning activity interaction following a conversation with the student and the identification of a learning goal for the topic in question. Further, a teacher should consider how well the tools provide for both structuring conversations and actions, and how well they allow for integrating dialogue into activities.

Dialectics/questioning is outlined as an important activity that allows teachers to probe what students know and to help refine their knowledge, with the Socratic Method being one of the major techniques used in instruction to help students think critically about a topic. Both *self-paced/independent learning* (that can be integrated as needed or be the primary mode of instructional delivery), and

evaluation of learning and assessment are recognised as important dimensions in the formation of an integrated learning community.

In addition, *reflection* is incorporated as a pedagogical strategy in a belief that pedagogical activities that require students to reflect on what they learn and share their reflections, extend and enrich learning. Notably, *content* is considered as another primary driver of instruction, where multiple technologies and media may be utilised in providing and presenting content.

Finally, the model posits that instruction is not simply about learning content or skill, but supports students socially and emotionally. Picciano argued that *social and emotional development* must be acknowledged as essential to education at all levels.

Upon considering Picciano's model, *reflection* was included under the *Pedagogy* dimension to highlight the significance of students' reflective practice within a new holistic conceptual framework of OL for youth.

Further, only Picciano's and Boud and Prosser's (2002) model analysed earlier, recognise the pivotal role of the socio-emotional dimension of learning in optimising the effectiveness of OL. Thus, this essential component was added as the 10th key dimensions in my provisional framework and reworded as the *Socio-Affective dimension of learning*. Since neither model identified sub-themes for this category, I reviewed additional sources as the outstanding literature which helped me identify key considerations for addressing the social and emotional aspects impacting overall learning experience in digital environments. These are: Positive relationships; Effective communication strategies; Emotional support; Cultural sensitivity; Praise; Wellness and mental health; Conflict resolution; and Reflective practice (Bingham, 2015; Bond and Bedenlier, 2019; Borup, Graham and Velasquez, 2013; Chen and Jang, 2010; Cullen and Harris, 2018; Harvey et al., 2014; Jones, 2010; Kim, 2012; Rehn, Maor and McConney, 2018; Robb and Sutton, 2014; Stangor and Walinga, 2014; West and Williams, 2017; Whitebread, 2013).

However, absent from Picciano's model are considerations of the technology that teachers use in instruction and students to learn. Evidently, there is a need for a comprehensive OL success framework to include non-human entities, such as technology and LMS (expand acronym), since its ease of use, functionality, and performance were proven to be amongst the most pivotal factors in delivering an effective OL experience, as discussed previously in the reviewed literature.

2.4.4 Summary of Models/Frameworks and How They Relate to My Study: Identifying the Gap

While each of the models addresses some specific aspects in OL, independently, these models do not provide an integrated framework that takes into account the whole student whilst identifying the critical factors for their success and satisfaction. There is little consensus on what a standard set of factors, concepts, and/or variables might be for holistic OL. Upon studying the presented frameworks/models and theories, it can be suggested, however, that the goal of the multidimensional OL framework must be a *holistic* conceptualisation of OL that includes phenomena and concerns that are internal to OL practice and external conditions influencing or being influenced by OL.

What is a whole-child or holistic approach? A holistic approach in this context means that all of the dimensions included in a framework need to be viewed together and that a complex interplay of pedagogical, technological, social, and support-related factors, amongst other factors, need to be considered to an equal extent. Secondly, taking a holistic perspective involves considering the needs and experiences of the learners themselves. It also goes beyond their academic performance alone, and involves considering various dimensions of a student's learning, including social, emotional, and physical aspects and self-knowledge (Dewey, 1916; Gardner, 2004; 2006; Miller, 1991; 2005; 2007; Montessori, 2019; Steiner, 1995). A holistic perspective takes into account the student's personal strengths, interests, socio-emotional and agency development. It recognises that learning takes place within a broader context,

including the student's family, community, and cultural background. Accordingly, it considers the impact of these contextual factors on the student's learning and development and ensures culturally responsive and inclusive OL experiences.

Further, a holistic framework has to consider how sustainable OL may be achieved, i.e., one that is reliable, yet flexible, and adaptable; it has to address the interrelationships of individual and organisational impacts, the learning opportunities and challenges created by technology, the characteristics of the pedagogy employed by the course teacher, whilst ensuring that, despite the enumerated plethora of challenges in play, student development, their emotions, learning motivation, and learning achievements are addressed and accounted for. Finally, a widely accepted perspective in the field of education highlights the necessity of theory to guide educational interventions and ensure meaningful learning (Khalil and Elkhider, 2016; Wrenn and Wrenn, 2009) – an approach that was missing in a number of reviewed models and frameworks from HE. Arguably, the lack of learning theory in the analysed models and frameworks of OL to support the effectiveness of digital interventions, reflects a disconnection among learning theories, curriculum/course design, use of technology, and outcome evaluation (Aparicio, Bacao and Oliveira, 2016; Cook and Ellaway, 2015; McGowan, 2016).

The analysis of the models/theories revealed many insights, but equally so the gaps in understanding of OL and the lack of a holistic framework of young students' OL. The following are the aspects not well addressed in the reviewed sources:

• A multifaceted, wholistic framework: While each of the models addresses some specific aspects in OL, independently, these models do not provide an integrated framework that takes into account the whole student (child's academic, physical, cognitive, psychological, spiritual, socio-emotional, behavioural, ethical, creative and talent development) whilst identifying the critical factors for their success and satisfaction. There is little consensus on what a standard set of factors, concepts, and variables might be for holistic OL.

Many of the analysed OL models, frameworks, and theories, oversimplify the multifaceted nature of the learning process in the online context, without due consideration for the constraints imposed by the linear perspective associated with learning and OL. Consequently, a compelling necessity emerges for the development of an encompassing framework that can adequately address the intricate complexities intrinsic to the realm of OL. This holistic framework would endeavour to embrace a broader perspective, thereby affording a more nuanced comprehension of the interplay among diverse factors that significantly influence OL experiences.

• A diverse set of model factors/inputs: There is a need for a framework that accounts for the flexibility and innovation in the design of the OL experience, with a synergy between pedagogical approaches and tools used, the features of the medium, and the possibilities of the Internet.

• Lack of studies in a K-12 context: Though there is evidence of studies across disciplines in HE on the implementation of the reviewed models, there is no evidence showing if those frameworks can be used in K-12 education. This highlights a significant gap concerning the absence of a comprehensive framework within the realm of OL in K-12 education, considering that school students differ from HE students; they have different needs, preferences, abilities, and goals (Emanuel and Potter, 1992; Tüysüz et al., 2010), and different learning systems are in place in schools versus universities.

• Including learner needs and perspectives: An OL architecture based on the perceptions of various stakeholders within the learning ecology, especially the students who are the ultimate users of the learning model, is lacking in most of the analysed models.

• Underpinning theoretical perspectives: The reviewed frameworks/models lack theoretical underpinning that would ensure their alignment with theories on children’s learning and development, and OL theory.

Due to the incomplete nature of the analysed models and the lack of a framework of OL for young learners, I suggest that a new holistic OL framework

for this age group is required - one in which pedagogy is guided by learning theories and one that takes into consideration students' input, while harnessing the rich possibilities that technology and Internet connectivity afford.

I outline next the summary of learning theories and theoretical perspectives I examined as part of the literature review, believing that creating a conceptual framework of what constitutes an optimal and meaningful OL experience for K-12 students, necessitates accounting for the learning theory guiding the overall OL pedagogy (Khalil and Elkhider, 2016; Wrenn and Wrenn, 2009). The summarised theoretical perspectives are included as an additional key dimension in the initial framework and titled *Mosaic of Theories on Learning*.

2.4.5 Mosaic of Theories on Learning

Striving for the richness that multiple theories can bring to children's OL experiences, and believing that theories are not mutually exclusive (Wilson and Peterson, 2006), the principle of "theoretical mosaic" (Ring et al., 2018) underpins the *Pedagogy* component of the provisional framework. What follows are the theoretical principles extrapolated from the mosaic of theories that inform young students' OL:

• An OL course should be focused on harnessing, protecting and nurturing the intrinsic motivation to learn, providing children with the dispositions to become lifelong learners.

• Children should be recognised as competent and confident individuals with an innate learning capacity and desire to learn and master the content.

• Full account of children's learning must attend to issues that are broader than curriculum content alone.

• The holistic nature of learning should be recognised and provide strategies that align the characteristics of technology with learner needs in a nonlinear and dynamic learning process.

• Teachers consider students' backgrounds, interests and prior knowledge to create authentic and meaningful learning opportunities and build supportive, inclusive, productive and stimulating learning environments.

• High expectations are placed upon students. Educators promote learners' intellectual engagement and self-awareness. Teachers convey high expectations for students by setting challenging but achievable goals and supporting students in learning whilst being consistent in reinforcing rules and protocols.

• Teachers develop and maintain a culture of growth mindset, motivate and empower students to manage their own learning and develop agency. They support students to be reflective, questioning, and self-monitoring learners, however, supported in regulating and planning aspects of their own learning.

• The learning supporting higher-order thinking and performance skills is best developed through inquiry and investigation, application of knowledge to new situations and problems, production of ideas and solutions, and collaborative problem-solving. These tasks, in turn, require strong self-regulation and metacognitive skills, curiosity, inventiveness, and creativity, resourcefulness, perseverance, and resilience in the face of obstacles and uncertainty, and the ability to learn independently. These skills are to be nurtured in every student.

• Teachers explicitly teach relevant knowledge, concepts, attitudes and skills in multiple ways to connect new and existing knowledge. They help students understand learning tasks, expand their perspectives and recognise preconceptions, whilst preparing students to navigate their own learning.

• A concept of 'emergent' curricula is at the heart of the classroom experience – the curriculum is flexible, negotiated, and dynamic, based on student needs and/or developmental considerations and includes up-to-date information.

• Individual differences impact children's learning; therefore, the curriculum should enable teachers to account for and support such individual differences.

• Classroom climate and relationships have a tangible impact on readiness and ability to engage with new learning. The relational aspect of pedagogy remains critical.

• The teacher plays a pivotal role in learning in the classroom, in orchestrating learning as well as in creating the learning environment where students ‘belong’ and the environment that promotes students’ sense of purpose.

• The role and influence of parents and local community contexts should be recognised and utilised to support children’s learning and development. Teachers know their students well and should also be understanding of the situations their students’ families may be experiencing, including social and economic factors that are part of the various systems.

• Learning is supported by carefully planned and sequenced content; authentic tasks are encouraged and content incrementally builds new knowledge making conceptual connections with prior learning. The careful and deliberate practice supports the development of new skills and knowledge, while the prior development of deep conceptual understanding in a discipline supports subsequent critical thinking and problem-solving.

• Teaching children from an early age to use language to reason together through the use of teacher modelling and carefully designed learning activities is essential. Language-rich classrooms are prioritised; communication, discussion, inquiry, and dialogic inquiry are harnessed and supported in OL courses. Teachers should promote the Socratic Method and questioning whilst accounting for the diversity of learning preferences and learners’ needs.

• The benefits of collaborative and peer-to-peer learning are recognised and children are explicitly taught how to collaborate and work together.

• The course should recognise that disciplinary knowledge should not be disconnected from its associated skills; learners use knowledge within the context of discipline-specific activities and tasks. Furthermore, teachers and

students co-design learning that connects to real-world contexts and other curriculum areas.

• The course should consider assessment carefully and be cognisant of the importance of blending formal assessment approaches with assessment for learning. Flexibility in modes of assessment and learning outcomes, and diversity in assessment goes beyond performative evaluation towards the development of metacognitive and self-regulation skills over time.

• Rigorous feedback against individual learning goals, previous performance, and curriculum standards informs teaching and learning.

• Play-based and guided-play activities are valuable learning experiences for children and important for children's healthy development and wellbeing. Play-based learning in which the teacher is providing formative feedback, encourages reflection, extending children's responses and scaffolding, has the potential to foster self-regulation skills, social skills, confidence and independence.

• A democratic classroom is promoted – it incorporates a pedagogy of voice and a pedagogy of listening. It is important that children have a voice within the curriculum and that their inherent desire to explore and pursue answers to questions about the world around them is facilitated. Capturing and including children's voices promotes participation and engagement, which impacts positively on learning and students' holistic development.

• Creating risk-free learning environments for children, where they are afforded opportunities to explore, experiment and discover remains critical.

• Learning is not a passive exercise; however, active learning should not be conflated with 'busy' lessons. Viewed through a constructivist lens, the focus should be on the child's thinking while she/he is engaged in the activity.

• Evidence-based strategies drive teachers' professional practice improvement whilst professional development is also cognisant of local factors.

Given the postulate in education to a research-informed teaching profession (The Teaching Council, 2011; 2017), and efforts to promote a reflection on practice (Cigala, Venturelli and Bassetti, 2019), it is advised that the theoretical underpinnings of the curriculum would be considered and contextualised most meaningfully at the local level. Thus, in addition to theories or combination of theories underpinning a new or redeveloped K-12 online course, it is essential to recognise that the application of theoretical understandings at the classroom and school level can include 'locally' generated theories. Evidence exists to show that education informed by empirical studies and reviews, however, tailored and contextualised at the school level, can lead to powerful learning in K-12 OL (Kennedy, 2010).

2.4.6 Key Components of the Provisional Framework

After conducting a comprehensive examination and analysis of nine existing influential approaches for designing and evaluating OL, and various and relevant literature pertaining to the effectiveness, success, and satisfaction with the OL experience, the subsequent dimensions (see Figure 2.17 on the following page) have been identified for the tentative framework of young students' OL. These dimensions are deemed pivotal determinants that exert notable influence on the realm of OL.

Additionally, the created framework is proposed as an answer to RQ 1, outlining what factors have to be considered when designing, delivering and analysing an online course in the K–12 education context as per relevant literature, theoretical and conceptual frameworks and models of OL utilised to date.

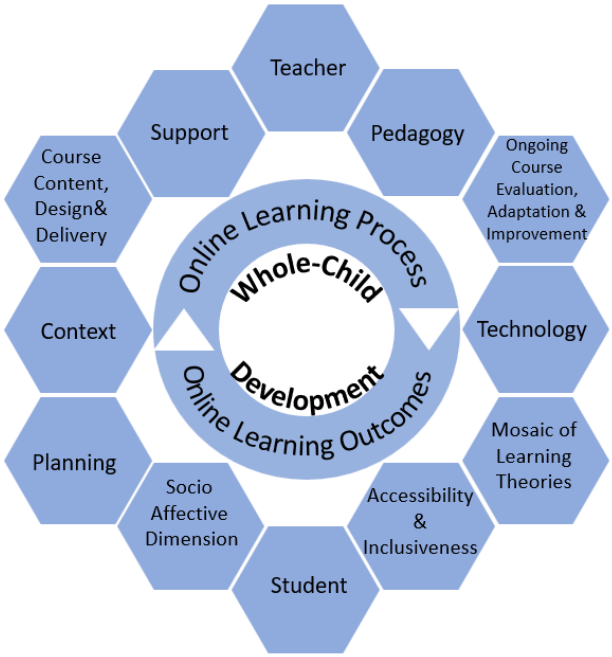

Figure 2.17: Provisional Holistic Framework of OL in Upper Primary or Lower Secondary Education

The reason for using existing models from HE to create the initial conceptual framework of online learning, rather than relying on literature that arose from the Covid-19 pandemic period, such as the frameworks proposed by Passey (2021a), is primarily due to concerns about contextual validity. While literature emerging from the pandemic period does identify important factors during a massive online use between 2020 and 2022, relying solely on this literature might raise questions about the robustness and generalisability of the findings.

The provisional framework provides a holistic picture of a range of determinants assisting the understanding of OL experiences. The framework depicts OL as a holistic, dynamic and non-hierarchical ecosystem (Nardi and O'Day, 2000; Uden, Wangsa and Damiani, 2007). Thus, OL principles are holistic in that they incorporate twelve equally relevant inputs into the learning experience. These twelve dimensions of OL are considered as interlinked and dependent on each other, rather than discrete and disconnected.

Educating the whole-child domain lies at the heart of the initial framework. It relates to cognitive, social, emotional, physical, behavioural, ethical, artistic,

creative, spiritual and talent development of a student, in addition to inspiring self-knowledge, cultivating young people's reverence for the natural environment, and a sense of social justice and compassion (ASCD, 2007; Darling-Hammond et al., 2020; Kochhar-Bryant and Heishman, 2010; Miller, 2008). It serves as the guiding force for two other key dimensions: *learning processes* and *learning outcomes*. This central dimension further underscores the holistic approach to education and shapes the way learning processes are designed and the outcomes that learners are expected to achieve.

The identified twelve major dimensions also include the sub-dimensions affecting the understanding of OL as outlined in the Table 2.2 on the following page.

1. Course content, design and delivery: Content: 1. Accessible and inclusive; 2. Relevant and challenging; 3. Well-organised, 4. Understandable; 5. Concise, On-time content 6. Available in manageable segments; 7. Useful; 8. Up-to-date and Comprehensive; 9. Displayed in multiple ways using purposeful multiple media; 10. Updated and linked to existing and new information on the subject matter and related knowledge. Design: 1. Learner-centred, responsive interface design 2. Objectives are available; 3. Intuitive Navigation 4. Expectations regarding behaviour, communication and participation are provided; 5. Communication and activities are used to build community; 6. Rubrics for assignments; 7. Technology is used to promote learner engagement/facilitate learning; 8. Instructor contact information is stated; 9. Links to institutional services; 10. Assessments align with objectives 11. Student-to-student interaction is supported 12. Appealing course appearance. Delivery: 1. Reliable and robust interface 2. Clear goals, directions and learning plans 3. Accurate and error-free materials; 4. Clear Unit information and expectation of student roles; 5. Synchronous and asynchronous activities; 6. Communication is encouraged (the unit provides opportunities and encourages student-student and teacher-students dialogue); 7. Appropriate institutional style for units and web sites.
2. Support: 1. Academic and Administrative support 2. Peer and Family support for students, 3. IT support and training; 4. Teacher support.
3. Pedagogy: 1. Variety of instructional strategies, 2. Diversity in assessment, 3. Independent study and Collaboration, 4. Interaction and dialogue (student-teacher and student-student), 5. Inquiry-based learning, 6. Game-based learning 7. Personalisation 8. Reflection.
4. Student: 1. Engagement and effort, 2. Self-regulation, 3. Self-efficacy; internet self-efficacy, 4. Motivation, 5. Learning styles, 6. Attitude toward ICT and OL 7. Prior knowledge of OL and ICT skills.
5. Teacher: 1. Attitude toward OL, 2. Commitment, 3. Engagement, 4. Creating a satisfying learning climate, 5. Timely and relevant feedback, 6. Enthusiasm, 7. Prompt responsiveness, 8. TPACK.
6. Technology: 1. Infrastructure; 2. Consistency and effectiveness of IT; 3. Reliability; 4. Accessibility; 5. Appropriateness of technology to the pedagogical content; 6. Upgrades and Maintenance 7. Ease of use.
7. Ongoing course/programme evaluation, adaptation and improvement: 1. Identifying areas for improvement and implementing new pedagogical approaches and instructional methods; 2. Aligning course outcomes and performance with established benchmarks; 3. Evaluating the alignment between course content, activities, and assessments with the intended learning objectives; 4. Effectiveness and appropriateness of the technology used; 5. Accessibility of course materials to all learners; 6. Keeping course content and resources up-to-date and relevant 7. Adapting the course in response to changing student needs, emerging trends, or/and external factors.
8. Planning: 1. Examination of the existing context of OL in the institution; 2. Vision, clarity of purpose and measurable goals; 3. Innovation in teaching; 4. Setting priorities; 5. Teacher training and support; 6. Mandates for supporting OL; 7. Teaching and learning considerations.

9. Context acknowledgement: 1. Social and political influence; 2. Socioeconomic conditions; 3. Geographical location; 4. Suppliers (Technology Providers, Educational Institutions, Content Providers, Other Teachers, Accreditation Bodies); 5. School committee (board) and Education Ministry 6. Special Interest Groups (Students' Commissions, Teachers' Association).
10. Accessibility and Inclusiveness: 1. Universal Design for Learning; 2. Technology accessibility; 3. Modified curricula; 4. Presenting content in various formats; 5. Clear and concise instructions, guidelines, and expectations; 6. Promoting respectful and inclusive communication, collaboration and interaction; 7. Assessments consider diverse ways of demonstrating knowledge and understanding; 8. Support for students with unique needs and challenges; 9. Ongoing evaluation, adaptation and improvement in promoting accessibility and inclusiveness.
11. Socio-affective dimension of learning: 1. Positive relationships; 2. Effective communication strategies; 3. Emotional support; 4. Cultural sensitivity; 5. Praise; 6. Conflict resolution; 7. Wellness and mental health; and 8. Reflective practice.
12. Mosaic of Theories on Learning: 1. Behaviourism, cognitivism, and constructivism; 2. How people learn (2018) considerations; 3. Motivation; 4. Bioecological perspectives; 5. Metacognition and Self-Regulation; 6. Affect; 7. Growth mindset, Agency, and Choice; 8. Multiple Intelligences; 9. Learning Styles perspective; 10. Developmental Stages; 11. Universal Design for Learning; 12. Online Learning Theory; and 13. Fink's Taxonomy of Significant Learning (2003).

Table 2.2: Sub-dimensions of the Provisional OLY Framework

2.4.7 Summary

Integrating the diverse perspectives already existing in the literature, the initial framework presents a conceptual tool for understanding and researching K-12 students' OL. A general conclusion is that structures for help and support, and building strong relationships and a sense of community are very important aspects for K–12 students' learning and satisfaction (Borup et al., 2019; Borup, et al., 2014; Cavanaugh, et al., 2009; Ilomäki and Lakkala, 2020), therefore, the initial framework reflects such a perspective. Further, the initial framework specifically indicates that emotional and social dimensions of OL should be considered for this age group.

The initial framework also explicitly recognises the use of *synchronous and asynchronous activities* as part of the *Course content, design and delivery* factor, and integrates a summary of theoretical perspectives on learning. As a *Mosaic of learning theories*, this dimension will ensure the alignment of instructional practices with learning objectives, engage learners effectively, promote meaningful interactions, and facilitate the achievement of desired learning outcomes on a journey of *educating the whole child*.

Overall, the provisional framework provided a roadmap for a general comprehensive understanding of OL prior to implementing an online course in a state-run school in Croatia, aimed at identifying all the relevant dimensions of learning online from the students' experiences. In that respect, the initial framework has opened the doors for future research - the empirical study that I have undertaken to address the absence of a framework for OL in upper primary or lower higher school education that takes into account the views of students - the most important stakeholders.

2.5 Conclusion

This Chapter had three main foci. Firstly, I presented a general overview of the development of OL and its characteristics, discussing the OL and TEL in HE, K-12 education, and dance. The chapter identified stakeholders, pedagogical processes, benefits and challenges of learning online, technological implications, different contextual determinants that impact OL acting to promote or constrain it, and other factors that have to be considered when designing and delivering an online course to meet students' learning needs. The reviewed literature demonstrated that OL environments are similar in function and features across disciplines. They emphasise self-directed learning and learner autonomy. Further, they provide learners with situational and demand-driven content and interactive learning strategies and tools, with educational technology influencing how learning occurs and how learners interact with the information, resulting in the extensions of the classroom, increased flexibility, and anytime/anywhere learning.

Secondly, I reviewed OL theories and models supporting the practice of OL in HE that identify factors pertaining to designing an effective OL experience. Due to the great interest in investigating the determinants that lead to the success of OL, various models/frameworks have been proposed for understanding, designing, implementing and evaluating OL for tertiary education. Nevertheless, the existing works focus on some dimensions and related factors, but overlook other important ones. Also, I identified a major gap in the literature regarding the comprehensive conceptual framework of OL in K-12 education that is

pedagogically and theoretically driven but sensitive to the main stakeholders' characteristics, course content and design, technology, conditions that are internal to its practice, and external conditions influencing or being influenced by online environments (Barbour, 2019; Davies and West, 2014). Thus, the review included an examination of a range of theoretical approaches to learning for their explanations of determinants of the learning process, practices, and pedagogies that can contribute to efficient and satisfying, holistic OL.

I then presented the development of the initial/provisional conceptual framework - a conceptual tool for understanding and researching students' OL. For this purpose, I analysed pre-existing OL approaches, frameworks and models, to arrive at twelve dimensions describing and affecting OL for youth. The provisional framework clearly identifies the students' holistic development at the centre of OL, with the complexity of OL being understood through the metaphor of *ecosystem* and *ecology*. As such, it helps trace the non-hierarchical and complex relationships between the identified elements, each playing a role in the success and satisfaction of learners in an OL environment.

Finally, in agreement with a notion that without a robust learning theory foundation to guide or evaluate OL and its effectiveness, the achievement of optimal learning outcomes is highly questionable (Cook and Ellaway, 2015; McGowan, 2016), in addition to *Pedagogy,* the provisional framework includes the *Mosaic of theories* dimension.

To summarise, although OL has existed for more than thirty years and attempts at conceptual explanations of OL in HE have been undertaken by leading scholars in the field for decades, a theory or a model of OL for K-12 education has been unfulfilled (Barbour, 2019). It has been repeatedly argued (Picciano, 2017; Picciano and Seaman, 2009; Rice, 2006) that there is a need for a comprehensive framework for multiple levels of success of OL telling us what in OL is to be expected and under what conditions and circumstances for young learners. Furthermore, the literature indicates that the views of students - the most important stakeholders of education, remain largely under-researched (Toppin and Toppin, 2015). In this respect, the empirical study that I have

undertaken to learn from students' experiences of their use of OL, as presented in the next Chapter, is expected to be of significant value for the K-12 sector.

Chapter 3: Methodology

3.1 Introduction

This Chapter presents the empirical study about student learning and the use of technology in facilitating it. The Chapter addresses the overall research strategy, context of the study, as well as plans for HAD course design and implementation.

I first describe the guiding philosophical stance of this research and my ontological and epistemological position. The relationship between these interwoven elements of the research process is discussed to demonstrate how they inform one another and the reasons to choose each. From there, I identify grounded theory (GT) as the methodological framework for the qualitative empirical investigation. A definition of GT and a description of the constructivist GT approach is given, followed by a justification for its choice. Although GT is a well-known method within social science literature, it has its limitations, thus, these have also been discussed.

Next, I have outlined the research questions (RQs) that guided the study. To answer the RQs and enhance the understanding of OL for upper primary education, I obtained upper primary (13-14 years old) students' views on OL, its stakeholders, instructional processes, course design factors and other related details. In this Chapter, I also shared the plan for development and implementation of the HAD course, before explaining in greater detail the procedures and techniques used to carry out the empirical research - the study site and its participants, and data collection and analysis methods. I have also discussed the research ethics, my role - the course designer/teacher/researcher, issues pertinent to subjectivity or bias, reliability and validity of my research, and how these were addressed and overcome.

3.2 Research Paradigm, Epistemology, and Ontology Underpinning the Study

In elaborating on the perspectives which guided my research, I was influenced by the four interwoven elements of the research process that inform one another, as proposed by Crotty (1998): ontology, epistemology, methodology, and method (see Figure 3.1).

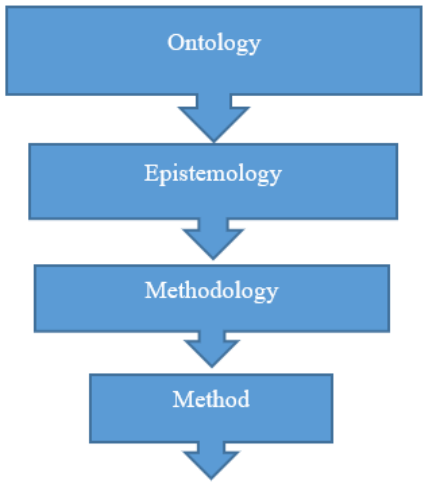

Figure 3.1: The Hierarchy of Four Elements of Research Process

As an educator, I understand reality as being context-specific and socially constructed through interactions with others, communication, and collaborative activities which makes my ontological beliefs - beliefs about the nature of reality and the nature of human beings in the world (Levers, 2013), consistent with an interpretivist paradigm (Guba and Lincoln, 1994; Patton, 2002). Whereas the positivistic approach relates to the viewpoint that there is a universal truth that exists to be discovered and tested (Guba and Lincoln, 1994), the interpretative paradigm is based on the notion that “different groups of people might see things differently” (Denscombe, 2007, p.79). Hence, interpretivism considers the importance of multiple meanings (Passey, 2020) and it is concerned with the relationship of the interpreter with what is being interpreted (Crotty, 1998). The interpreter considers the context of the phenomena strongly, in terms of external and internal influences (Charmaz, 2006), which presupposes

understanding something in its context (Denzin and Lincoln, 1994; Crotty, 1998).

Social scientists agree that human action can be rendered meaningful only by relating it to the contexts in which it takes place; i.e., “the meaning and consequences of a behaviour pattern will vary with the contexts in which it occurs” (Gouldner, 1955, p.12). As this quote implies and conventional wisdom holds, context acts in myriad ways, influencing cognitions, emotions, and behaviours, and shaping how these outcomes are perceived and interpreted by others (Barrett, Mesquita, and Smith, 2010). The influence of the context is taken into consideration in this study too, due to my belief that an individual’s understanding of reality is relative to their context and experience (Kivunja and Kuyini, 2017).

Further, interpretivism as a philosophical position necessarily implies a relativist stance that emphasises that the diversity of interpretations that can be applied to the world (Hugly and Sayward, 1987). In this way, knowledge is considered to be a construct rather than providing a truth. Accordingly, knowledge through interpretation of a studied phenomenon is itself a construct too rather than something to be identified (Charmaz, 2006). Considering that the world that is studied is understood as a product of human participation and negotiation, the methods used for studying that changing world need to be sensitive to its dynamic properties (Willig, 2013). This led me to think about young students in my study, in the sense that they are likely to have different sets of beliefs, different knowledge and understandings to my own. Social constructivism as an epistemological lens acknowledges this diversity and it assumes that meaning is made through the individual’s understanding of the world which is central to how we understand ourselves and others (Creswell, 2007). Another assumption is that learners construct understandings by interacting with information, tools, and materials, and by collaborating with other learners and reflecting, with a meaningful, active learning taking place in complex, multi-modal environments in which the learner plays an active role in constructing knowledge (Hannafin et al., 1992; Jonassen et al., 1999). Therefore, in this research, the social constructivist paradigm as a way to gain knowledge of reality and explore its

meaning, facilitated the understanding of the upper primary students' experiences and expectations of OL.

The previously described considerations relating to ontology - the nature of reality, and epistemology - considerations of the ways of knowing (Sarantakos, 2005), were taken into account and guided methodological decision-making in this research.

3.3 Why Grounded Theory?

Once I recognised my own ontological position - that the world consists of multiple individual realities and multiple meanings ascribed to OL practices - social constructivism was seen as a good epistemological fit to explore the complexities of a learning environment in which many variables interact. At a concrete level, OL processes and meanings attached to it may look varied, and it was argued that is questionable whether one can generalise the experience and impact of the learning model as a whole (Lockee, Moore, and Burton, 2001). Nevertheless, I thought that there might be some overarching conceptual foundation for these different manifestations of the practice. It seemed that looking for a common ground by gathering first-hand accounts of OL from K-12 students may offer the potential to generate a conceptual understanding of OL for young learners through the analysis of the participant narratives; something which started to sound like the concepts found in the constructivist GT (CGT) method (Bryant and Charmaz, 2007; Charmaz, 2006; Morse et al., 2016). However, since this inquiry did not aim to seek evidence in support of an established theory, it is the theory generation aspect of GT that was initially appealing and drew me to use a GT approach; with the accent on 'small t' theory, with less ambition than a 'grand theory', and more authenticity and 'groundedness' (Weed, 2017).

GT is defined in the literature as "a qualitative research method that uses a systematised set of procedures to develop and inductively derive GT about a phenomenon" (Strauss and Corbin, 1990, p.24). It emerged as a widely-used research approach across the social sciences as it gives researchers the

flexibility to develop, test, and strengthen theory from their research data "that was faithful to and illuminated the area under study" (Strauss and Corbin, 1990, p.24). It has further significance because, although the constructs in a GT are appropriately abstract, they are context-specific, detailed, and tightly connected to the data (Palmer, 2019). Lastly, GT has been considered effective when applied to complex phenomena that are difficult to quantify, such as the learning environment (Bytheway, 2018).

The "classic GT" was founded and described by Glaser and Strauss (1967). Ontologically, of all strands of GT, the classical GT is the strand most strongly underpinned by objectivism and closest to positivist approaches (Timonen, Foley and Conlon, 2018). Later, Strauss and Corbin (1998/2014) remodelled the classic GT as they adopted different philosophical and methodological perspectives from those of Glaser (Mills et al., 2006). Their version of GT (Strauss and Corbin, 1990/2015) has objectivist underpinnings - an understanding that there is an objective, external reality which can be discovered by the researcher and reported on (Charmaz, 2000; 2013). However, Corbin's recent editions (Corbin and Strauss, 2008; 2014) endorse more heavily the reflexive role of the researcher and soften the application of technical procedures as outlined in previous editions of the Strauss and Corbin method (Charmaz, 2013).

Charmaz (2000) built on the 'Straussian GT approach' forming the most recent "constructivist GT" version (Charmaz, 2000; 2006; 2014; Morse et al., 2016). Where classical GT asserts that theory *emerges* from data and is drawn out by the researcher in their role as a detached yet reflexive scientific observer, the CGT fully implicates the researcher in generating data and theory. The CGT argues that categories and theories do not emerge from the data, but are *constructed* by the researcher through an *interaction* with the data (Charmaz, 1990; 2000; 2002; 2006).

As Charmaz argued, "the discovery process consists of discovering the ideas the *researcher* [emphasis in original] has about the data after interacting with it" (1990, p. 1169). As a result, the theory produced constitutes one particular

reading of the data rather than the only truth about the data (Willig, 2013). Nevertheless, the close attention that constructionist grounded theorists give to their research problems, allows them to move from local worlds to a more general conceptual level. It builds the foundations for abstract understanding of particular sites and situations that they qualify according to particular temporal, social, and situational conditions (Charmaz, 2008).

Overall, a CGT approach requires that six basic elements are present in the research process:

- Data are simultaneously gathered and analysed;
- Analytic categories (codes) are constructed from the data, rather than from a hypothesis deduced prior to data-gathering;
- Comparison of data is undertaken at every stage;
- Theory development remains constant throughout each stage of data gathering and analysis;
- Researchers keep notes and memos of the categories under creation; and
- Sampling is chosen to aid the construction of theory rather than to represent a given population (Charmaz, 2006).

Whilst GT still maintains many of the traditional stages of research, the process of the GT method is not entirely linear (Egan, 2002). This means that data collected from the participants determine what is explored, the literature that is researched, and the number of interviews conducted with the participants in the study (Chiovitti and Piran, 2003).

In my study, data were collected through a single qualitative method – in-depth/intensive, semi-structured interviews, and analysed using the CGT methodology. Through detailed interviewing, I hoped to come close to the participant's perspective and capture their point of view and experience

(Hallberg, 2006). When adopted in a CGT approach, following Miller and Glassner's (2011) logic, the interviews are regarded not as a mean to see a mirror reflection of the OL experiences of participants, but as an approach to access the meanings students attribute to the phenomenon and their experience of it. Accordingly, my research focused on the achievement of understanding as opposed to the demonstration of truth, i.e., on description and interpretation (Weed, 2017).

The following RQs led my investigation:

RQ 1: What factors/inputs must be considered when designing, delivering and analysing an online course in the K–12 education context as per relevant literature, theoretical and conceptual frameworks and models of OL utilised to date?

RQ 2: What are upper primary students' needs and preferences regarding OL through the studied History and Appreciation of Dance (HAD) online module?

RQ 3: What is the conceptual understanding of OL in upper primary education stemming from the upper primary students' experiences in the HAD online module?

RQ 4: Based on RQ 1, RQ 2 and RQ 3 - How can online learning experiences of upper primary or lower high school age students (13-14 years) be conceptualised and integrated into a holistic framework of OL for youth (OLY)?

The proposed RQs were designed to achieve a balance between the analysis and summary of the findings obtained from the review of existing literature, and the students' perspectives revealed in the empirical study. Further, these types of questions – 'what' and 'how' questions, are well suited to explore phenomena in qualitative rather than quantitative research (Merriam, 2009) - the choice that was in line with my ontological and epistemological perspective. Thus, the interpretivist perspective that I embraced is implicit in the chosen research methodology and my research questions, and the subsequent research data collection and analysis methods.

Generally, I was interested in identifying the characteristics of OL and issues that need to be addressed for young learners undertaking a course online, rather than providing a judgement about the suitability of OL for K-12 students. Further, the context of the specific course that was analysed was a general history and appreciation of dance course, hence it relates to social science courses in general. I hoped to identify what factors have to be considered when designing and delivering an online course, and provide a conceptual underpinning for future practices, addressing the rising recognition that such a model is needed (Bonbright et al., 2004; Gingrasso, 2020; Risner, 2010). The absence of a conceptual/theoretical perspective on OL for youth adds to the rationale for choosing a GT approach.

Cohen et al. (2011), Maxwell (2005), and Denzin and Lincoln (1994) argue that defining the specific purpose of research constitutes the ground to begin to design a research study. The purpose of my research was to explore and provide a comprehensive understanding of the OL experience, and create a holistic conceptual framework of OL for youth. The CGT approach has enabled me to develop a multi-grounded theory (Goldkuhl and Lind, 2010), i.e., a multi-grounded conceptual framework in which the understanding of OL is framed within:

1. the provisional OLY framework - pre-existing theories selected for the theorised phenomena - theoretical grounding; and

2. subjective framework - an understanding of OL from upper primary students' experiences – empirical grounding in the empirical data.

Thus, an additional justification for choosing CGT is in matching the methodology to the specific purpose of my study.

3.4 Five Phases of the Research

The CGT methodology was applied in five phases, presented in iterative steps, to address the specific purpose of my research:

• Phase 1: Review of the literature – Within CGT, the researcher is encouraged to become familiar with the literature prior to data collection. In this phase, scientific literature on the subject was analysed, stimulating my theoretical sensitivity (Charmaz, 2014; Urquhart, 2014). This necessitated having an open-minded attitude towards 'why OL is the way it is' as per existing perspectives, however, without imposing the literature on the data when working with the generation of categories and the parallel grounding process of relating the findings to existing knowledge (Charmaz, 2006).

• Phase 2: Initial/provisional conceptual framework development. From the analysis of nine selected influential OL models and theories, I created the provisional conceptual OLY framework. The pre-existing theory and knowledge provided the context for my findings, as ignoring it there was a risk of 'reinventing the wheel'. As suggested by Morse (1994): "the theory obtained from the literature is a template for comparison so that the researcher may recognise what is new when something new and exciting is discovered" (p. 27). Thus, the provisional framework provided a roadmap for a general comprehensive understanding of OL prior to identifying all the relevant dimensions of learning online from the students' experiences.

• Phase 3: Empirical study data generation. Data were collected through in-depth interviews and the theoretical sampling technique in which one 'unit' of studied data guided the selection of the following. This process continued until theoretical saturation was achieved - a moment in the research when the generated codes are robust and no new categories are identified (Glaser and Strauss, 1967). The interviews were transcribed as the research progressed.

• Phase 4: Data analysis in three phases. The open coding phase consisted of the generation of codes on the data of the transcribed interviews, illuminating the characteristics, processes and circumstances of OL. Selective and theoretical coding constituted a level of greater abstraction in the analysis in which the data were categorised, synthesised, and organised, achieving the development of the dimensions, properties, and core categories. It is important to note that the process of CGT is not linear; between phases 3, 4, and 5 there

is a back-and-forth process of constant comparison and analysis (Kenny and Fourie, 2014).

• Phase 5: Theoretical integration. Phase five overlaps with previous phases of the research and extends until the end of the research. It consists of the process of linking the developing theory with other theories in the same or other fields of study (Urquhart, 2014). This is the stage in which the researcher returns to the literature to integrate their results with the body of scientific knowledge. During the theoretical integration phase, I revised the initial framework and blended it with the results of the empirical study – the subjective framework.

The CGT applied in five phases has allowed me to both recognise prior knowledge and immerse myself in the research setting and the data gathered from it, to gain rich and nuanced insight into a multi-layered phenomenon of OL. There is, however, an array of methodologies that can be used to study human experiences. Whilst ethnography is a process of describing and interpreting a culture-sharing group, and a case study develops an in-depth description and analysis of a case or multiple cases (Creswell and Poth, 2018), the central goal of a GT study is to explain a process or action, and is based on the real, first-hand experience of the phenomenon under investigation (Charmaz, 2000). The result of a CGT study is a narrative, including categories, told by the researcher with a focus on understanding of social processes (Hallberg, 2006). Thus, “it does not have the freeze-frame approach common in phenomenological analysis and traditional ethnography” (Padgett, 2017, p. 34). Additionally, the reason why I chose CGT rather than phenomenology, for example, is because phenomenology would have identified the essence of experience but it would not enable me to construct a conceptual framework from merging the data with the initial framework. On the other hand, CGT supports researchers in understanding and exploring people’s perceptions and constructions of phenomenon that “reflect their understandings of their experiences as well as the diverse situations in which they have them” (Charmaz, 1990, p. 1161), enabling researchers to develop a theory which offers an explanation and understanding about the phenomenon (Chun, Birks and Francis, 2019).

3.5 Limitations of Grounded Theory

The most widely raised criticism of the GT method concerns its epistemological roots (Willig, 2013). It has been argued that GT subscribes to a positivist epistemology and that it sidesteps questions of reflexivity whilst insufficient attention is paid to the role of the researcher (Thomas and James, 2006; Willig, 2013). The original purpose of GT was to allow new theories to emerge from data. The use of the term 'emergence' (of categories/theory) and 'discovery' used in the classic GT approach and the Straussian GT versions, suggest that the researcher uncovers something that is already there (Thomas and James, 2006; Willig, 2013). The concept of 'emergence' presupposes that "the researcher is like a midwife who delivers the fully formed baby" (Willig, 2013, p. 44), and in that way plays down the creative role of the researcher in the research process. It has been argued, therefore, that such a view of the research process in GT (heavily influenced by a positivist epistemology), is not compatible with qualitative methodology (Willig, 2013).

Also, the concept of induction is deemed problematic and the assumption that the data speaks for itself (Willig, 2013). The critics of positivism have argued convincingly that all observations are made from a particular perspective; that is, they are standpoint-specific (Palmer, 2019) and whatever 'emerges' from a field through observation, depends on the observer's position within it. As Dey (1999) puts it, "even if we accept the (doubtful) proposition that categories are discovered, what we discover will depend in some degree on what we are looking for" (p. 104).

Nevertheless, the CGT (Charmaz, 1990; 2000; 2002; 2006) acknowledges the epistemological limitations of purely inductivist reasoning and recognises the active role of the researcher in the research process. Charmaz rejects the claims of disinterestedness and objectivity present in earlier versions of GT, noting that "the myth of silent authorship is false but reassuring" (Charmaz and Mitchell, 1996, p. 299). In CGT, categories and theories do not emerge from the data but are *constructed* by the researcher through interaction with the data (Charmaz, 1990; 2000; 2002; 2006). In other words, categories can never

“capture the essence of a concept in its entirety” (Dey 1999, p. 66), and they do not simply emerge from the data because they do not exist before the process of categorisation. Rather, they are constructed by the researcher during the research process.

The notion of ‘theory’ and generalisation has been another focus in the critique of GT. Thomas and James (2006) challenged the need to call these forms of inquiry ‘grounded theory’, asking why GT is ‘theory’, and arguing that for describing what happens in research, the use of the term ‘theory’ only confuses what is going on. The claim for GT actually to be ‘theory’ raises questions about what is theory, what is demanded and expected of theory, and why people call their methods-for-making-sense - ‘theory’. The issue of what theory might be in qualitative inquiry is a sensitive one (see Woods, 1992; Passey, 2020), since the word ‘theory’ has taken a wide variety of meanings, particularly in educational discourse. It can mean systems of evolving explanation, personal reflection, orienting principle, epistemological presupposition, developed argument, and craft knowledge (Chambers, 1992; Scheffler, 1967; Thomas, 1997). Kaplan (1964) argues that it is possible to see theory to be about: (a) inspiration involving patterning or accommodation; and (b) explanation and prediction. In its former, looser sense it is principally about bringing ideas together, while in its latter, tighter form, it adheres to positivist and functionalist expectations about explanation (Thomas and James, 2006). Thus, to the question ‘How does the grounded theory explain?’ the answer and a critique has been, ‘It doesn’t’, because the GT is about “understanding before explanation” (Ricoeur, 1970, p. 33). Nevertheless, on both counts, theory as discovery and theory as part of an explanatory exercise, GT was criticised for failing to live up to the expectations because it is unsatisfied with ‘mere’ understanding (Thomas and James, 2006).

Thomas and James (2006) hold that there is a paradox in grounded theorists’ continuing strivings for the explanation, claiming that we all see links, discover patterns, make generalisations, create explanatory propositions (or weak theory), and that ‘theory’ is emerging out of our experience all the time, and this is all ‘empirical.’ They argue that the problem comes when too much is claimed

for it because it is empirical, and problems come in distinguishing generalisation from overgeneralisation, narrative from induction (Thomas and James, 2006). In that respect, MacIntyre (1981) suggests that social science's generalisations are not generalisations in any meaningful sense: "they are not genuinely of the form 'For all x and some y if x has property f, then y has property y,' but we cannot say of them in any precise way under what conditions they hold" (p. 91). Thus, it was argued that GT has yet to make a case that its kind of theory possesses characteristics of induction in the way that natural scientists' theories may.

Charmaz (2008) offered the resolution of these tensions between explanation and understanding by giving the following guideline: instead of aiming to achieve parsimonious explanations and generalisations devoid of context, the goal is to aim for an interpretive understanding of the studied phenomenon that accounts for context. Indeed, when social constructionists (see Bryant, 2002; Charmaz, 2000; 2002; 2005; 2006; Clarke, 2003; 2005; 2006; Henwood and Pidgeon, 2003; Willig, 2001) combine their attention to context, action, and interpretation with GT analytic strategies, they can produce dense analyses with explanatory power as well as conceptual understanding (Charmaz, 2008).

Charmaz offers definition of theory in which theory "emphasizes interpretation and gives abstract understanding greater priority than an explanation" (Charmaz, 2014, p. 230). Such theory provides an analytic handle on a specific experience (Charmaz, 2008); it "brings in the subjectivity of the actor and may recognize the subjectivity of the researcher" (Charmaz, 2006, p. 231). Further, CGTs are situated in their social, historical, local, and interactional contexts. Thus, whilst it can be argued that 'middle range,' 'weak,' and 'proto-scientific' theories do not explain, they help us to understand, and understanding is a no less worthy ambition (Thomas and James, 2006).

Finally, GT is often criticised for the intense labour involved in analysis (Fassinger, 2005). It was suggested that a preoccupation with method makes researchers almost more concerned with the method than the message (Andreski, 1972). However, the specific procedures in a GT methodology

provide a rigorous yet productive means for developing a conceptual perspective from the data. In this study, the data were gathered from multiple intensive interviews with diverse individuals which have helped me comprehend the world of young online learners. It is believed that such understanding, one acquired by following the recipes for ways of doing research as outlined in the CGT, is valid (Thomas and James, 2006), and I felt unconstrained by data collection, use, and analysis.

3.6 Empirical Study

3.6.1 Insider Research: Role of the Researcher

I acted as both the researcher and the person who ran the HAD online course. This means that the research is conducted as insider research, which presents both useful opportunities and significant challenges (Saidin, 2017). Bonner and Tolhurst (2002) argue that an insider will be able to better understand an issue, allow the flow of social interaction, and obtain true results as they can relate well to the participants. Speaking the same language, understanding the local values and taboos, knowing the formal/informal power structure, having easy access to the research site and records, obtaining permission to conduct the research, and being able to define the researcher's role to participants, are some of the additional advantages of being an insider-researcher that have been discussed (Herrmann, 1989; Tedlock, 2000). The participants may be more prepared to "open up" and express their thoughts, and as good rapport is already established, more in-depth data could be gathered (Fleming, 2018, p. 314). However, possible overlooking certain routine behaviours, making assumptions about the meanings of events and not seeking clarification, assuming he/she knows participants' views and issues, participants assuming teacher-researcher already knows what they know, and closeness to the situation, may all hinder the researcher from seeing the bigger picture (Rooney, 2005; Sikes and Potts, 2008).

Chavez (2008), nevertheless, claims that the insider-outsider distinction is a false dichotomy. It was argued that both insider and outsider researchers are confronted with multiple challenges, such as the situated knowledge they

possess as a result of their position (Fleming, 2018). Further, in some cases, it is possible for the researcher to move along the insider-outsider continuum during the study (Hellawell, 2006). Therefore, Mehra (2002) claims that true neutrality does not exist: “a researcher’s personal beliefs and values are reflected not only in the choice of methodology and interpretation of findings, but also in the choice of a research topic. In other words, what we believe in, determines what we want to study” (para. 2). Accordingly, a researcher can only be more or less aware of their innate personal biases.

Knowing that bias can occur during study design, implementation, data analysis and publication (Pannucci and Wilkins, 2010), I confronted my own blind spots. I was aware that I must be fully authentic in my interactions with my participants and “honour the consequences of acting with genuineness” (Glesne, 2016, p. 105).

During the process of the interview, the researcher and participant give and take from each other; the complexity of the area of interest being explored becomes apparent, and in turn, gains density as the conversation about meaning ensues (Mills, Bonner and Francis, 2006). The interview, therefore, becomes “the site for the construction of knowledge, and clearly, the researcher and informant produce this knowledge together” (Hand, 2003, p.17).

Equally so, it was important to address a potential bias in interpreting the data resulting from the research I carried out. I was aware that my relationship with the organisation could impact some aspects of the research (Saidin, 2017) and that the children’s responses may be influenced as they knew I was doing research. Epistemologically, constructivists believe that “it is impossible to separate the inquirer from the inquired into. It is precisely their interaction that creates the data that will emerge from the inquiry” (Guba and Lincoln, 1989, p.88). Therefore, I examined my own judgments, practices, and belief systems, I questioned my own assumptions by engaging in memoing during interviews, as soon as possible after an interview, and during data analysis. Additionally, analysis of the children’s responses carries the risk of misinterpretation of data.

Data collected from children through the lens of an adult may include adult bias – it was argued that the adult perspective might change the central essence and meaning of the children's data (Bastien and Holmarsdottir, 2015). To address a potential bias in interpreting the data, I ensured I did not assume that children were the same as adults in their responses (Morrow and Richards, 1996). During the analysis, no particular student's views were privileged over those of others; and data analysis included a process of constant comparison between accounts of each participant, to uncover similarities and differences which were subsequently highlighted. With respect to these challenges, in my memos, I examined how my emotional investment in the researcher-participant relationship influenced my role as a teacher/researcher, and outlined the difficulties I encountered in managing appropriate boundary relationships with participants' comments and the researcher's (my own) thoughts during the interview.

As a checking device, Seibold (cited in Reinharz and Davidman, 1992) provides the constructivist grounded theorist with a series of consciousness-raising questions to provoke thinking about the power differentials that might exist in a research relationship, and ensure a conscious, ongoing commitment to participant-driven research: 'How is this [person] like me? How [are they] not like me? How are these similarities and differences played out in our interaction? How is that interaction affecting the course of the research? How is it illuminating or obscuring the research problem?' In asking these questions of myself, I was cognisant of adopting a non-judgemental stance towards students I was listening to and resisted the urge to assign values to participants' responses or to the participants themselves.

Additionally, researchers are advised to illuminate their membership in the communities they study (Angrosino, 2005). Holding 'membership' in a group does not denote complete sameness within that group. Likewise, not being a member of a group does not denote a complete difference. It seems paradoxical, then, that we would endorse binary alternatives that unduly narrow the range of understanding and experience (Dwyer and Buckle, 2009).

It must also be acknowledged that language is a human social construct and that, no matter how reflexive researchers are, they can never objectively describe something as it is. As individuals, we can never objectively describe reality (Dubois, 2015). Further, no matter how critically reflective and reflexive one is, aspects of the self can be missed, not known, or deliberately hidden - see for example, Luft and Ingham's (1961) *The Johari window* that explains the "blind area" known to others but not to oneself and the "hidden area", not known to others and not known to oneself. As is clear, there are always areas of ourselves that we are not aware of.

Charmaz and Bryant (2011) argue that in order to get close to the phenomenon being studied, the researcher locates herself inside, acknowledging her influence on the research process with an awareness of possible multiple realities and a need for reflexivity. Understanding the necessity of remaining reflexive, I examined the potential benefits of my insider positioning for establishing rapport with the students. I did my best to minimise my biases by trying to clarify the research process and my role while writing the thesis (Unluer, 2012). With my background as a professional dancer and then a teacher across diverse educational contexts - from pre-primary to primary and vocational students, undergraduates and graduates and professional dancers, I have always engaged in much self-reflection, and I continued to do so in my research. I recognise that researchers are not neutral or detached observers but are embedded within social, cultural, and historical contexts that influence their perspectives. Indeed, a researcher's knowledge is always based on his or her positionality (Mullings, 1999). Therefore, engaging in constructivist inquiry required me to analyse the interaction that occurred between the researcher, myself, and the inquired (Mills, Bonner and Francis, 2006). Memoing allowed me to critically reflect on my own biases, engage in respectful and ethical research practices, and produce findings that are sensitive to the complexities and diversity of human experiences. Further, my worldview concerning ontological and epistemological assumptions, and assumptions about human nature and agency (the way we interact with our environment and relate to it), were explained in Chapter 3 where I discuss the relationship between ontology,

epistemology and methodological decisions in my study. Finally, checking the interpretations with the participants and detailed descriptions of the study setting also maximised the research rigour (Patton, 2002; Smyth and Holian, 2008).

3.6.2 The Site

The dance department of the public primary school "Vezica" in Rijeka, Croatia (primary education in Croatia lasts for 8 years with students attending from the age of 7 to the age of 14 years), was assessed as the most appropriate in terms of accessibility. Having taught at the school for ten years and acted as e-Learning development co-ordinator for dance, allowed me to use personal contacts with the school principal to explore research opportunities. The site qualification visit determined the site's ability to conduct the research by completing the Site Selection Survey. It verified the availability of the population needed, adequate staff training and experience, and demonstrated enthusiasm and readiness. Other contributing site selection factors were also met: site resources, obligations, research timeline adherence, and institutional support for research. The potential for open dialogue about expectations and challenges was also critical in the site assessment.

Together with its dance department, "Vezica" is dedicated to consistently improving the quality of its programmes. As a nationally top-ranked and award-winning school for combining traditional and TEL offerings, the institution has in place the *Digital Vezica* initiative for a decade now, and has been a pioneer in effective educational technology policy implementation. Since 2014, as a result of my employment in the school from 2007 until 2017 and my interest in TEL, technology use has been promoted in the school's dance department as well. Students' experiences of diverse implemented TEL initiatives was very positive, thus, their exposure to educational technology (EdTech) was taken into account when I started planning the research and was one of the contributing site selection factors in addition to institution climate. I also considered other unknown sites, however, only "Vezica" fulfilled all of the essential site requirements.

A preliminary assessment of initial interest took place months ahead of the start of the project. An email briefly outlining the aims and requirements of the study was sent to the principal and circulated amongst fifteen, year four, students. The school, students, and their parents supported the initiative and were willing to participate. When approached, the administration was appreciative of the school being included in the study that looks into students' OL experiences, whilst offering curriculum development through the creation of the History and Appreciation of Dance (HAD) course - a new subject on the programme to be studied online. The school found this especially relevant following the outbreak of COVID-19 and the sudden extensive use of online environments in education. Understanding what OL reality means for young students, and how an OL model can produce outstanding learning experiences for youth, was considered a worthwhile exploration by the school.

3.6.3 Participant Selection

The sample was chosen to gain a range of perspectives from individuals with knowledge or experience of a phenomenon (Means et al., 2009) that has not been sufficiently investigated for this group of learners. Since the study attempted to generate a 'general' conceptual framework of K-12 OL, as such it neither precluded nor suggested any particular K-12 state-run school. I believed that any group of primary/upper primary learners have the potential to provide answers to the questions set out to guide this research. The research questions focus on the perceptions K-12 students have about OL; they presuppose the K-12 stage of learning, but not any specific competence of learners. What the research required was simply a group of students of that age, engaged in OL to study a course, to explore the resulting students' experiences. Thus, the selected individuals, i.e., the group of upper primary students (13 and 14 years old), were approached with the goal of them being able to provide the new insights for understanding common features and meanings ascribed to OL.

Both convenience and purposive sampling approaches (Patton, 2002) were used to select subjects. Additionally, theoretical sampling was used in the later stage of the study to collect the views of participants already interviewed, which

is explained in greater depth in one of the following sections. Convenience sampling was used because of convenient accessibility, i.e., quick and easy access to young students from my population of interest. On the other hand, purposive sampling was chosen to include participants who met specific criteria and represented a range of perspectives. Flick (2009) argued that the process of purposeful selection allows a researcher to "select individuals, groups and so on according to their (expected) level of new insights for the developing theory" (p.118). This group of learners (see Table 3.1) was purposefully selected because they were the oldest students in the primary school Vezica (13 and 14 years old, grade 4 students), and the plan was to provide the HAD course in grade four in future, ensuring the curriculum reflects national educational goals for the first developmental cycle (the first four grades of primary school).

PARTICIPATS' PSEUDONYMS	AGE	GENDER
1. Nick	14	M
2. Nicole	14	F
3. Tania	14	F
4. Helen	13	F
5. Maja	13	F
6. Tea	14	F
7. Deana	14	F
8. Barbara	14	F
9. Carol	13	F
10. Isabel	14	F
11. Patti	13	F
12. Ana	13	F
13. Flora	14	F
14. Victoria	14	F
15. Mia	13	F

Table 3.1: List of Student Participants

All fifteen (15) year four (final year) students (ages 13 to 14 years), were asked to take part in the 6-week pilot HAD course. Boyd's (2001) position is that participants ranging from 2 to 10 are enough to make a qualitative study saturated. In addition, the selection of the sample of 15 participants was in line

with the purpose of my research which was to gain the depth of the research findings (Patton, 2002). Finally, the number of participants ensured that the quantity of data for analysis is kept to a manageable size (Birks, Hoare and Mills, 2019; Sharp et al., 2020).

3.7 The Implementation Procedure of a 6-week Pilot Online HAD Course

Survey of ICT skills

Prior to the commencement of the HAD course, the students completed a pre-course *Self-Assessment of ICT Skills* survey. The purpose of the survey was to guide the development and delivery of participant pre-course training, and identify gaps in knowledge that had to be addressed.

Pre-course training

Two 60-minute-long introductory sessions that covered principles of OL were delivered by myself and the school's IT teacher. This introduction provided a common grounding for all learners making sure that they are able to follow the course.

3.7.1 The HAD Course: Course Setup and Design

The HAD course - a theoretical subject on a practice-based dance programme - was offered in the fall of 2020 during the academic year 2020/21, to a group of fifteen grade-four students (ages 13 to 14 years). The course was custom-made by myself - the course designer and school guest teacher, since no readily available content was found. It combined mostly asynchronous OL with some synchronous meetings, and it was hosted on a Moodle-based platform *Loomen* 2 (see Image 3.1) – the government-approved online course management system used in Croatian public schools. Students accessed the content on their laptops or mobile devices using their home Internet connection.

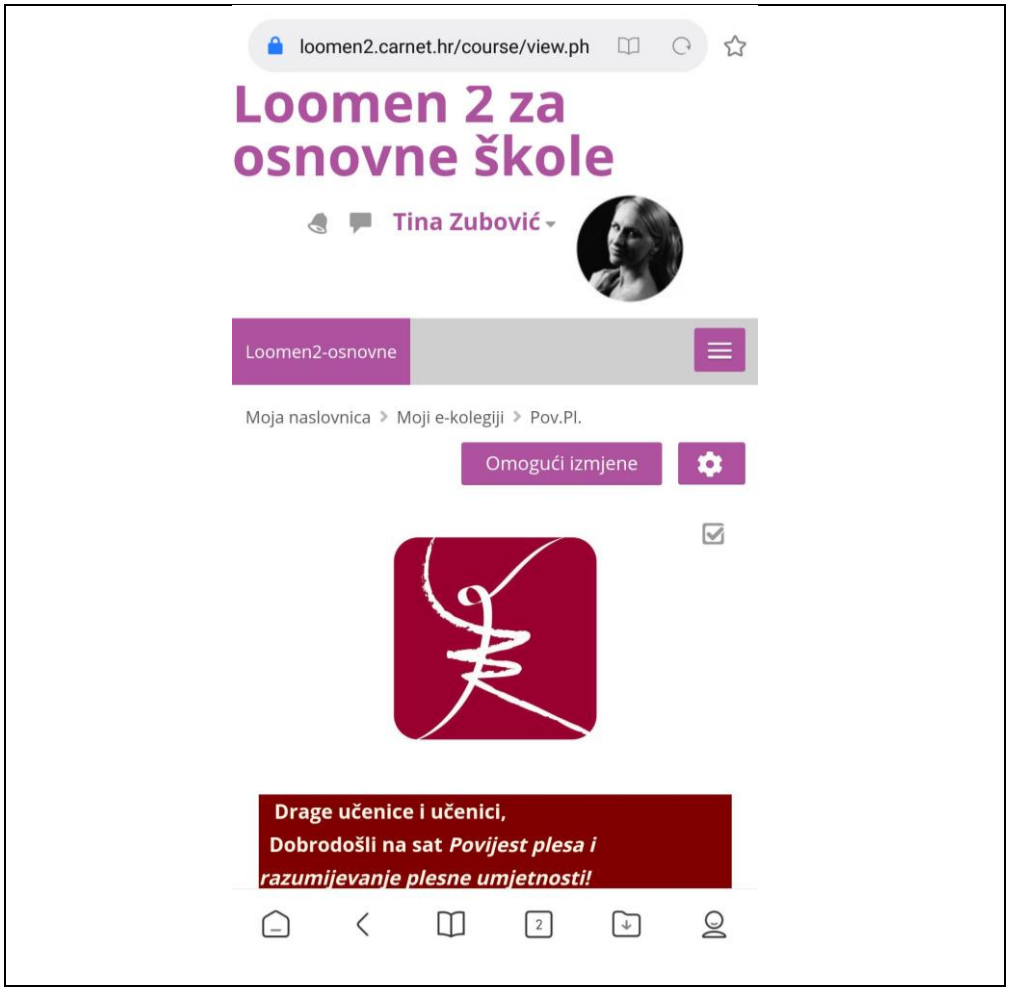

Image 3.1: The Government-approved Learning Management System Loomen

The course was designed at the intersection of technology integration, pedagogy grounded in educational theories about learning and teaching, 21st-century skills, and guidelines by the Croatian Ministry of Education in the *Croatian National Curriculum Framework for Pre-school Education and General Compulsory and Secondary Education* (MSES, 2010), that specify what is expected for all students to know and be able to do within the dance content area. To use technology in a successful way for OL, the reviewed literature (Chapter 2) and the provisional conceptual framework provided background and contextual information about K-12 OL and teaching. Additionally, a broad range of relevant literature on designing OL courses and learning design was analysed to identify common themes (Bentley, Selassie, and Shegunshi, 2012; Callahan, Saye, and Brush, 2013; Chickering and Gamson, 1987; Cook and Dupras, 2004; Gedik, Kiraz, and Ozden, 2013; Grant and Thornton, 2007; Lee

and Dashew, 2011; Lister, 2014; Quality Matters, 2019). Finally, I adopted a 'theoretical mosaic' approach to ground pedagogical design decisions in different schools of thought about learning.

The course was structured around learning outcomes, video lectures, reading materials, formative assessments, and assignments organised into 6 Units of Study (see Figure 3.2).

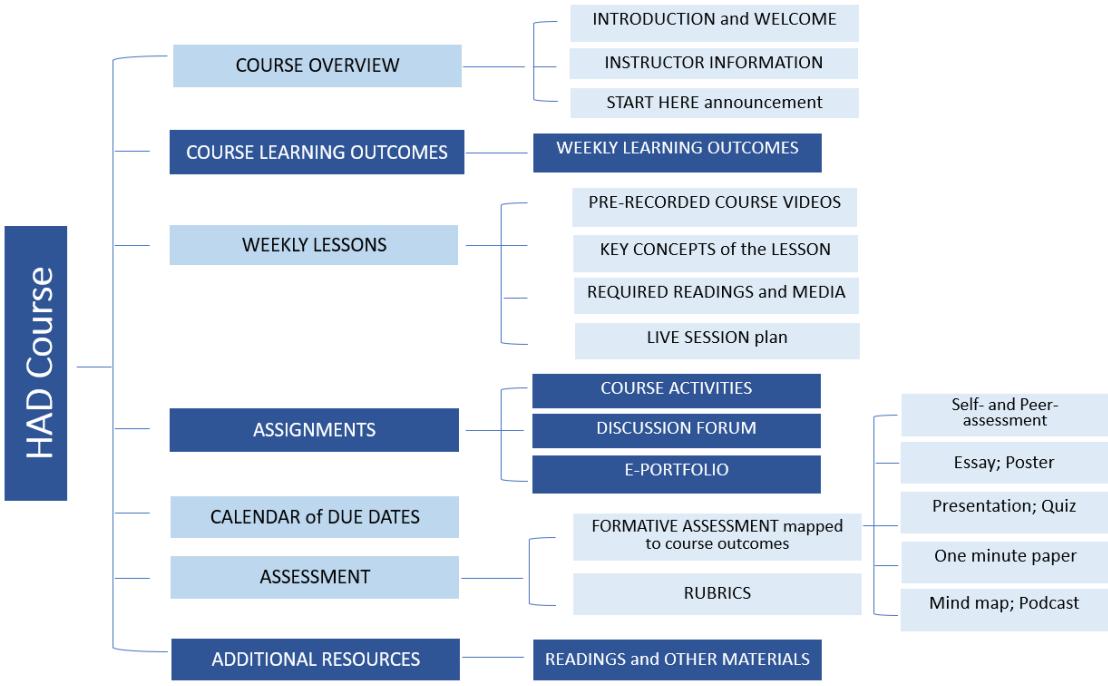

Figure 3.2: Visual Outline of Course Structure

I planned, developed, and delivered comprehensive content for the 6-week HAD course. For each Unit of Study, I recorded a 20 - 30-minute video-lecture and posted it on Loomen VLE. Students were then able to watch the videos on the VLE or/and download the files. Video-lectures were engaging students in activities to echo the time students would spend in a 45-minute traditional class session. Each week a new Unit was available to the students, covering a specific topic to realise particular learning outcomes (see Image 3.2 on the following page).

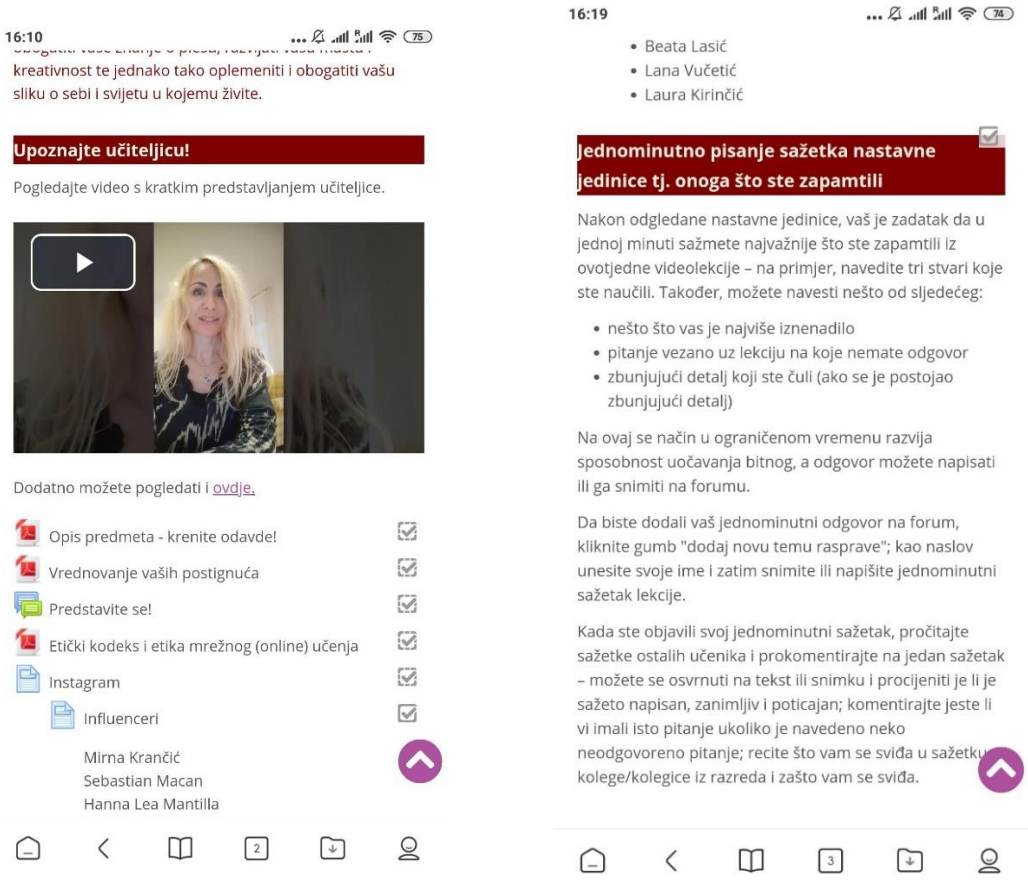

Image 3.2: An Example of the Units of Study on Loomen

The course covered dance history and appreciation concepts, with the aim of improving preservation, access, sharing, reach, and engagement with the academic/theoretical content in the study of dance. Lessons varied in modality and interactivity, and educational technology was used for knowledge acquisition, application, transfer, co-creation and for reflection (see Image 3.3 on the following page).

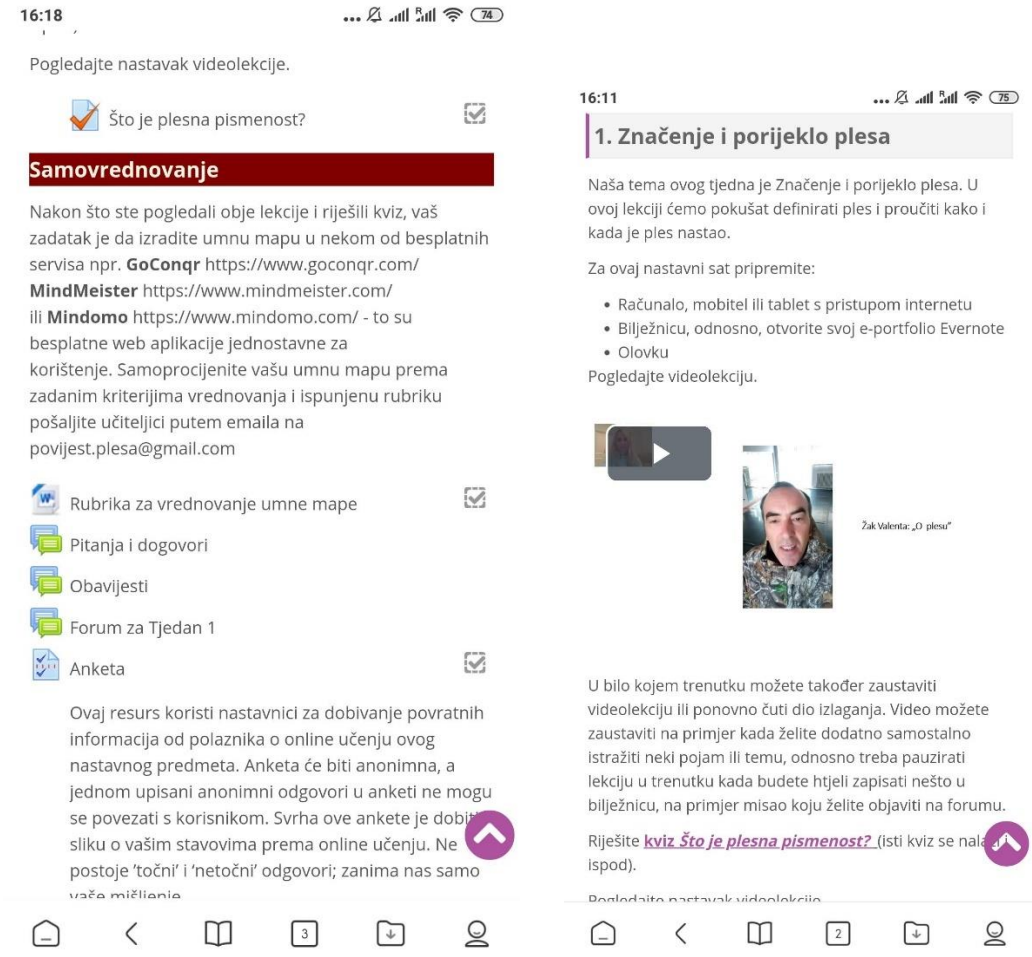

Image 3.3: The HAD Units of Study on Loomen

The videos showed a sequence of Microsoft PowerPoint slides and embedded text, pictures, music, video and links to additional content, with a synchronised video and audio recording of the teacher's lecture. To record the videos, I used Microsoft PowerPoint (PPT) video-recording and editing software. In addition to the time required to prepare for the lecture before recording, I spent approximately the same time recording the video that I would have spent to present the lecture in class without student interaction. Besides the time it took to design the course, record and upload the online video lectures, the researcher/teacher in the online HAD course put an additional between four and eight hours a week, or about 1.5 hours daily, into running the course.

The forms of interaction involved from the researcher/teacher in the online HAD course included: 1) reading and responding to emails and *Viber* chat group

interactions; 2) reading, participating in online discussions and other activities in the course; 3) giving feedback on assignments; 4) posting new information after the course had been fully designed and was live in response to contemporary events and student needs/interests; 5) calling attention to relevant material outside the course as needed; 6) mediating student interactions, participation, and questions about the course; 7) scheduling Zoom meetings to discuss individual student progress in the class; and 8) class management - such as sending out reminders of assignments that were due, grouping/pairing of students for team projects.

Pedagogical design

I reviewed (in Chapter 2) educational theories that define learning and identify and theorise factors pertaining to creating an effective learning experience that meets the needs of learners. The review provided valuable understanding of the dimensions of learning ecology and its characteristics in practice, helping me with creating a responsive OL pedagogy and contributing differently to the design cycle – from specifying learning outcomes, designing a learning environment and teaching methods, to deriving appropriate assessment for learning. I selected strategies to address the whole-person development, motivate learners, facilitate contextual learning and mastery of multimedia communication, and I provided support during the learning process (Ally, 2004).

Learner Interaction

In addition to student-content interaction, the course provided different opportunities for teacher-student and student-student interactions. After engaging with the course videos and some of the tasks independently, students were encouraged to work with each other and share their understanding on the course discussion forum. While, as the teacher, I was involved to help form an online community, I made sure to let the students lead the conversation and I did not take over discussion threads.

Additionally, upon student request, a *Viber* chat group was set up for students to interact with each other and me, and engage in course- and non-course-

related discussions. *Viber* enabled communication between students and the teacher, and facilitated a sense of community and collaboration further.

Capitalising on interactions enabled by technology and the Internet, I included in the course the real-time synchronous meetings that allowed students to raise questions, discuss relevant concepts, and provide answers to thought-provoking questions about the lectures and related topics. In week 5, a synchronous guest speaker session provided access to an expert in the field of study (Bransford, Brown, and Cocking, 1999; McKinnon and Nolan, 1999).

Assessment

Since HAD has been a pilot course, it was not possible to grade students. Nevertheless, ongoing, varied, and frequent formative assessments were conducted throughout the course to assess learners' levels of understanding. The multiple means of assessing student learning included quizzes, essays, mind maps, presentations and rubrics. Assessments were designed to provide choice, diversity and flexibility, and assess learners taking into the account their different learning preferences.

An extension of diversification was giving students a choice between two or more assessments for the same task, such as a choice between a presentation, an essay, or audio file. The intention was to empower them by accommodating the success of diverse learners. Students were also encouraged to become competent reviewers using rubrics: they were given the responsibility of evaluating their own work and providing their classmates with feedback on written assignments and presentations. The self- and peer-assessment rubrics allowed learners to see what exactly the teacher expects, thus, guiding them to note their own strengths and weaknesses.

Course Technology

Effective course design requires an understanding of the instructional medium (Friedman, 1996); thus, the way technologies were used was essential. The existing literature outlines several key features that should be considered in the

design of OL, all of which I incorporated into both the planning and execution stages of my course:

• *Flexibility of use* can be considered a key feature in technology design (Garrison, 2011; Lombardi, 2007). It allows the students to take control of their own learning, which is one of the essential concepts of modern learning theories;

• *Accessibility* should be taken into account to allow students to access the software without hindrances;

• *Communication* within and through the use of LMS is one essential component in supporting a communicative approach to learning;

• *Aesthetics and consistency* relate to the visual aspects of the learning software that should be both aesthetically pleasing and build trust in the student through consistency;

• *Scalability* refers to a system's ability to continue to function optimally when its size, volume, or the demands placed on it change. In other words, LMS's scalability depends on how well a VLE is able to support an increasing number of learners, a growing course and file catalogue, and whether a course may be taken on varied devices (e.g., mobile devices and laptops);

• *User-friendly LMS* is needed to make sure students are able to easily move around the course, with navigation kept simple and consistent for the students. Potential problems, however, can be mitigated through introductory sessions on the technology being used and by having a continuous technical support team present (Bond and Bedenlier, 2019);

• *Providing thorough and clear explanations of how technology is to be used* (Lim, 2004; Peck et al., 2015) was found to be necessary to ensure student commitment, engagement, and success in OL.

Support

The course offered technical support to students by myself and the school's IT teacher. Other aspects of support were related to the behavioural, social, and emotional challenges of an online setting, as well as support by the teacher for succeeding in the online environment. I ensured I stayed active in the course to identify students in need and plan the proper actions to take, and to encourage the sense of belonging. I communicated regularly to stimulate engagement, and modelled and encouraged proper communication that was both content and non-content-related (DiPietro et al., 2008).

3.8 Ethical Considerations

In line with the Lancaster University Research Ethics Code of Practice, institutional approval was sought by applying for an ethics review where different issues were looked at in-depth. Permission to conduct the study was also obtained from the school where the research was taking place, and prior to the commencement of the study from its participants via a consent form (see Appendix 2). By adhering to British Educational Research Association's code (BERA, 2018) and the Croatian Act on Personal Data Protection (2003), this research was conducted within a stringent ethical framework. Furthermore, I sought guidance from documents on child protection in sport and ballet (Brackenridge and Rhind, 2014; Papaefstathiou, Rhind and Brackenridge, 2013), *Involving Young People in Research Projects* (France, 2000) and *Including Children in Social Research* (Harker, 2002), to ensure a safe working and interview environment where the young participants felt at ease in their surroundings.

Also, study participants and their parents received a *Participant Information Sheet* (see Appendix 1), asking permission for the involvement of their children in the study, containing the project outline, the purpose of the study, and how the results will be used. The letter provided the estimated time commitment for participants, the anticipated benefits of the project, and the knowledge and skills to be gained. Assurance was made that refusal to participate would not

impact students' grades or learning. Further, to show my ability to anticipate the threats to the successful completion of the proposed project, I had:

• Established a realistic timeline;

• Submitted a copy of the *Participant Information Sheet* and course syllabus with the ethics document to the school principal prior to the beginning of the course;

• Ensured the participants had adequate power to determine their role in the research with the ultimate test of the power of participants being in knowing that they had the ability to withdraw (ACSS, 2013).

In order to minimise the impact of the power imbalance:

• I ensured that participants understood that data collection processes were not 'tests' in any sense, and that all responses were equally acceptable, valid, and welcomed;

• I created a relaxed atmosphere by having an informal chat prior to the data collection (Shaw, Brady, and Davey, 2011);

• I reassured students about the value of their contribution letting them know that they had the answers to the questions the researcher is interested in, which was regarded as a way to elevate their status (ACSS, 2013).

Finally, one of the core ethical issues related to this research is the role conflict stemming from the insider research, which I already addressed.

3.9 Data Collection and Analysis

Mentioned previously, the CGT research (Charmaz, 2014) was applied in five iterative steps, where Step 1 consisted of a review of the literature and Step 2 of the initial conceptual framework development resulting from the analysis of some of the existing influential OL theories/models within the field. Step 3, presented following, was dedicated to the data collection process and ran

parallel with Step 4 - data analysis. Qualitative data for this study were obtained via in-depth semi-structured interviews conducted to answer the research questions.

3.9.1 Semi-structured Interviews

Gathering data from interviews is a prominent approach in social science research (Bryman, 2008), and widely adopted and documented in GT research (Stern, 2007; Corbin and Strauss, 2014; Charmaz, 2014). Whilst conversation style in an interview may either be unstructured, structured, lightly structured, or in-depth (Jamshed, 2014), data for this study were obtained via in-depth/intensive semi-structured interviews. As suggested by Bryman (2008), an 'in-depth' interview incorporates elements that are both unstructured and semi-structured. Charmaz (2006; 2014) prefers the term "intensive interviews", referring similarly to a directed conversation which may either be loosely guided or semi-structured, with the researcher using a pre-prepared topic guide.

Semi-structured intensive interviews gave me the opportunity to explore what I most wanted to know, but also to take advantage of unexpected topics that were useful to the research. As Denscombe (2007) commended, "when the researcher needs to gain insights into things like people's opinions, feelings, emotions and experiences, then interviews will almost certainly provide a more suitable method—a method that is attuned to the intricacy of the subject matter" (p. 174). By using interviews, I could understand the feelings and opinions of the interviewees in more depth than I could have done by studying survey responses or even responses to, for example, open-ended questionnaire items because the dialogue allowed me to follow up on their statements immediately and they on mine.

Despite the positive features, the method has not gone without criticism; for example, (1) interviewing large groups is time-consuming versus distributing surveys, particularly if complicated arrangements are required; (2) to identify major themes, completed interviews need to be pondered exhaustively using GT techniques; and (3) the interview might seem invasive and be unsettling to a

subject, especially when involving cross-cultural communication (Denscombe, 2007). Barbour and Schostak (2005) also mention the issue of “hidden agendas” and “performances” by people involved in conversations, and the general “messiness of encounters with others” (p. 41). Nevertheless, while these interview behaviour patterns might interfere with understanding, they may also be present in questionnaire responses where they can be more difficult for researchers to spot (Alkahtani, 2016).

Fifteen (15) students were interviewed in this study. Baker and Edwards (2012) argued that there is no specific rule on how many interviews are required within qualitative research (Baker and Edwards 2012). Sandelowski (1995), however, recommends that qualitative sample sizes are large enough to allow the unfolding of a new and richly textured understanding of the phenomenon under study, but small enough so that the deep analysis of qualitative data is not precluded. Additionally, the data dictated theoretical sampling sample size as advised by different experts in the field (Holton, 2010; S. Thomson, 2010).

Each interview was done via *Zoom*; it was recorded and lasted approximately 45 - 60 minutes. All participants gave additional verbal informed consent before the interview (in addition to the consent signed at the beginning of the study). In the construction of the interview questions, I considered appropriate child-centred language. Each interview was transcribed and the students were given a pseudonym to anonymise them. I transcribed immediately after the interview or at least transcription was completed before the next meeting with the next participant in order to ensure clear perceiving and understanding of the data, as well as to achieve a thorough, ongoing, and deep analysis. Equally so, immediate transcription was highly important and beneficial so that I could undertake the data analysis during the data collection process which is an essential feature of GT and CGT (Cunningham and Carmichael, 2017; Miles and Huberman, 1994; Saldana, 2021; S. Thomson, 2010). Transcribing immediately helped to cycle back and forth between thinking about the existing data and generating strategies for collecting new and more elaborate data.

Whilst immediate transcription undoubtedly slowed the research process, it also provided a unique opportunity to review critically my own work and to potentially improve upon my interviewing techniques (Johnson, 2011). While transcribing, I was concurrently reflecting on the research aims and that process and immersion supported me to think about different ways to explore concepts and introduce alternative prompts to the interviewees. Further, I realised benefits associated with the pacing enforced by transcription: in contrast to Glaser's (1998) assertion about data overwhelm arising through recording and transcription, in this research, the pause imposed by transcription was very useful in avoiding the unnecessary collection of data unhelpful for the developing framework.

I initially interviewed 15 student participants, noting concepts as they emerged from the students' answers in both brief notes during interviews and memos written afterwards. Later, I conducted three additional interviews as my category development progressed to theoretical coding. The theoretical sampling will be discussed in greater detail on the following pages.

Believing that the prepared interviewer has a better chance of gathering rich and relevant data (Lincoln and Guba 1985; Charmaz 2014), a pre-prepared topic guide was created ahead of the interviews (see Appendix 3). It enabled me to ask each participant the same questions in the same way, allowing for more direct comparison (Greig, Taylor and MacKay, 2007). The interview questions were formulated to enclose different concepts emerging from the research questions and additional items were added based on the literature review associated with OL factors identified in reviewed frameworks/models and my provisional framework. All questions were first written in English and then translated into Croatian by myself, the teacher-researcher.

The interview was piloted by two participants in order to check that all questions were clear. The rationale for pilot interviews was to ensure questions were clear, unambiguous and short, and that they were assembled in an accessible and manageable way for young students to understand (Birks and Mills, 2015).

Minor modifications were made to the wording of some questions, taking into account the complexity of the language used.

3.9.2 Three Phases of Coding

Coding is ongoing throughout the GT research, and the data are coded continually (Glaser, 1978). Data analysis was conducted on printed versions of the interview transcripts and I also found it useful that I could immediately attach codes when I noted some trends or patterns during the process of transcription. Hence, the transcription and coding process sometimes took place simultaneously. Three stages of coding were conducted under the CGT approach: open coding, selective coding, and theoretical coding (Allen and Davey, 2018; Qureshi and Ünlü, 2020). Collectively, these three stages are known as substantive coding (Allen and Davey, 2018). As demonstrated in Figure 3.3, the process can be followed from data generation to open coding for the creation of core categories and related concepts, and then through selective coding of data and subsequently theoretical sampling, leading to theoretical coding, and finally to theoretical saturation of the core and related concepts.

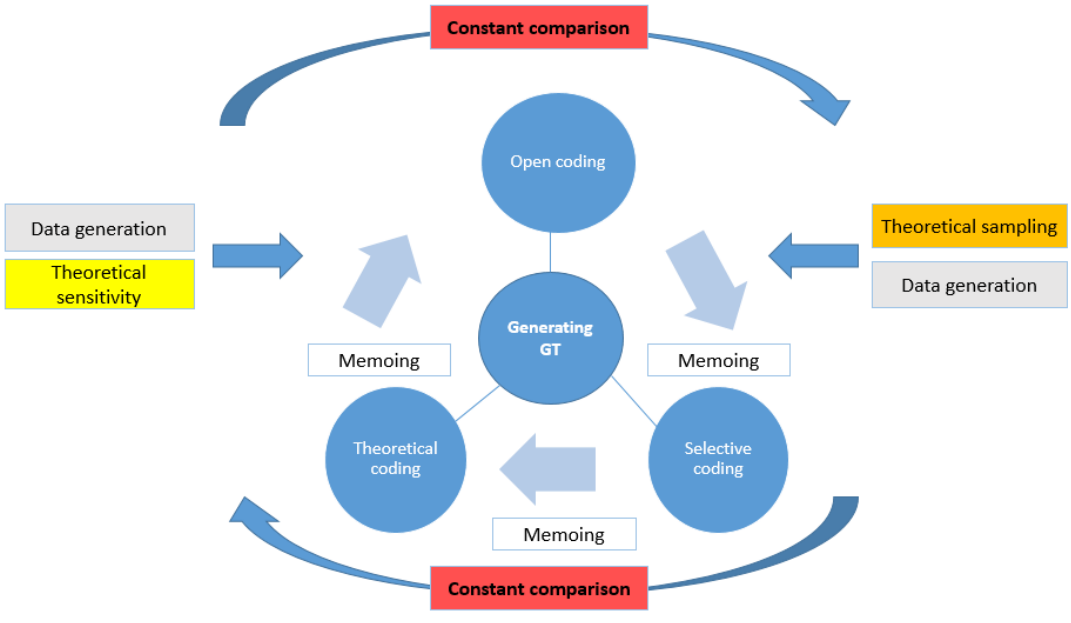

Figure 3.3: Constructivist GT Substantive Coding Used in this Research (adapted from Allen and Davey, 2018)

Open coding

Open coding was the first stage in analysing the data where initial abstraction occurred and the first codes and categories were identified in line-by-line coding. Line-by-line coding forces the researcher to verify and saturate categories, minimises missing an important category, and ensures relevance by generating codes with fit to the area under study (Holton, 2010). During this phase, I attached labels to certain parts of the text, differentiating perceived needs and factors impacting upon students' learning online, following the advice to explore smaller pieces of data that could elicit unexpected or unforeseen codes, categories, and patterns (Charmaz, 2014; Saldaña, 2021).

A variety of codes were identified with the intent to remain close to the narrative of students. Codes created at the beginning were reviewed, compared with further data, added, reused, discarded, or modified, depending on the interpretation of the new data (Charmaz, 2006). Through this procedure, I grouped similar codes together under a broader label called *concepts*. Upon further analysis, linked *concepts* were grouped into *categories*. Figure 3.4 on the following page shows an example of the category (Teacher role) with related concepts and codes.

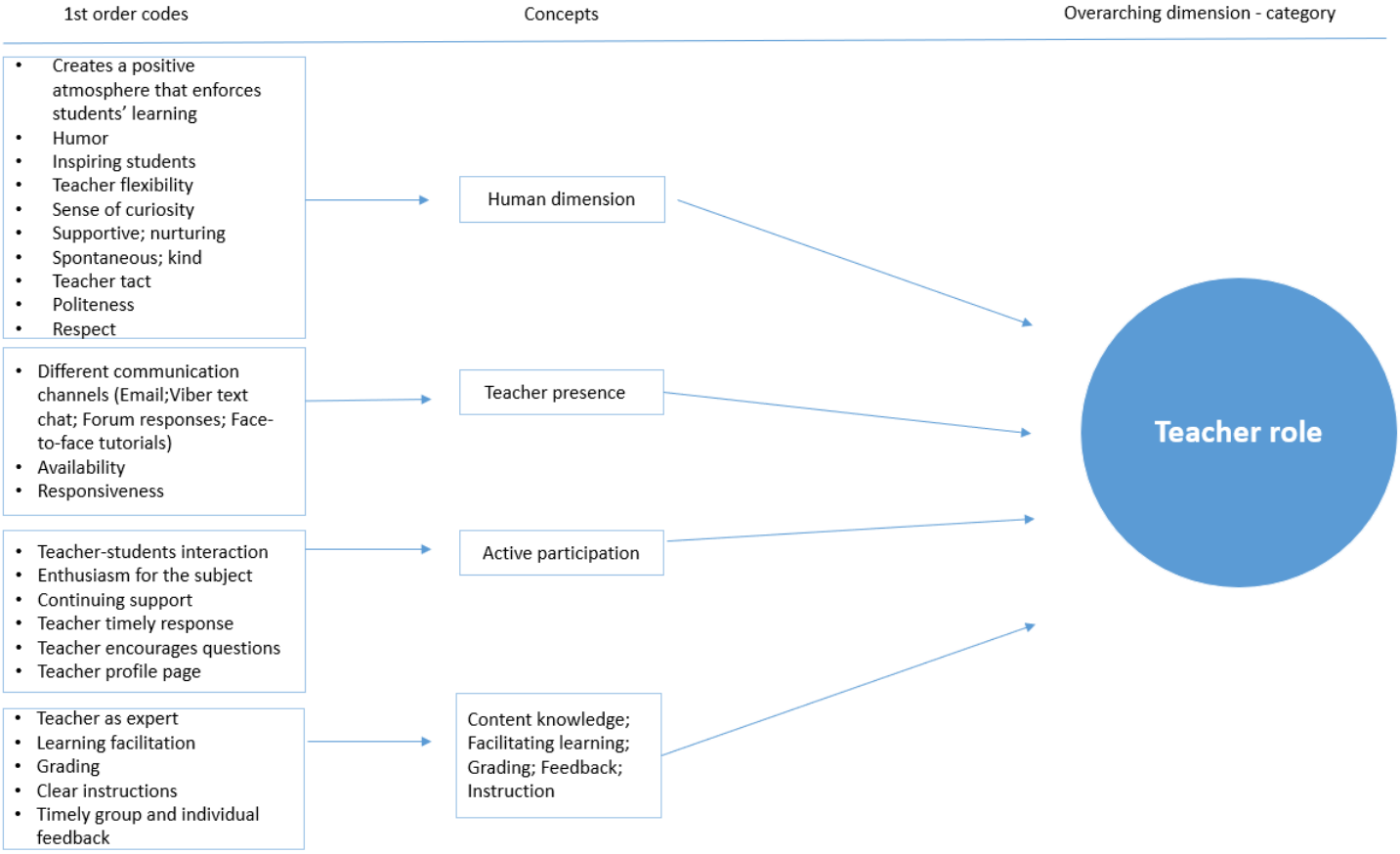

Figure 3.4: Data Structuring Process: First order Codes, Concepts, and Category

As I progressed with line-by-line open coding, new categories were created and new incidents fitted into the existing categories. I coded for similarities and differences in the data that involved constantly comparing codes and concepts with new data, which in turn led to new concepts. It is during the open coding stage in analysing the data that the first core categories (see Figure 3.5 on the following page) were identified. Core categories are defined as the key issues and ideas that appear in the research (Jones and Alony, 2011).

Further, categories of concepts became areas of interest for determining the next steps, such as whether I needed to delimit the focus if there were doubts that needed to be clarified, and I identified those students who had distinct meanings associated with certain categories. Likewise, this process of using initial categories to determine new lines of inquiry worked in reverse by using

newer data to refine and redefine previously established categories (Compton and Barrett, 2016).

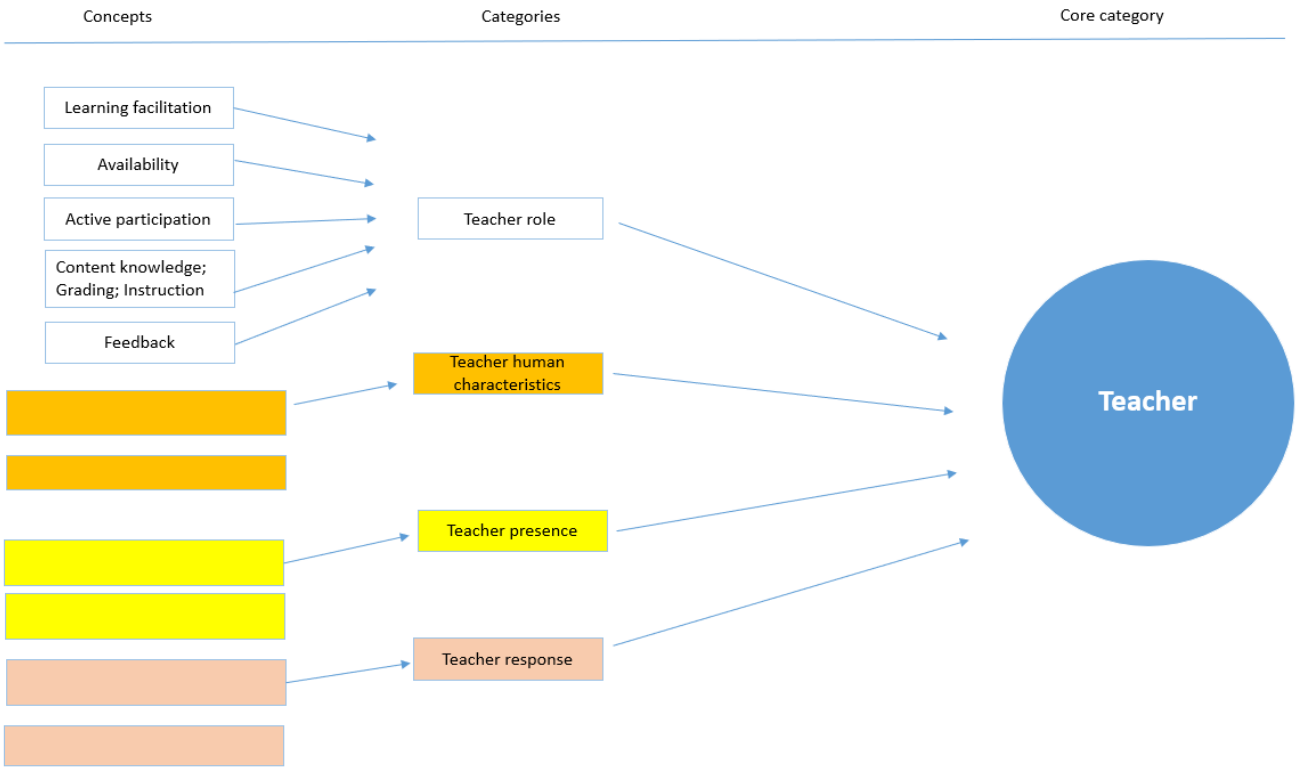

Figure 3.5: Core Category with Categories and Concepts Attached

Selective coding

The selective coding was the second stage of categorising the created categories further into core categories by exploring the relationship between the created categories (Li, Du and Long, 2019), and by refining, strengthening, and solidifying codes, concepts and categories (Qureshi and Ünlü, 2020). I then conducted a more selective phase of sorting and combining initial codes into a more concise and simpler list to develop the theoretical direction of the study (Charmaz, 2014). During the selective coding phase, I continued constant comparison of categories and core categories until strong patterns started forming among the findings. As Böhm (2004) emphasises, "the most important intellectual activity in the analytical process of data interpretation consists of *comparison*" [emphasis in original] (p. 270), referring less to the search for identical contents than to the search for similarities and differences.

Line-by-line coding of the data was still required to ensure its comprehensive synthesis and that potential additional themes can be identified (Charmaz, 2005). This is in line with the CGT practices, where “line-by-line coding enables the researcher to verify and saturate categories and the result is a rich, dense theory with the feeling that nothing has been left out” (Glaser and Holton, 2004, p. 14).

I was open to finding completely different codes that would lead to different concepts, categories, and themes in the new data. It is important to note, however, that once selective coding has taken place, the subsequent data collection and coding were delimited to that which is relevant to the emerging conceptual framework (the core categories and those categories that relate to the core) (Holton, 2010). This round of data analysis (see Figure 3.6) then determined the criteria used to determine the sample for the next round of interviews. As stated earlier, further student interviews were the supporting data source to reach further conclusions about the core themes.

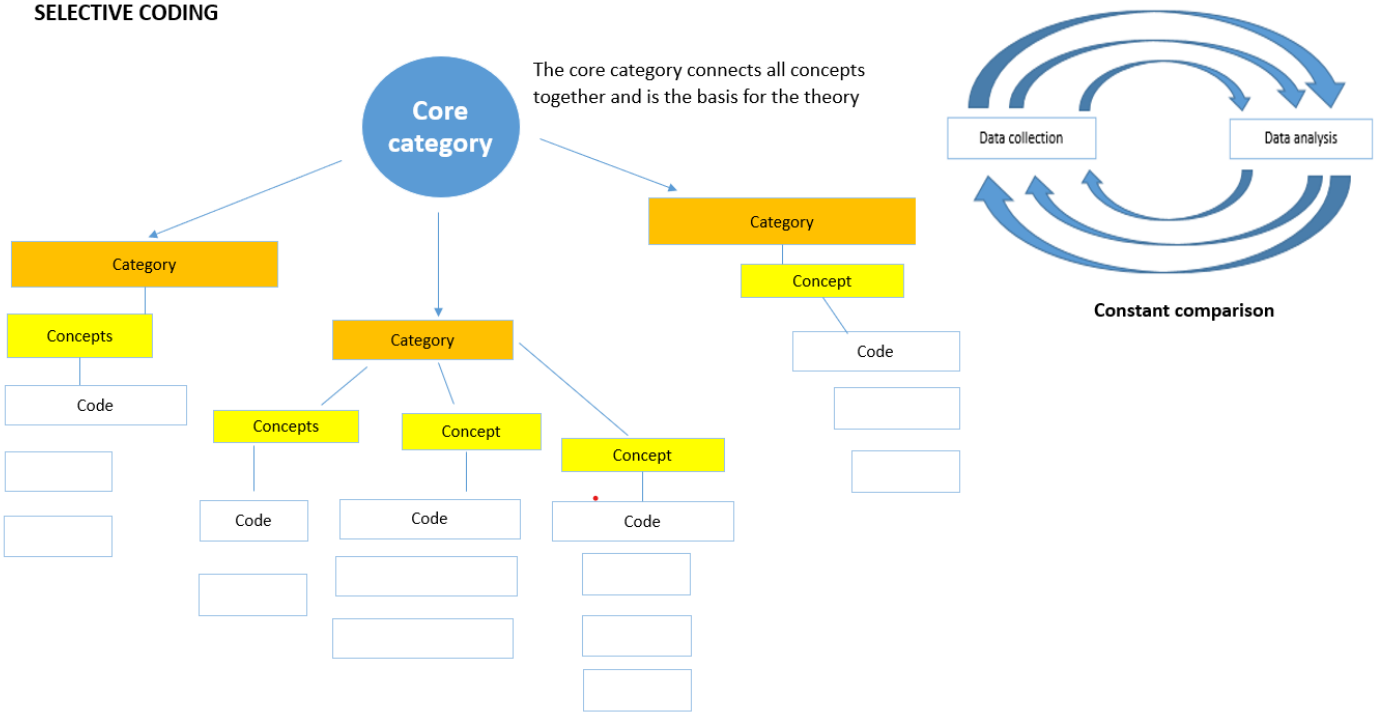

Figure 3.6: Selective Coding

It is important to note that core categories can be descriptive, i.e., include a description of participants' concepts and beliefs if necessary; they can stay close to the data categorised but do not inherently imply a more abstract theory (Maxwell, 2008). Whilst core categories can be used in developing a more general theory of what is going on, it is the theoretical categories that place the coded data into a more general or abstract framework (Maxwell, 2008). Again, coding processes for substantive codes, core categories, and theoretical codes are not isolated or disconnected processes; to a certain extent, all types of coding occurred simultaneously (Hernandez, 2009).

3.9.3 Memoing and Diagramming

GT recommends the coding of data in conjunction with analysis through a process of memoing and conceptual memoing, i.e., capturing the theorist's ideation of the emerging theory (Böhm, 2004; Hernandez, 2009). From the very beginning of my research, I recorded reflections, research insights, and notes during data analysis in my memos. At times, when transcribing the data, I noticed that my interview skills needed a bit of improvement, e.g., at times, I interrupted participants while they were still talking. I collected all of these observations in a book of memos and reviewed them before the next interview session. These reflections were part of my learning process during data collection, and they helped me to refine my strategies for conducting the research. Furthermore, whenever I had an insight while transcribing, I immediately recorded it in a memo. As such, memoing made my ideas and analyses visible and retrievable (Maxwell, 2008), and performed as a valuable analytic technique that facilitated my thinking about relationships in my data. To keep the participant's voice and meaning present in the theoretical outcome, following Charmaz's advice, I also included raw data in my theoretical memos and continued with this strategy as my memos were becoming more complex and analytical (Charmaz, 1995).

While being actively engaged in coding and analysing, early memoing of emerging conceptual thoughts enabled me to continuously build theoretical sensitivity - I would stop coding to capture in the moment my conceptual ideas

about the codes I was finding. Memoing also facilitated theoretical sampling, and sorted memos captured the theoretical outline for the articulation of my conceptual framework.

Another central technique related to the coding process is diagramming (Mills, Bonner and Francis, 2006) which I used to illustrate the complex interplay between the different findings. These logic diagrams, networks, flowcharts and concept maps served two purposes: a) data analysis and reduction; and b) presentation of data or analysis in a form that allowed me (and now the reader) to see it as a whole.

3.9.4 Theoretical Sampling, Coding, and Saturation

Once my analysis progressed to selective coding and I reviewed the memos, as I identified emerging gaps in understanding of OL, I had to decide where and how to collect the next tranche of data. Normally, in GT the researcher will decide on a small purposive theoretical sample of participants to begin the process of concurrent data collection and analysis (Birks, Hoare and Mills, 2019), called theoretical sampling. It denotes a sampling method in which the selection of new ‘cases’ that are to be included in the analysis is guided by the unfolding theory. In this context, ‘cases’ does not necessarily mean people: “it is concepts and not people, per se, that are sampled” (Corbin and Strauss, 2014, p. 135).

The follow-up interviews with some of the study participants were conducted to gather more in-depth data until the point of theoretical saturation (Glaser and Strauss, 1967; Locke, 2001; Goulding, 2005). As I was completing the 10th interview, I realised I needed to begin collecting additional data. Charmaz (2014) notes that theoretical sampling is conducted until saturation is reached. Judging that these respondents might enrich the data I would be working with, I added firstly two and then one more additional interview – altogether three – and continued the processes of open and selective coding, i.e., I kept returning to my earlier data reconsidering it in light of my developing theory.

Collecting additional data started once I interviewed all 15 participants. It continued until data collection supplied no new data, i.e., until I had sufficiently elaborated and integrated the core categories, their properties, and their theoretical connections to other relevant categories (Douglas, 2003; Holton, 2007; 2010; Locke, 2001). Theoretical saturation was signalled once no new properties or dimensions were identified from continued coding and comparison (Corbin and Strauss, 2014). In my research, theoretical sampling provided me with the additional data needed to strengthen and more fully develop the properties of a particular category, and develop my conceptual framework (Kenny and Fourie, 2015; Rieger, 2019).

Theoretical coding

Just like the comparison of data is undertaken at every stage in GT, theory development remains constant throughout each stage of data gathering and analysis (Charmaz, 2006). The creation of relevant theoretical codes, however, requires theoretical sensitivity, i.e., close attention to the codes, concepts, categories and ideas memoed, submersion at the conceptual level, a balance of logic and creativity, and openness to the unexpected (Holton, 2010). Strauss and Corbin (1990) name different sources of theoretical sensitivity: e.g., pre-existing literature, the professional and personal experience of the researcher, and the analytical process itself. Nevertheless, the researcher is not supposed to follow the beaten track of the literature or his/her personal experience, but question these and go beyond in order to get novel theoretical insight (Vollstedt and Rezat, 2019).

During theoretical coding, which is also a theory-building process, the core categories and themes were reanalysed to test their validity, the relationships between themes were identified, and appropriate codes used to achieve a consolidated framework for the overall GT (Holton, 2010). As I saw similarities, connections, and underlying uniformities, sorting was conceptual sorting, not data sorting. Conceptual sorting provided theoretical completeness and generated more memos on a conceptual level, furthering and condensing the framework (Holton, 2010). Through sorting, the data and ideas were

theoretically ordered until theoretical saturation occurred, and a rich, holistic conceptual framework was created (see Figure 3.7).

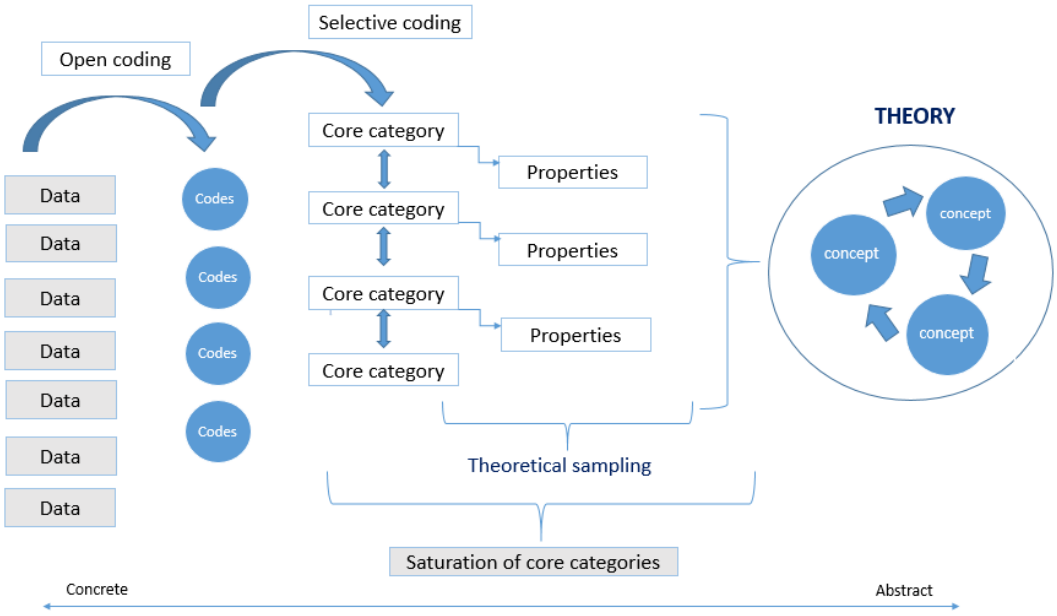

Figure 3.7: Constructivist GT Process of Developing Theory from the Coded Data (adapted from Saldaña, 2021)

Importantly, different scholars (Birks and Mills, 2015; Birks, Hoare and Mills, 2019; Edwards, 2016; Goldkuhl and Cronholm, 2010) argue that, during the stage of theoretical coding, a researcher may identify and then infuse one or more existing theories to clarify the contribution of GT to existing knowledge while, no less importantly, validating that knowledge. Glaser (2005), Birks, Hoare and Mills (2019), and Maxwell (2008) all argue that theoretical categories may be derived from both prior theory and an inductively developed meaning that is constructed from the data. Accordingly, during the final stage of analysis, I integrated the results of the empirical study – the subjective conceptual framework, with the initial/provisional framework created from my synthesis of the influential existing theories/frameworks within the field. Thus, my provisional framework served as a building block, supporting the empirical data in forming the new theory - the OLY conceptual framework – and it served as a means for analysis and control of the validity of the evolving theory.

3.10 Conclusion

This chapter explained the adopted methodology for my research. My study was framed within an interpretivist paradigm and CGT (Charmaz, 2006; 2014) that provided a methodology for conceptualising the meanings and actions of participants, and their OL experience (Metelski et al., 2021). Further, my methodology was also drawn from the specific purpose of my research and the research questions.

After I introduced the principles of CGT and its limitations, I discussed the HAD course setup that was implemented to research students' OL experience. I subsequently outlined ethical considerations and the role of the researcher in the study. This included an account of the reflexive role of the researcher, myself, and how the role duality impacted the research process.

Next, the Chapter discussed the methods – semi-structured in-depth interviews, and procedures used: sampling, data collection, and data analysis, that occurred in tandem, which, in turn, guided subsequent interviews and generated new data. I followed the well-established coding procedures in GT to make tentative propositions about categories, starting with open and selective coding. In a response to the need for further elaboration of categories to develop my framework, I returned to some of the participants for follow-up interviews – a process known as theoretical sampling. It allowed me to obtain a richer and deeper understanding of the students' OL experiences and ceased when categories were well described, i.e., saturated.

The final coding phase - theoretical coding, involved the identification and reconfirmation of core categories that incorporated other categories or superseded them in importance. Here, my insights from a process known as memoing, i.e., recording of the methodological and theoretical insights about the data that, to a point, guided analysis, sampling, and theory building, were expanded to compile additional theory-building memos about the data. The theoretical memos helped me synthesise the characteristics of each category, which explained how upper primary students experienced OL. The final stage of

theory building - theoretical coding, yielded the theoretical categories constituting a ‘substantive theory’ - the subjective conceptual framework of OL for upper primary students.

Next, following the suggestion by Goldkuhl and Cronholm (2010), I related the subjective conceptual framework (students’ experiences), to established research - the provisional framework. The subjective framework introduced new dimensions, and identified the importance of several dimensions that were included as sub-dimensions in the provisional framework, but upon analysis, some of the sub-dimensions were re-positioned as core factors in meeting students’ needs, and some dimensions were merged to more precisely illuminate the nature and characteristics of OL for this group of learners.

In conclusion, CGT appears to have been an adequate overall methodology for the study. It provided the structure and a coding paradigm needed to grasp the relevant information and answer the RQs whilst reconciling theory development and building on the existing theories to create a rich, holistic conceptual framework of OL for youth.

Chapter 4: Empirical Study Results

4.1 Introduction

I conducted face-to-face interviews with the upper primary students in Croatia as part of the third phase of the research design. The interviews have illuminated students' OL experiences and identified factors that influence an effective, holistic OL practice. They served to additionally clarify and confirm OL characteristics and the inputs/determinants impacting OL as identified from the literature review that I condensed into the initial/provisional conceptual framework (see Chapter 2). Finally, based on the synthesis of: 1) factors and conditions for quality and successful OL experience from the literature (summarised in the provisional framework), and 2) themes resulting from my empirical study (the subjective framework), I outlined the development of a holistic conceptual framework of OL for young learners - OLY framework.

4.2 Findings

On the following pages, I present the findings related to the second and then the third research question.

RQ 2: What are upper primary students' needs and preferences regarding OL through the studied HAD online module?

Figure 4.1 on the following page illustrates the results that identify what aspects of learning online students see as essential or even critical to their success as online learners and their positive OL experience. I will discuss each category separately in detail (see Appendix 4 for a table of sub-dimensions).

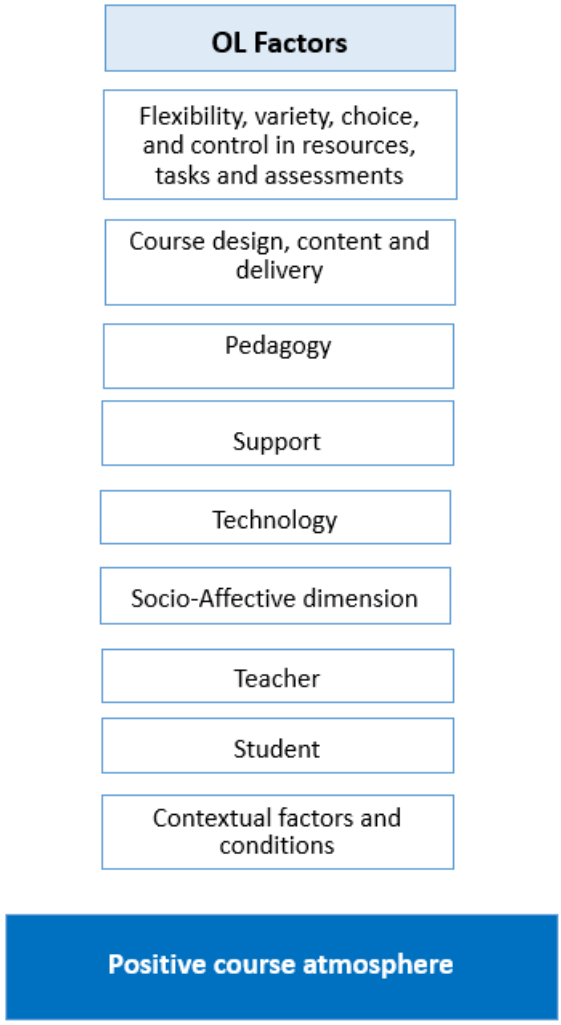

Figure 4.1: Student Identified Factors in K-12 OL

1) Course content, design and delivery

From the students' answers, both the content dimension of a course - the subject matter, knowledge, and skills that are being taught to them, and the course design - the logistics and technical aspects of how the subject matter is structured and accessed within the LMS (including course structure, content presentation, navigational structure, and the overall organisation and layout of the VLE), are the precedent factors for learners when considering OL. Tea shared this view in simple terms in her comment:

Tea: “Both what we’re learning and how everything is set up and delivered to us is important for our learning experiences.”

Notably, learners are pleased with online courses that are well designed, which for them means that a course is: a) structured and organised into units, b) with laid out expectations, clear learning objectives, assessment modes, and criteria, c) with a combination of resources and media used in the content presentation, i.e., multiple modalities, d) has diverse communication inputs, and e) includes an introduction to the course session. Similarly, they desire logical, understandable course navigation and organisation of course components, to be told what precisely they need to do and when they need to do it, and wish that all courses follow a consistent structure.

Carol: “In the course where you study from the videos and Loomen, and mostly on your own, it is very important that from day one you know what learning will look like and that there is a clear weekly and monthly plan for the course in terms of tasks and assessments. And the teacher should include contact information (a direct link, for example) for questions… Everything was super clear and ordered in HAD course, just as it should be. Also, although information was communicated in different ways – we watched course videos, learned about costumes from pictures and illustrations, we listened to short audio podcasts as weekly episodes that supplemented the videos, we were reading texts, completed quizzes, listened to music excerpts from performances, we watched dance videos on YouTube... I don’t know if I forgot something… ah yes, we organised our thoughts in mind maps and studied already created mind maps, although there was such variety, everything made sense. Our learning was very diverse but structured and with laid out expectations.”

Victoria: “Navigational instructions were clear; I could easily understand the organisation of the course also because of the presentation of content for the course overall and for each unit. Course calendar with assignment and test due dates helped me understand what is required… The introductory

statement that explained the types of activities required to complete (written assignments, online self-tests, participation in the discussion board, group work, etc.), was so useful. I wish every course was organised like this."

Flora: "Everything on the course was communicated in an effective way making sure we get exactly what we need. Also, HAD had clear learning goals and transparent assessment modes and criteria. Activities and assessment incorporated many options, and students completed the course assessments in the way that suited them best. I think these things are very important to students."

Students appreciated that the course was organised by units and provided multiple opportunities for students to master the content. They liked that each unit included an overview describing objectives, activities, assignments, and resources, available to students before the course began. Findings also demonstrate that giving students clear expectations from the onset of the online course better equips them to effectively navigate the workload which has been assigned to them. Relatedly, they believe the use of rubrics, templates, and exemplars is critical for their learning. Furthermore, the majority of students appreciated being offered an orientation to taking an online course before starting the coursework:

Tea: "A course 'tour' before we started and course etiquette/expectations – (expected behaviours in forum discussions, email communications, etc.) were super clear and useful. I learned from these too."

Maja: "Course organisation was so smooth and the minimum prerequisite learning per week was stated clearly. Also, assignment deadlines were shared. The purpose of learning materials and how they are to be used was explained… hmm… what else? Yes! A teacher introduction was included and it was appropriate that the teacher used a video and Padlet that we were then required to use too. We were also asked to introduce ourselves to the class. I liked that task."

Deana: “A few minutes of the first day of any course is spent going over both the schedule and syllabus to ensure I understood both what was expected of me and what to do if I have questions. So, the course has to be well-designed and have an ‘Introduction to the course’ section, like HAD had. And rubrics and examples of submissions are so helpful too… And to know course objectives.”

Interestingly, students said they preferred online courses to follow a consistent structure so that navigation does not change from one course to another:

Deana: “Instructions to us were great; school should always tell us what to do first, rather than list detailed instructions for the whole course without a “Start Here” message. “Start Here” - when a student enters Loomen, was great, and navigation through the course was logical; it was also always consistent. In fact, organisation of all online classes should be consistent and not made up by the individual teachers.”

The interview data clearly indicates that students perceive that video learning resources and resources with diverse and additional representations of content assist their comprehension, understanding, and retention, and are more interesting and enjoyable to use. All students enjoyed the course videos; however, most do not want lengthy videos. Helen noted that what seems to work best is “the snippets: short video, brief text, a quick email, the short information”. In addition, students suggested they desire lectures to be original works:

Barbara: “I wish to stress the importance of teachers posting a self-done video before posting videos by others. I get used to the presentation style and teaching style of a particular teacher and I predominately wish to see my subject teacher delivering content. It’s more meaningful to me.”

Tania commented on how resources that had images assisted her to understand and retain the information better, and she preferred videos over written content. She also expressed a strong preference for options, i.e., a combination of resources and media used in the content presentation.

Tania: “For me, when images are used, e.g., a table showing the difference between two periods in history, I can “picture” that information in my mind when recalling it. So, what I appreciated was that the content was using diverse media. Also, I believe it would not be difficult for an online teacher to provide both, a video with voiceover, like a filmed lecture, as well as add an accompanying PDF file of that lecture in a textual format for those who like to read and underline important facts when studying for an exam. For me, however, when content is delivered by video or PPT with voiceover, it is much better than just text lectures. It is richer in presentation and more fun… but both are useful.”

Whilst students appreciate when multiple technologies and media are utilised to provide and present content, audio-enhanced MS PPT presentations and MS PPT with video of a teacher presenting with embedded external links, were particularly valued by the study participants. The audio component was perceived as a necessary component. In the learning resources used in the course, audio was provided in 1) audio-enhanced MS PowerPoint presentations, and 2) as a stand-alone file, e.g., podcast. Students believe that when audio is used in conjunction with images or text, the advantage is the most prominent.

Mia: “I enjoyed reading text materials, but hearing a real person’s voice, added a personal element that made learning more enjoyable.”

Tania: “Hearing the information spoken and maybe put into different words than the text helps me to get a fuller understanding. I especially like when audio complements images or videos.”

Ana: “I think hearing the information helps my recall - I normally listen to the recording a number of times if a recording is available.”

Notably, during the interview, Ana was quite enthusiastic about the subject content being delivered in multiple ways and appreciated the use of internet resources too, saying that adding the information available on the Internet could make a class “become more fun and alive”.

The discussion extended to include learning from guest teachers. Overall, a guest speaker visit was received very positively. Tea shared that she “loved the guest speaker on the course, as the visiting teacher expands on our current knowledge”, however, she appreciated student-student teaching too. Both constitutes indirect instruction which students perceive as an enhancement of their learning opportunities. For example, several respondents remarked that they learned from each other on discussion boards (Carol, Helen, Patti), through email groups (Tania, Ana, Isabel), and from peers’ individual presentations. Isabel even mentioned that she had been in the email group that became a telephone group that participants would use to ask and answer questions about what they were studying, and she shared “how much they were learning from each other” (Isabel). It can be concluded that the use of indirect instruction should be built into the course.

In summary, from the students’ perspectives, the key attributes of the course content, design and delivery dimension are outlined in Table 4.1 on the following page.

Content	
Student assigned attributes	• Content is well-organised, understandable, concise, interesting and interactive • Useful, diverse and relevant content • Course includes an *Introduction to the course* session
Design	
Student assigned attributes	• Well-structured and organised into units • Logical, understandable course navigation • Courses to follow a consistent structure • Clearly outlined expectations, learning objectives, assessment modes, and criteria • Rubrics for assignments are provided • Content presentation: enjoyably presented content; multiple technologies and media are utilised for content provision and presentation; the main method of content presentation are self-done teacher's videos that combine visual, audio, and text, supplemented with external links and podcasts; supplementary video-related text is available to students; written guidelines for collaboration and communication are provided; scope-and-sequence handouts communicate what learners need to do and when they need to do it
Delivery	
Student assigned attributes	• Clear timelines and deadlines • Direct and indirect instruction - guest teachers and peer-to-peer learning • Diverse communication inputs and range of effective communication channels

Table 4.1: Key Attributes of the Course Content, Design and Delivery Dimension

The following list - *Flexibility, variety, choice, and control in resources, tasks and assessments* - identifies the second of the overall nine identified factors as aspects of learning online that students see as essential or even critical to their success as online learners and their positive OL experiences.

2) Flexibility, variety, choice, and control in resources, tasks and assessments

a) Flexibility in time, place and pace of learning; flexibility in tasks and assessments; flexible scheduling;

b) Variety in instructional methods, resources, tasks, and assessments;

c) Having a choice;

d) Having control of learning.

Whilst flexibility, choice, and self-direction in tasks are instructional elements that fall within the *Pedagogy* dimension, I gave this aspect of learning a separate place on the map of OL as flexibility, variety, choice, and control were recurring themes in the data, signalling to be of essential importance to the students.

The *Flexibility* factor of this category refers to the nature of OL as well as the *why* of online education – students' wish to learn from home and their requirement for flexibility in several important ways. For example, flexible scheduling was mentioned as why students would choose the convenience of learning online in the future. For several respondents, learning online instead of in a traditional setting was a *need* as well as a *want.* It became apparent that students appreciate online courses because of a need for the flexibility to work around different commitments such as to:

- work around a full load of classes in regular school
- meet the rigours of a student-athlete schedule
- be able to attend more than one school
- work around extracurricular activities
- avoid time that would otherwise be spent on coming to school
- work on class tasks in their own time, place and pace.

One student reported that in addition to ballet school she had a full-time music school schedule that was extremely demanding, and the only option she had at that time to enrol in a new course (HAD) was the online class. This student had strong emotions about the sacrifices that she perceived she had made due to

her pursuit of a ballet and music education. She expressed frustration towards the educational system for not making it easier to attend three different schools and concluded that “more online courses would have been a huge benefit. To start with - less time on travel between schools” (Ana).

As per students’ opinions, the flexibility in time, place and pace of study itself has a positive impact on their educational experiences:

> Ana: “OL allows me to log on at will and view my course and assignments at will. Also, I don’t have to worry about trying to find time to come to school.”
>
> Tea: “You’re never late for class. There is no hassle in trying to rush to get to class. Flexibility with time is another positive characteristic of OL.”

Another important finding is that, for some students, flexibility is not just a pre-condition of online classes, but it continues all the way to the end of a course. Helen, for example, reported that she was interested in a required synchronous lecture, but she couldn’t attend it because of her schedule:

> Helen: “To take part in Teams-sessions is not why I would like to have online classes. I’d have classes online for the flexibility to fit school into my life and work around my other classes and commitments at this point in time.”

Some students, like Helen, may need a greater degree of flexibility which is reflected in her requirement for the absence of synchronous sessions. The majority of the respondents, however, demand to meet in synchronous sessions. Nevertheless, this finding is something that educators and online course designers have to be mindful of.

Overall, the results show that providing students with the option of where and when they learn is integral to their satisfaction and success. They believe that they should be able to study more often independently of time and place and regularly individually determine the learning pace as it improves their prospects for success:

Carol: “I wish to take classes online so I can work on assignments in my own time, at home, or whilst I wait for my parents to pick me up from the school. I also appreciate that I can go through the videos in my own pace. It all gives me a positive feeling... And I have options; I have a choice when and where and how to learn, and how fast to move through a lecture. I would like to have more often these choices in the regular school.”

On the other hand, flexibility in assessment was achieved through various means in the HAD course, such as offering different assessment formats (e.g., written assignments, oral presentations), allowing alternative assessments (e.g., portfolio, podcasts), providing opportunities for self-assessment and reflection, and incorporating peer-assessment and open-ended questions. The primary goal of flexibility in assessment was to ensure that students have the opportunity to showcase their knowledge and skills in ways that align with their strengths and abilities. In their responses, students recognised the benefits of having such flexibility.

With regards to *variety,* the students all stressed the importance of having different options as in what way they would complete their online coursework. For example, they highlighted that online courses should incorporate a variety of instructional methods and strategies such as a combination of video lectures (providing foundational knowledge and real-world examples), multimedia resources, interactive quizzes, case studies, problem-solving activities, collaborative projects, and real-world applications to cater to different learning preferences, and provide a rich and engaging learning experience. Further, they recognised the importance of variety in assessment, highlighting the benefits of incorporating different types of assessments throughout a course, such as quizzes, essays, projects, examinations, presentations, discussions, and practical demonstrations.

Equally so, they enjoyed the sense of *freedom of choice*. The students all described the benefits of having greater *control* of their own learning and the benefits of independence in their online coursework, citing several

characteristics of OL and circumstances that promoted their autonomy and control:

> Isabel: “Like, if I didn’t understand something I could slow down on it, but if I really understood it, I could breeze through it. I liked that more than how things work in traditional classes. It allows us to make our own decisions and take responsibility, what teaches us to be independent and we will need that later. Also, I have ballet and stuff, and that takes up half of my time. So, I just went home and watched HAD, and then I didn’t have to leave at a certain time or anything. I love that aspect of OL. You decide.”
>
> Tania: “The main set of concepts and competencies that all students should learn was required, but beyond that, we had options for engaging in activities that interest us most. We should always have that choice.”

Choice in HAD assessment, on the other hand, provided learners with options regarding the specific assessments they undertook. They were able to select from a set of predetermined assessment tasks or formats based on their interests, preferences, or perceived strengths.

> Nicole: “Choice in assessment is very important. For example, in HAD course, we were offered like a menu of assessment options from which we were able to choose; that was amazing. And you allowed us once to propose our own assessment ideas and, with your approval, my group created a performance instead of a reflection paper about the watched performance by the older generation of dancers.”

Importantly, as per students’ experiences, flexibility in tasks, assessments, and scheduling, providing different options as to when, where, for how long, and in what way they would complete their online coursework, and having choice and control of learning, promotes students’ independence. It encourages self-direction, taking responsibility for their own learning process, and making informed decisions regarding their learning goals, strategies, and resources.

Furter, this study found that the provision of choice, however small, might also increase a student's intrinsic motivation to study:

> Patti: "When I have the opportunity to decide when to watch the course video, I am happier to watch it and to study, and I will study harder and be more focused. To have possibility is just great, and it is fair and necessary to have control over our own learning… We should be provided with possibilities and options as much as possible."

As demonstrated in the data, the students benefited from a number of choices in the course: they were able to move through the content and assignments at a pace that best meets their needs, choosing the times they logged in to study - times that were best for them - and selecting content to explore in greater depth - which periods, choreographers, dancers, and dance styles they enjoyed the most they were required to explore further. For the students, providing different options (e.g., variety of different assessment methods or tasks to assess student learning) and having choice and control is not only desirable, but it is likely a necessity as it gives them a sense of independence and ownership of their learning. Also, observed was how becoming more independent, and having control over studying at their own convenience, pace, and skill level, appeared to impact positively on their motivation, enjoyment of, and persistence in learning, helping them become more proactive.

3) Support

The student feedback emphasised the significance of *peer, family, and academic support*, and *IT support and training*, which were also the key attributes of the Support dimension of the provisional framework. The provision of *timely initial and ongoing teacher support* is necessary for a number of reasons, as per students' opinion:

> Tania: "Even when students are familiar with computers and the Internet, using technology for learning requires sometimes skills that are new, so support is for me one of the key things every course should have."

Nick: “One type of computer and phone use does not mean other uses will not be problematic, and nobody wants to be receiving lower grades as a result of technical issues and lack of digital skills. Tech support and support from the teacher about the course we study are equally important and necessary.”

Students also appreciated getting immediate solutions to problems:

Ana: “More than once I posted questions about the e-portfolio task in the chat area, and you (the teacher) usually respond within minutes. It’s a good thing that we have chat, so we can solve lots of problems immediately.”

Barbara: “You or another student respond really quickly; we never have to wait long. That type of immediate support is one of the key experiences of this course.”

To ensure students are ready to learn online, in the HAD course, the initial support was provided in the way of two pre-course training sessions in general LMS and Internet use (using computers and smartphones) in addition to a session geared to specific course units held before the start of the course. An ongoing support was offered too, and students recognised that potential problems can be mitigated through having a continuous technical support team present, and teacher support and academic advice available at all times. Although the amount of learner support a teacher offers will depend on what a teacher is able to take on, students expect timely, ongoing individual and group support at all times as required. Thus, in addition to technical support, another element of the support dimension is *timely initial and ongoing teacher support.*

Whilst a number of students feel competent with and adjusted to OL since, as Tania explained, “we use technology since we were born”, students in this study still think support is critical for overcoming barriers to learning and ensuring learner engagement, motivation and success. They also see the value and necessity of the support coming from their classmates and family. Importantly, they all stressed the influence of family support on student OL engagement. This finding is significant in that it reaffirms the crucial role of

support associated with a number of stakeholders that jointly take part in shaping students' learning experiences.

4) Socio-Affective considerations

The Socio-Affective dimension refers to the social and emotional aspects of the learning and the overall affective experience of students. It encompasses factors such as *positive relationships, emotional engagement, effective communication, praise, respect,* and *sense of community and belonging* among course participants. It recognises the importance of fostering a supportive and inclusive atmosphere where students feel valued, respected, and emotionally connected to the learning process.

In ensuring students' successes in an online course, the students felt that a social aspect of their experience and sense of community and belonging were very important. For them, connections between peers matter greatly since the community in an online course that they take together, develops friendships. A broad construct of community was offered by Victoria when I asked her to elaborate on her answer:

> Victoria: "Sense of community resulted from real-time conversations, brainstorming together, different opportunities to connect with peers and teacher, when together finding solutions to problems, from peer- and teacher-feedback sessions… It is a feeling of friendship and a feeling that students matter to one another and to the teacher they belong to."

Based on the collected data, strong feelings of community and belonging were recognised as the key experiences that help increase their commitment and satisfaction, and act as a motivating factor. In addition, students see the teacher as one who has the responsibility of encouraging a sense of belonging amongst students, facilitating a positive atmosphere, and celebrating friendships between students.

Tea: “Learning via the internet and online, there is a good chance for teacher-student interaction and building of relationships. For example, I have noticed that you (our teacher) use colloquial speech while chatting on Viber. Talking with you feels similar to talking to a classmate on Viber and I feel like we are speaking the same language. It creates a sense of friendship between you and us – the students, and it encourages me to do more… to like the subject more.”

The students further reported that teachers can greatly contribute to them feeling emotions of ease, joy, and even fun which can then transform their learning experiences, and in so doing, improve their motivation for learning. Ideally, learning should be an enjoyable rather than a frustrating or fearful experience, as per students’ narratives. Also, OL can be isolating, so it is essential to address students’ emotional well-being. Ways should be found, therefore, to stimulate their positive feelings, encouraging a positive and inclusive OL environment, and ultimately enhancing their overall learning experiences. Overall, the results presented in this section stress the human factor in education, recognising the importance of creating a supportive and engaging learning environment that promotes social connections, emotional well-being, and a sense of belonging among students.

5)Teacher

As per students’ perceptions, the teacher has the largest effect on the probability of a student having a positive course experience and successfully completing a course. Students defined the characteristics of an effective online teacher involving the following personality traits in addition to having the ability to facilitate learning:

1. A teacher’s human qualities - kind, polite, respectful, available, supportive, approachable, flexible, empathetic, nurturing, caring teacher. The teacher creates a child-friendly, value-based environment by: inspiring students; encouraging appropriate human interactions and engaging students in conversations about content and non-content related topics to form a

relationship with each student; through use of humour; sense of curiosity; and teacher tact (reflected in the level of comfort students feel with the teacher).

2. Teacher presence – reflected in the teacher's responsiveness, communication, teacher-student interaction, and active participation during the course;

3. Teacher responsiveness – involvement and availability through different communication channels (email, Viber text chat; telephone, forum responses; face-to-face tutorials), and continuing support;

4. Teacher communication – teacher models a communication style that demonstrates a positive tone, enthusiasm for the subject, and respect and care for each student.

5. Teacher role (course actions):

• Course and learning facilitation: facilitating active involvement and interactions between the students themselves and teacher-students; monitoring individual and group activities; creating spaces for collaboration and dialogue

• ICT, content knowledge, and quality of instruction; detailed and clear explanations

• Creating a satisfying learning climate

• Enthusiasm for the subject and engagement

• Expert and guide (dual role of 'sage on the stage' and 'guide on the side')

• Timely, regular, clear, constructive, and detailed feedback.

Analysed data revealed that an effective teacher is one who is kind, supportive, empathetic, and creates a positive inspiring atmosphere that enforces students' learning in a child-friendly learning environment (human dimension); who is 'present' (as reflected in the teacher's responsiveness); and orchestrating the overall course experience by facilitating the course and student learning. Isabel,

a passionate supporter of online coursework, said that she would like to take online classes if they are well facilitated in terms of a teacher giving structure to the course, providing regular feedback and interacting with the students, and if she gets a lot of one-on-one attention from the teacher whether that being a response on a teacher question-and-answer forum or to a student discussion forum, in an email, or in a *Viber* chat. Deana also expressed powerfully her position of valuing the teacher's role in OL:

> Deana: "There is never a time when teacher involvement is not important. If it is a paper that teacher wants you to write, they will have to give you some instructions. They can't just say: "Write this paper." They have to tell you how many pages they want, and what they want the topic to be or – if you get to pick a topic – what is the appropriateness of the topic that you can pick and what direction to take. Things like that… The teacher is involved in providing feedback; dividing us into groups or pairs for some tasks; the teacher directs forum discussions and so much more, so the teacher is definitely a major part of the class. It does not have to be a big percentage of the class because being an online student you have to adapt to the online, take initiative, and do things on your own, but the teacher needs to lead the course."

Interestingly, the students tend to see the role of the teacher as both the 'sage on the stage' and 'guide on the side', offering detailed and clear instructions and explanations, whilst creating opportunities for students to act upon content, opportunities for collaboration, and for interaction and dialogue between the students themselves and teacher-students. Further, an online teacher must be engaged, enthusiastic, organised, approachable, and communicative with students and have ICT skills and a consistent *presence* in the online classroom to provide an inspiring, quality learning experience. Importantly, *teacher's presence* was said to be counterbalancing the potential of OL to cause personal and social isolation and alienation. Also, students ascribed higher importance to the teacher's 'way of being' than to the learning content as such.

Barbara: “After a few sessions, you came up with a scheme that summarised the lessons until now and I realised where my confusion comes from. I noticed how good it felt to be finally acknowledged and understood. I believe a teacher can help me with the progress in the course and sometimes with everything going on in a student’s life, not just my academics. We spend so much time in school. The teacher’s way of interacting, and how the teacher is with students, helps to create a sense of connection between the teacher and the students, and a connection with the school. Even if the content is presented beautifully, if a teacher delivering it is not nice, it makes you care little for the course. Teachers, first and foremost, have to be kind, polite, caring, and interested in us, not just in the course.”

Another important finding is that most respondents reported a strong correspondence between teacher presence and their own level of engagement. They said that they found themselves less engaged and “less serious” about their learning when teacher presence was low, but were more engaged in courses when teacher presence was high. As per students, having welcomed them into class, and having established active learning expectations, expertise and engagement - that is, having established a presence, the teacher is able to move toward lesser involvement.

Further, the students’ perceptions of the content knowledge and quality of teacher instruction in affecting student experiences are very high. The students spoke about it directly and indirectly, by giving much thought to experiences they had in the HAD course but had not yet encountered in their other online classes, as well as by outlining positive experiences they had in other courses. Nevertheless, they see the *teacher’s human qualities* as essential if students are to flourish academically.

Tea: “Good teaching, subject knowledge… I don’t know, good presentation skills, for example, are obviously very important, but there is more to it. For example, I have this teacher for math. She was always prepared for our online classes during Covid. She was fair and her instructions and teaching was clear, but I was bored and the relationship between the teacher and students

was missing. She was not very positive or creative teacher and I felt that I was not a part of the class. Teacher has to share personal experiences with their classes, take personal interest in students, and find out as much as possible about them. What I mean is that it is essential to display a personal touch and care, and be approachable and friendly if you want students to learn better."

Also, a good student-teacher relationship was described by the majority of students as making it easier for them to talk and open up if they were facing difficulties. More specifically, students valued that the teacher did not judge but rather encouraged and acknowledged them. Patti stressed the importance of that aspect of a teacher's human side as follows:

Patti: "A teacher showing support, encouraging learning from mistakes and empowering students to seek assistance when problems arise; teacher's warmth and willingness to communicate; respect… all promote a positive atmosphere, learning and community, and that's what matters the most. It is the comfort level with the teacher, that matters the most."

The students were insistent in their opinion that educators themselves evoke feelings, so much so that the teacher can 'make or break' a learning event. Thus, the teacher's desirable personal traits, i.e., human qualities, are rated by the students as the most critical part of the *Teacher* dimension and their positive OL experiences.

6) Student

During the interview, when students were asked what the student role in OL is and what skills should students have to be successful in OL, a plethora of psychological and cognitive skills were outlined as necessary. Also, a number of expectations from a student were mentioned.

As per students, the following *learner characteristics* are required to be successful in OL and influence students' experiences: *motivation and willingness to do what is necessary; focus; curiosity; self-discipline; technology competence; and time management, self-study skills, self-teaching skills,*

commitment, self-regulation, engagement and effort, and initiative and persistence. Interestingly, all have recognised that they have to be *active participants in their own learning.*

Additionally, they believe that students' prior understanding of technology is a prerequisite to successfully learning online as it is the willingness to learn new skills and the learner's commitment.

> Deana: "It is important to be able to set time to work on assignments, and digital skills are necessary too. As I see it, my familiarity with technology and digital skills makes me feel more comfortable learning online. Since I already know how to use a laptop and browse the Internet, and understand educational apps such as Padlet, knowing this way of learning, helps a lot to be successful in an online course."
>
> Nicole: "For example, a student must be willing to learn new skills for studying a course online. That means sometimes I had to seek advice from friends who are more computer savvy about how to send and record voice messages or attach a picture to the forum discussion. The online learner must have that curiosity to learn new tech skills and be persistent in trying and not quitting."

Due to the convenient nature of OL (it can be accessed from the comfort of one's home), self-discipline, focus, self-regulation and motivation are highly expected for students to be successful.

> Ana: "I believe we have to take responsibility for our own learning too. Sometimes it was very easy for me to get lazy and keep postponing watching our weekly HAD lesson. What I wish to say is that online students need to keep in mind that they need to be disciplined and focused whilst enjoying the flexibility and convenience of OL, otherwise it won't work."

The participants did, however, state they get easily distracted and often put off things until the last minute when learning online.

Maja: “Because the class didn’t meet, sometimes I forgot that we were taking an online course, and sometimes I forgot my assignments. It is so easy to not to complete the assignments! It is so because you don’t have a specific time to do your work, so it’s very easy to get off track. Time management is for that reason very important.”

Some students complained about the freedom and independence they had enjoyed, saying: “Independence and freedom can get you in trouble” (Mia). On the other hand, most students claimed that *self-study* and *self-teaching* that is required to learn online, having freedom and greater control over their learning helped them to learn more in online classes than in traditional lessons:

Victoria: “Since you have to self-study the majority of the time, that gives me a feeling of control over my studies, and I have a higher interest in and enjoy a course more when I get to do things in my own way and in my own time. Being willing to self-study is very important characteristic of online students as you are kind of teaching yourself.”

7) Pedagogy

Taking into account students’ experiences reflected in the analysed data, the key components of the *Pedagogy* dimension, encompassing the instructional methods, strategies, and approaches employed by educators to facilitate learning, include: Variety of instructional strategies; Cross-curricular collaboration and knowledge transfer; Personalisation and differentiation; E-portfolio activity; Discussions and dialogue; Criteria informed, multimodal, timely, frequent and feedback-rich assessment; Inquiry-based learning; and Game-based learning.

Bringing classes together and breaking down the separation between subjects so that they can work together in a mutually beneficial way, was recognised as a key experience. The students clearly valued the widened context of learning - learning about the subject and other disciplines – and repeatedly mentioned it in the interviews as a positive aspect of the course.

Barbara: “We were learning about dance history and beyond – about literature, art, and geography. The course provided an opportunity to make connections between ideas and concepts across different subjects, such as dance, music and history. That improved the experience - seeing what subjects have in common (such as dance history and music history) and how they differ; it also made the course more fun.”

Patti: “One of the key experiences was a collaboration with the music teacher and history teacher when learning about Renaissance and Baroque. That’s what I liked about the course, that it enabled us to acquire knowledge of HAD and different subjects. As some lessons were overlapping, we will be able to use the knowledge and skills gained in HAD in other history and non-history subjects.”

It can be concluded from the analysed data that ensuring interdisciplinary connections and knowledge transfer becomes an integral part of the teaching approach, enables educators to create a more holistic and meaningful learning experiences for their students. Additionally, students believe that teachers should use a variety of instructional strategies so they can cater to diverse learning preferences and create a more engaging and effective virtual learning experiences.

Furthermore, they believe that OL should strive to accommodate individual student needs. From the analysed data, a *Personalisation* and *Differentiation* category was created to highlight the expressed need for personalised learning paths and differentiated assignments that cater to diverse learning preferences, abilities, and interests. As will be discussed later, all students shared that learning autonomously and independently of peers was a distinct feature of the HAD course and a very positive one, as evident from the quote that follows. However, student Ana discussed other important OL requirements too:

Ana: “Watching course videos alone, and the choices and nature of course activities created a feeling that my learning journey is ‘just-for-me’, ‘just-my-

own'. I really enjoyed that aspect of the course (being on my own), as it is in complete opposition to how I learn at school."

The variety and choice led to a strong sense of personalised experience and ownership of one's learning as evident from the quote: "my learning journey is 'just-for-me', 'just-my-own'". Watching course videos alone, the individually chosen activities, and the nature of course activities created a positive feeling of the tailored learning journey. This category demonstrates students' needs to enjoy a sense of having a personalised learning journey, and they need autonomously chosen tasks as well as.

E-portfolio activity

Evernote e-portfolio served as an e-notebook and student-created digital textbook; it was also used during presentation development and for student reflections. The e-portfolio task provided a platform for students to demonstrate their learning progress, and showcase the subject-specific knowledge and skills acquired during the course (as a self-created e-textbook). It encouraged students to actively engage in the learning process, reflect on their experiences, and construct knowledge through the creation and curation of artifacts, helping them discover their own learning paths.

Importantly, students highlighted that their learning was "widened" (Maja) in the process of building their e-portfolio/e-notebook/e-textbook. Since in addition to what they studied in the course each student had to generate his/her own content for their e-portfolio, the activity represented an additional learning opportunity. They shared that choosing what to include in their e-portfolio created an opportunity for learning through discovery and learning through the application, recognising the advantage of and appreciating the nonlinear and individualised learning features made possible in an online environment and through the use of internet.

Flora: "I liked the process of building our Evernote; creating it was as important as the end product we made and could share. For me, the end result became

like a textbook that I wrote myself. It had some information I learned from the course videos, and additional facts I found researching the Internet on my own. I believe e-portfolio should be included in some courses as it's a truly good way of engaging students."

Tea: "When creating our e-portfolio, Internet materials were so helpful as there is a wide range of content available out there, such as web pages, images, fact sheets, podcasts and online resources such as blogs, teaching guides, and lessons. It all helps us with schoolwork; it also helps us learn new things."

For most students, the e-portfolio also serves as a vehicle for communication, ongoing discussion, and exchanges of information among students involved in a task. In addition, they spoke of the value to them to be able to look back and see their progress documented within the e-portfolio.

Barbara: "We were supposed to record our thoughts and reflections as part of the review/reflection process. It was useful having done something to spend time on review of what I have done, then to revise my original plan or create a new one."

Another finding is that the pupils believe they made significant progress in transferable skills such as planning, creativity and decision-making whilst creating their e-portfolio. Mia listed a set of digital skills she developed, nevertheless, she also commented on the negative aspect of the e-portfolio – it is time-consuming:

Carol: "Evernote was a collection of files, showing our experiences, achievements, performances and our learning of dance history. It included planning, deciding what to include, synthesising information, sharing it, reflecting upon our work, and giving, receiving and responding to feedback… hmm… it required us to be independent. What I liked is that you could search the Internet and be creative in choosing from similar options the one you like the most."

Mia: "I can search the Web faster, find pictures; I can record a video, and after that, I can put text, images, and video altogether and make it into a note or make a story of my ballet education. It was all very beneficial, but building an e-portfolio is time-consuming."

Overall, students noted the following benefits of the e-portfolio:

• Widened context of learning; autonomous learning;

• Shift in ownership of learning through editorship and choice;

• Showcasing the subject-specific knowledge and skills acquired during the course;

• Opportunities for learning through discovery and application;

• A vehicle for reflection, communication, and different levels of interaction: instructor-student, student-student, student-course content;

• Opportunities for self-reflection (identifying strengths and weaknesses) and planning;

• Transferable and digital skills development (confidence in searching and processing; working more quickly);

• Strengthened learning motivation and engagement in learning;

• Drawbacks: time-consuming.

Discussions and Dialogue

Another theme highlighted by the students concerns the place of discussions and dialogue in OL. As per their experience, an online course should provide opportunities for ongoing exchanges of information among students using forum discussion, e-portfolio as a vehicle for communication, email, or using text-based direct messaging. Students believe that the opportunities for

discussion and communication among them promote active learning, collaboration, and engagement. Ana, for example, shared that:

> Ana: “For me, the discussion board is a place for students to learn together, and… I don’t know… as if learning multiplied through interaction on the discussion board.”

Taking place in formats such as synchronous classroom discussions, online forums, and group activities, discussions provided a platform for students to share their thoughts and ask questions.

Another aspect discussed in research is students’ need for dialogue where participants engage in an open and collaborative exchange of ideas, perspectives, and knowledge. As per respondents, such interactions fostered deeper understanding.

> Helen: “I truly appreciated the opportunities we had in synchronous session for conversations that involved us in active listening, respectful engagement with and consideration of multiple viewpoints. We were guided through such explorations, so that was very helpful; the specific questions encouraged us to engage in debate and challenge assumptions. The whole process was important as I achieved greater understanding of topics.”

In an educational context, dialogue is often used as a pedagogical approach that fosters critical thinking, reflection, and challenging assumptions. As the results demonstrated, dialogue created an inclusive and intellectually stimulating environment where students were able to explore complex topics and develop higher-order thinking skills.

Digital Games

When asked how the course could be improved, more than half of the students discussed digital games in education. The HAD course did not provide the participants with an opportunity to play educational games. Nevertheless, students expressed a wish to use games in all online courses and in all

sessions, reporting that this teaching method would be more enjoyable than the traditional teaching methods.

During the interview, it became apparent that educational games tap into students' natural inclinations towards play and challenge, leveraging these elements to create a more dynamic and motivating learning environment. Considering the results, i.e., the respondents' requests to make the learning process more enjoyable, interactive, and immersive for K-12 level students, the *gamified learning environment* was included in the subjective framework.

Criteria informed, multimodal, timely, frequent and feedback-rich assessment

Respondent feedback suggested that in order to be successful online learners, students need flexibility, choice, and variety of assessments - the results I discussed previously under the *Flexibility, variety, choice, and control in resources, tasks and assessments* dimension. Whilst students appreciated having the opportunity to choose the type of assessment, additionally, they wish to be provided with a clear description of the criteria used to assess their work and participation in the course. They also demand guidance regarding the expectations for the required components of work submitted.

> Nick: "Assessments in an online course can provide many good ways for us to demonstrate our knowledge. In HAD very clear, very detailed criteria were provided for the evaluation of our work. It was also clear that we need to participate. That's what every online course should have, clear criteria, like rubrics and expectations. And... I liked the most self-check activities and the fact that we were provided with the flexibility to choose the type of assessment for some units."

They perceive that the most effective assessments include frequent formative assessments including peer- and self-assessment, projects, student-created podcasts, portfolios, and presentations.

Notably, the respondents were greatly concerned with grading and generally agreed it is an important element of learning. Isabel noted the importance of

getting graded assignments in order to be able to adjust and improve, and stay motivated:

> Isabel: “Of course, knowing your grades always helps because you know to kick it up a notch, to get those extra two points to have an A or whatever that might be. Lack of grading is problematic as you just lose motivation.”

Carol, Tea, and others spoke of the importance of comments on papers so that they could know what they had done wrong and what they needed to do to improve. Whilst students spoke positively of grades done automatically by the course management system for quizzes and quick short tests, Victoria explained the value of receiving a comment:

> Victoria: “We had opportunities to see our own knowledge and progress when grading was done automatically by Loomen, such as for quizzes and quick short tests, but I learn more effectively if I receive teacher feedback. Teachers should comment on what you did wrong to help you improve. If they tell me what I did wrong and what I could have done to get it right, if I can be told, “You did this. This is how you fix it” and I fix it, and get the next paper that says, “You fixed it,” then that’s great.”

Helen similarly complained about receiving a paper without comments in another online course and discussed the value of feedback:

> Helen: “What made the teacher decide the grade? Some instructors just give you the grade and just go on about their business without telling us why we received a grade or how to improve our work. On the other hand, teacher feedback in HAD course was great; it was meaningful, offered frequently, and it helped me when I needed it.”

To summarise the students’ views, in addition to flexibility, variety, choice, and control in assessments discussed previously (see dimension 5, page 130), assessments need to be:

• *Timely and feedback-rich* (feedback on submissions should include teacher comments that tell students what made the teacher decide the grade and how to improve)

• *Varied*: provide different type of assessment

• *Multimodal:* projects, presentations, student-created podcasts, and portfolios should be available in addition to written papers, quizzes, multiple-choice tests and oral examinations, i.e., the same techniques used to assess learning in the traditional classroom

• *Criteria informed* (e.g., with rubrics and guidance regarding the expectations for the required components of work submitted)

• *Frequent* (in relation to formative assessments that help students to engage with the content, check the achievement of outcomes, and learn whilst facilitating future planning)

• *Graded* (important to motivate students).

8) Technology

Following the data analysis, the technology component was divided into the following sub-dimensions:

a) Prior experience and confidence with technology

b) Delivery medium (LMS)

c) Device used to learn online

d) Internet speed and quality

Whilst they see technology as engaging, fun, and interactive, they agreed that prior experience and level of confidence with technology is necessary to be a successful online learner. Prior experience with technology enables students to

navigate online platforms, use communication tools, submit assignments, access digital resources, and engage in online discussions more efficiently:

> Isabel: “Hmmm… perhaps Loomen was easy for me because I was already familiar with it. In my opinion students should have some prerequisite skills in the use of technology and there should be a student orientation session, just in case. But yes, it was easy to understand Loomen and how to use it – that should be the case for any LMS we use for learning.”

OL often requires students to use various technological tools and platforms. Students who are technologically competent can more quickly adapt to and troubleshoot any technical issues that may arise. They are better equipped to handle challenges related to Internet connectivity, software compatibility, or device usage, allowing them to focus more on their learning tasks. Indeed, having familiarity with technology, such as using computers, accessing the Internet, and using basic software applications, can make the transition to OL smoother.

The second Technology dimension - *Delivery Medium* - is related to the characteristics of LMS. Students shared that LMS should be *appealing, reliable, intuitive, user friendly, convenient to navigate and customised.*

> Carol: “Loomen included all the necessary features and functions we needed. Navigation was clear and consistent. LMS that we use in a course should definitely be user friendly… also appealing to us. It is also important to have a reliable and well-functioning laptop or computer at home and fast internet”.

Aspects related to the technical characteristics of the LMS, such as ease of using the LMS, its capability to meet students’ requirements; flexibility in interacting with the LMS; integration and consistency between the different components of the LMS, and the existence of features and functions the students need, were all highlighted as important.

Another aspect discussed in research was *Internet speed and quality* that were recognised as crucial factors for effective OL. Barbara noted that: “Quality

Internet allows for smooth real-time communication, which is essential for live classes".

Finally, as shared during the interview, the *Device* sub-component is related to the ownership of *reliable* device for OL which students recognised as essential, together with the *functionality and connectivity* of the device used for learning online.

9) Context

In general, the findings suggest that students' immediate surroundings, physical environment, family and peer relationships, and broader academic setting all have a significant impact on student OL attitudes, learning outcomes and overall experience. Most students reported that having a positive indoor environment comprising of comfortable living conditions, i.e., spacious rooms, availability of a designated learning space (even if the space is also used for other purposes), absence of noise, and pleasant view, are all important contextual factors that influence learning.

Maja: "Because our home becomes our learning environment, the size of our learning space, noise at home, and how it looks like, are all impacting upon learning from home. For me, it is important to use the living room for studying because my bedroom is tiny, cluttered, and I do not have a desk there. So even if the space is also used by others, I prefer studying in a big room using a dining table, then holding my laptop in my lap whilst sitting on my bed. I think how our space for study at home looks like and feels like are very important".

In addition, students highlighted family support, family and peer relationships, teacher-student relationships, the school they attend, and even weather conditions, as different factors that influence their learning experiences and their motivation to learn.

Ana: "Context in which we learn is a big factor. There is a significant difference in how I learn when I'm left alone or when I'm bothered. I am frequently interrupted by text messages from classmates, which make it difficult to focus

on my work. I also find it challenging to complete assessment activities at home because my brother would interrupt me. Also, I find it easier to concentrate if there is no noise from the TV or if I have my room all for myself to study… And if it's sunshine outside... (laughter)… and if I have a nice view…(laughter)… that helps too. Not everyone has the same conditions, so these differences have to be taken into account".

Victoria: "I think that relationships with family and friends could both positively and negatively impact our OL. For example, having a supportive sister who helps with household tasks if I need to study is important, or if she provides support with my study, that is beneficial too; conversely, distractions from my brother can ruin my mood to study. He is little so he just runs around and screams; you cannot concentrate. Then I just lose the motivation, completely. Also, relationship with the teacher is important".

As insightfully highlighted by Victoria and Nick, external factors such as weather conditions can also impact OL. For example, if a student is experiencing Internet connectivity issues due to severe weather conditions such as a storm, it may disrupt their learning and cause frustration, leading to a decrease in motivation. According to student answers, the combination of the availability of a designated learning space, physical and indoor environmental quality, weather conditions, family and peer relationships and support, and academic setting are all crucial contextual factors in shaping students' experiences with OL.

Positive course atmosphere

Resulting from the analysis of the interviewees' experiences, a key factor was created – the *Positive Course Atmosphere* to emphasise the importance students assign to the overall atmosphere and climate for learning within a course and the teacher's role in developing it. It encompasses the following characteristics:

1. Involved, caring teacher (teacher's teaching style, way of being, and presence are setting a positive tone)

2. Promotion of a climate of care, openness, and honesty; surrounding the student with human core-values

3. The quality of course materials and resources

4. The clarity of course instructions and expectations

5. Promotion of flexibility, choice and autonomy for students

6. Appropriate human interactions; promotion of the sense of community and belonging; built in time for face-to-face contact; developing trust and two-way dialogue; providing opportunities for informal networking between students and positive relationships development

7. Embedding a range of effective communication channels to suit all stakeholders.

Each of the 7 categories contributes to a positive learning environment and supports student engagement, motivation, and satisfaction throughout their educational journey. Importantly, whilst as per interviewed students the positive course atmosphere pertains largely to the instructional design, materials, and overall learning environment, through analysis of the data, multiple teachers' behaviours were identified as contributing to a positive course atmosphere, including tone of voice, humour, setting an example, encouragement, and care. In that sense, a positive course atmosphere experience was largely the result of the teacher's 'way of being', teacher's presence, as well as appropriate human interactions, and surrounding the child with human core-values.

Carol reported that she participated more on the discussion board when she saw that humour was welcome, and the teacher set the tone of valuing everyone's opinion and projected strong feelings of care for the subject and students:

Tea: “I engaged with other students as well, but I did that because you (the teacher) were engaging and cared for course so much and that we learn in a fun way. You supported us to feel that we are doing something important.”

Mia: “You set the example - you made it easier for us to talk and open up because you shared so much.”

In addition to the idea of teachers providing personal stories to help students to get to know them, promoting a sense of community and belonging, students suggested that personal stories and anecdotes could facilitate understanding of the course material by giving them something to “relate to”, for example, in instances where a teacher worked with a famous choreographer. Ana mentioned a geography course in which the professor posted pictures from places he had been all around the world. She said it was helpful in learning about both the subject and the professor.

Another student, Tania, provided an interesting angle on how her learning was aided and a climate of trust, openness and honesty promoted:

Tania: “You were stopping at times to “think aloud” and describe how you feel, think, and act in a certain situation. That openness was what created good atmosphere, and trust that mistakes are welcome on our way to learning, and that helped me lose my fear of learning.”

As per student experiences, a positive course atmosphere promotes a sense of enthusiasm, motivation, and comfort, fostering an environment conducive to learning.

It is important to note that the *Socio-affective* dimension, the *Teacher* dimension, and the *Positive course atmosphere* dimension, overlap and interact. This interconnectedness emphasises that the combined effect of these dimensions is greater than the sum of their individual impacts. In the ‘whole’ learning experience, the relations and processes between these dimensions work together synergistically. For instance, the positive interactions among choir members and the caring guidance of the conductor contribute to a

harmonious and uplifting atmosphere that enhances the overall experience beyond what one can achieve alone. Separately, however, these dimensions focus on distinct aspects of the learning experience.

The *Socio-affective* dimension emphasises the emotional and interpersonal aspects. The *Positive course atmosphere* includes appropriate human interactions too, yet, it additionally focuses on the instructional design and overall learning environment, the clarity of course instructions and expectations, and the quality of course materials and resources. Similarly like the *Socio-affective* dimension, the *Positive course atmosphere* centres around the sense of community and belonging, social connections and collaboration. It involves creating opportunities for interaction and engagement among course participants, but stresses the importance of providing a supportive learning environment where students feel valued, connected, and motivated to actively participate.

Results of this study show that teachers greatly contribute to a positive learning climate and the overall tone within the learning environment. Thus, by recognising and incorporating these separate dimensions into a unison, teachers can design and facilitate courses that offer a holistic learning experience which nurtures both academic growth and social-emotional well-being. In turn, considering these dimensions as separate factors allows teachers to address each aspect strategically and comprehensively.

RQ 3: What is the conceptual understanding of OL in upper primary education stemming from the upper primary students' experiences in the HAD online module?

The answer to this question is depicted in Figure 4.2 on the following page as a map of dimensions concerning the different types of meanings ascribed to OL and the required components of learning online for youth.

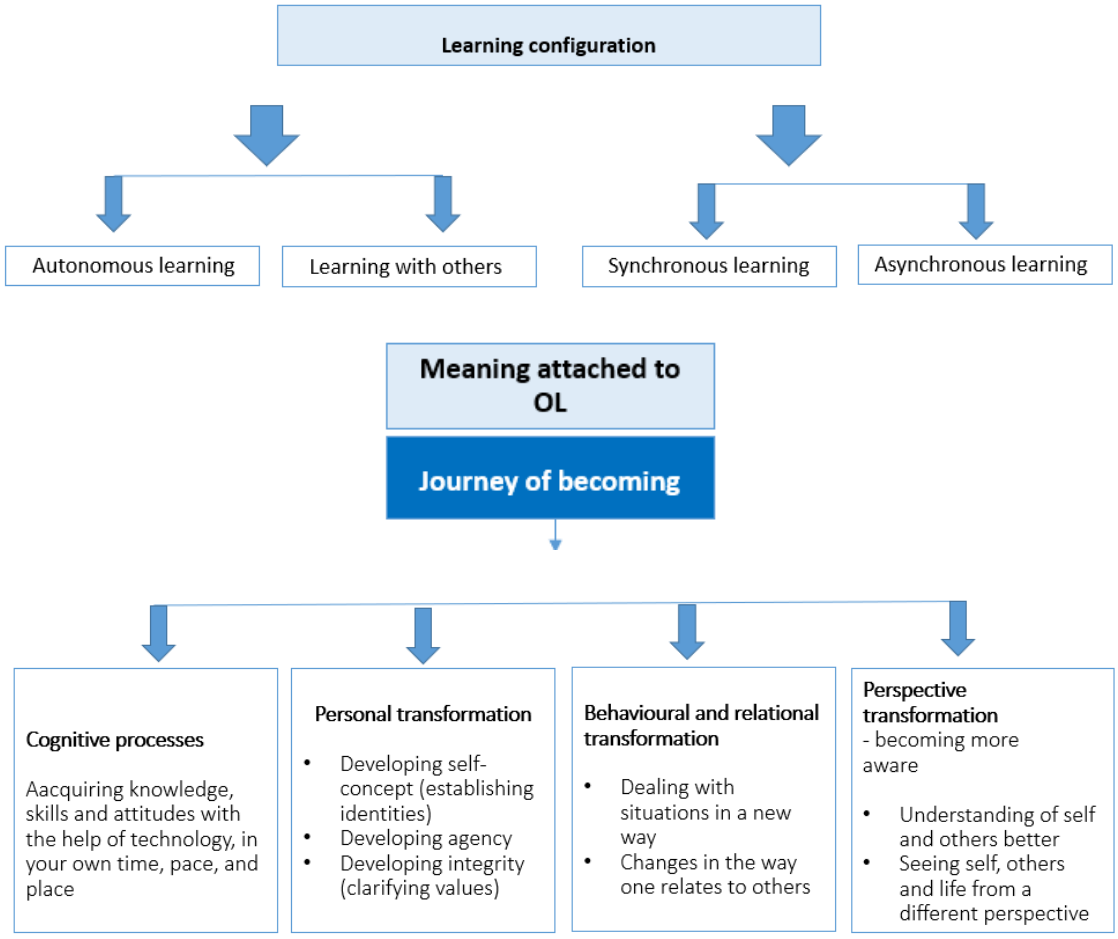

Figure 4.2: The Main Characteristics and Components of OL as per Students' Experiences

Learning configuration: Synchronous and asynchronous learning and autonomous learning and learning with others

When commenting on the use of time in OL, respondents were distinguishing asynchronous and synchronous OL, i.e., learning and communicating in real-time such as in Teams sessions, and working in their own time, independent of a shared timeframe. Relatedly, from the students' arguments presented in the interviews, an account of learning online rooted in the interdependency between the individual (self) and social learning (with peers and teacher present) was highlighted. Tea expressed the benefits of both learning configurations:

Tea: “Learning asynchronously is for me what describes OL and it is one of the benefits of online courses as you do not have to worry about trying to find time to meet as a whole class… I appreciated studying alone but when everyone got together and we are learning in pairs and groups, that is great too as problems are more easily solved together. Also, teamwork and when we are brainstorming together helps us get more ideas.”

All students shared that learning asynchronously was a distinct feature of their HAD course and a very positive one.

Maja: “OL allows many individual activities; to watch course videos alone, in our own home, and without distractions of the classroom - where we can also search for extra clarifications or learn more about the topic by browsing the Internet as we pause the video we are watching. For me, that alone time is very important. Often, traditional classrooms are small and too many students spend all day together; I would prefer if we were learning some school subjects like this – online, alone, and some at school.”

Students, however, asked for both asynchronous course components and synchronous/live tutorials, group projects, and/or discussion sessions. They shared they would regret the lack of face-to-face contact with their teacher and peers, and did not see the benefit in asynchronous learning completely replacing the face-to-face aspect of learning:

Helen: “Online course should incorporate synchronous group work and collaboration with the independent, offline study. One suggestion I have is, for example, to plan ahead some tutorials so that students meet together to go online in one shared class in two weeks. Definitely, both ways of studying are useful. Also, I love going to school. We need to see our friends so studying completely online, like during the pandemic, would not work for us. Both ways should be used.”

As the analysed data indicate, at this stage in education, online courses should not be entirely asynchronous but incorporate face-to-face elements. Also, not

all classes and school subjects should be delivered online – this study's participants had a very firm attitude about this. The students' suggestions are that the OL model is to be used for some courses and, for others, a hybrid approach would work better, i.e., a face-to-face traditional mode of learning combined with the online mode for what it is best at (such as, linking materials, researching, and for discussing with experts that are located elsewhere). The online environment, however, is not seen as optimal in providing feedback, explanation, and interaction with other students.

Autonomous learning and learning together

As per students, the course allowed many opportunities for collaboration, interaction, communication, sharing of ideas, and learning together, such as on the forum, and that was one of the key experiences they wish to have again:

> Mia: "Not just me, but all students valued the interaction that came out from us being involved in Loomen discussions. I appreciated the good atmosphere that you (the teacher) created and the opportunity to share ideas and resources with you and your peers. When we collaborate on tasks or all discuss something together, we can brainstorm as a group and get even more ideas than we could alone."

Students see collaboration playing an important role in learning; they believe that it is essential they are provided with opportunities to work together on group projects, engage in discussions, and problem-solving activities. Additionally, it was suggested that educators need to be mindful of decisions that may limit learning by, for example, not providing possibilities for interaction amongst the participants or, conversely, by failing to create opportunities for learners to learn away from others, organising their own learning. When I asked the students to clarify, they explained that they appreciate both studying alone and time with their teacher and peers.

Notably, independent study and individually chosen activities led to a sense of ownership of one's learning and positive feeling of the personalised learning journey:

Ana: “Watching course videos alone, the choices, and nature of course activities created a feeling that my learning journey is ‘just-for-me’, ‘just-my-own’. I really enjoyed that aspect of the course (being on my own), as it is in complete opposition to how I learn at school.”

As this quote demonstrates, and the overall findings confirm, online courses need to facilitate and balance opportunities for autonomous, private learning and group work, collaboration, peer sharing, discussions, and interaction. Maja, for example, liked synchronous sessions when everyone got together when she was learning in pairs and groups, and insisted that online classes have to be set up so that students can interact with their classmates. However, for Maja, the self-study and interaction on the discussion forum that includes the removal of strict times allotted to the discussion and excludes the presence of others, was highly appreciated too. Similarly, since the students were allowed significant freedom in the e-portfolio activity, that private learning time, as they concluded, promoted a shift in ownership of learning to themselves.

The meaning ascribed to OL

Figure 4.3 condenses how learners conceptualise OL and the meanings they ascribe to it.

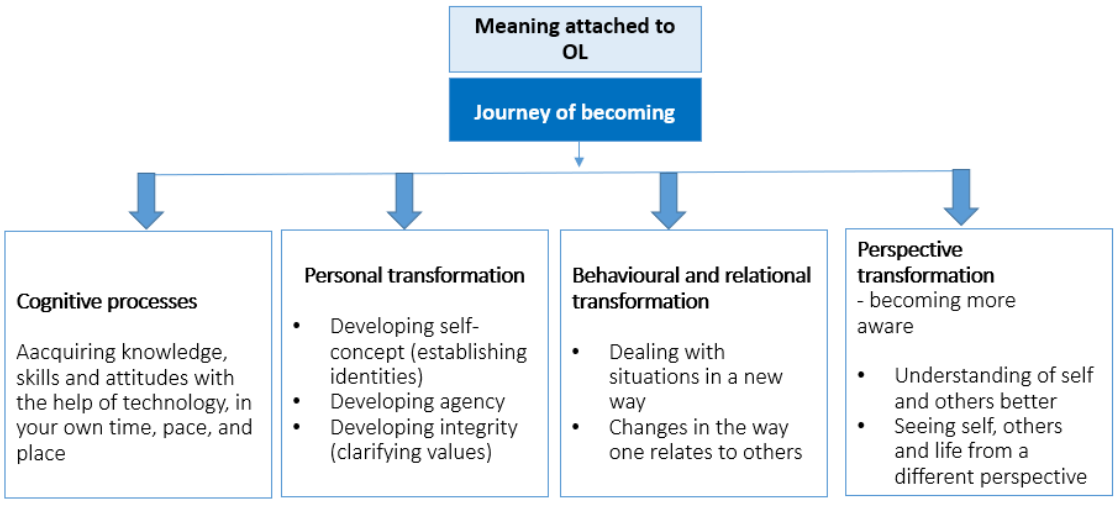

Figure 4.3: The Meaning Ascribed to OL

Cognitive processes: OL as a process of acquiring knowledge, skills and attitudes with the help of technology in your own time, pace, and place

The study highlighted the cognitive processes involved in learning: from reproduction to production and contextualisation. Specifically, they distinguished between remembering the content and gaining an understanding of it, learning about the subject and other disciplines in their own time, pace, and place, versus. having the opportunities to act upon/co-create content as a part of acquiring new skills which included transfer of knowledge and skills to different contexts. Ana clearly formulated a definition of OL as a flexible journey towards understanding and remembering content, acquiring new skills and becoming able to transfer knowledge and apply what they learned to new situations:

> Ana: “Traditional lessons have no flexibility; the teacher decides everything. The online course is different. The flexibility in OL actually helps me learn - we take lessons in our own time and go through the lesson at our own pace... we spend as much time as needed on learning definitions, remembering facts, gaining an understanding of things or learning new skills such as editing video or images, something that I could use then in other classes.”

Further, students described course tasks using words such as: “clarifying”, “relating”, “exploring”, “reinterpreting”, and “linking”. These words relate to being active about examining a concept or practice, and acting upon content, signalling higher-order thinking as a vital element of their learning process. However, the findings were surprising to me in that the students offered an understanding of learning that includes a change in perception, behavioural change, and establishing self-concept, a *transformation* in addition to acquiring academic learning outcomes, which I conceptualised as a *journey of becoming.*

OL as transformation: the journey of becoming

In my original conception of OL stemming from the reviewed literature and provisional framework, I had thought of a set of conditions and factors as OL, i.e., a blend of technology (device, LMS, the Internet); with a set of actions

(such as what a teacher says and does and how students are engaged); a set of stakeholders (teacher, students, and out of school actors), together with elements such as planning, support, context, etc., influencing upon the process of achieving specific learning outcomes within an online course. However, what became apparent upon the data analysis was that OL - enabled and characterised by all the other dimensions identified from the students' experiences – also facilitated transformation – a change in students' perceptions and awareness, and change in their behaviour and self-concept. Transformational statements related to becoming a person fall into three categories:

1.Perspective transformation (changes in one's perception of self, others, life and what is important)

2.Behavioural and relational transformation (changes in the way one is dealing with situations and relates to others), and

3.Personal transformation: developing self-concept and identities; development of integrity, i.e., clarifying values; and development of agency.

Perspective transformation

Carol shared how participating in the course triggered *self-awareness,* specifically, *change* in her self-awareness, which consequently enabled her to deal with certain situations in a more positive way, i.e., it resulted in a positive behavioural change.

Carol: "I realised that I was stubborn; but we talked about it in our feedback session - how I set my standards very high and don't accept help from anyone, and that, by this, I make learning difficult for myself."

Interviewer: "So, you say you are aware of the obstacle now, that you see your stubbornness. Can you explain the difference with before?"

Carol: “I think that before I was struggling with my pride to accept help from the teacher and peers, and now I feel more OK with it. I didn’t see it before, where actually teacher help, or help that I now seek from my peers when I don’t understand something, helps me progress even faster.”

Parts of the course content and tasks facilitated change in perspective and thinking for another student:

Maja: “My definition of dance was too simple. I felt bad after I compared my definition with the definition of dance offered in the video-lesson. The course made me reflect upon things and myself, and gave me some different ideas about dance and situations that were clear to me but might not have been that clear after all, or that needed to be looked at from a different perspective. My definition of dance completely changed; for example, I became aware of dance for persons with different abilities.”

Further, the perceived variety of learning opportunities - the diversity of the means and ways of interacting with the content and acting upon the content, was a key experience that activated transformational learning for Nick:

Nick: “In school, we learn and discuss the stuff from the book, but in HAD class we take quick quizzes, we share our own thoughts on a discussion forum about what we learned, we share video clips and voice messages about the subject, linking what we knew to what we learned; we record in Evernote our thoughts and feelings after watching a clip, and document our personal progress there... Also, together, we created a glossary containing definitions, images, and videos to clarify and demonstrate ballet terminology. The variety is great and helps me learn by doing tasks in different ways and helps me see the subject, and content in a new way, in many different ways.”

What is apparent from these and other comments, is that the course triggered *perspective transformation* – for example, it encouraged learners to broaden their understanding of the concept of dance by triggering a change in their perception of ‘who can dance’. The course also supported the development of

their *self-awareness* by establishing a link in the course between knowledge construction, reflective thinking, and self-understanding. What can be observed is that the right engagement with the content can result in transformative learning accountable for the construction of academic and personal knowledge. Students experienced insight – such as Carol in her rejection of help, or Maja, who concluded that dance needs to be looked at from a different perspective. As students went through the process of analysis, evaluation and reflection, an alteration in their understanding happened, and consequently, a *change in consciousness* and *in how they act*.

This is an important finding because it demonstrates that, by challenging students' thinking and questioning their existing beliefs, understanding, and practices through engagement with and reflection on the course content and their own learning journey, students are accessing new lenses to see and, consequently, deepening their understanding and broadening their awareness.

Behavioural and relational transformation and clarifying values - developing integrity

Students shared that working on a group task of acting upon the content by clarifying, exploring, reinterpreting, and linking concepts and information, facilitated their collaborative skills and change in their behaviour. They pointed out that collaborative group tasks made them learn to adjust themselves to others:

Ana: "In a break-out room, when we were placed in a group to work on a mind map together, I felt a lot of uncertainty at first. There was a conflict about what to include, but I didn't want to take part in the fight or suggest anything. I wasn't sure we will be able to finish the task. At the same time, I wanted to participate … hmm… I wanted to suggest how to link ideas and be accepted in a group. After a while, we found a way to work together and respect each other because we had a set of rules for completing the task. Nick brought that up at one point and he reminded everyone of what you, the teacher said. That was really needed; basically, Nick ensured progress for the group."

Rather than viewing this initial disorganisation and conflict negatively, disequilibrium served a constructive role. The situation propelled one student (Nick) to a journey through the stages of disorganisation and uncertainty towards seeking respect for everyone and the task, and demonstrating a new level of agency. The group disequilibrium brought the student (Nick) to a turning point that caused the learner to actively seek acceptance of rules from his peers, (rules that each group had for the task), whilst another student (Ana) recognised ethical behaviour in her peer (Nick). What may seem a simple daily occurrence in schools (disorganisation and conflict between students engaged in a group task), as demonstrated, can become moments for the child to develop confidence, discover new values, and continue building their own value systems.

It is through the school (and family) that the child first experiences cooperation or rivalry, jealousy or sharing, i.e., learns about values, rights and obligations, about solidarity and responsibility. For example, tolerance and respect for all were other newly acquired values in the course. Upon becoming aware of diversity among cultures in their representation of dance and the role that dance plays in these different cultures, the insight provoked an alteration in attitudes and values the students hold and resulted in the appreciation of diversity. Additionally, the exposure to extended learning opportunities beyond the course requirements was mentioned as provoking alteration in attitudes and values students hold.

Mia: “Internet and devices are giving us opportunities for expression, for learning… to be creative… Links to external content and Internet sources and pages were wonderful. I learned so much and changed my opinion on different things as we were challenged to see dance from different cultures and different people’s participation in dance. I see the value now in the fact that everyone has something different to contribute to dance.”

Developing agency

Based on the data collected in this study, it is evident that students enact agency through their ability to regulate their cognitive, affective, and behavioural processes as they interact with the environment – the process which entails not only a behavioural skill in self-managing environmental contingencies, but also the knowledge and the sense of personal agency to enact this skill in relevant contexts. Students presented a clear picture of how they regulate and use their influence to meet personal and collective goals, and shared that they appreciate being encouraged and supported to get involved in decisions that affect them:

> Isabel: "We need the possibility to make our own choices and decisions regarding our lives and school. Some adults think that children are at risk from the dangers associated with technologies and the Internet, and that it is the role of adults to protect children from it. But the Internet and devices are giving us opportunities for expression, for learning, and to be creative."

They also enjoyed autonomy over their learning content – for example, in Week 4 they chose which famous ballet they wish to study:

> Nicole: "I enjoyed Week 4 tasks - the choice between two ballets, which one I wish to learn about. I was so happy that I could choose that, in the end, I watched both videos and learned about both ballets. I even got encouraged to search on the Internet for other excerpts from those ballets. I liked the music so much and wanted to see other dances and variations from *Giselle*."

The students valued having an access to learning opportunities where they discovered their own learning path, and as reported in the comment, this offer of choice increased their motivation, enjoyment and persistence in learning.

Developing self-concept - establishing identities

Data analysis yielded another essential finding - the students' constructions of self as varying according to the situation being experienced. Each student is in

a set of relationships within multiple educational settings and their sense of self is dynamic and fluctuating; for example, a student (Nick) identified himself as a ballet student and swimmer at the same time. Nick shared the difficulties he faces amongst regular school children who mock him about going to ballet. He also goes to swimming lessons and explained that he is still unsure if he will choose a career as a swimmer or a dancer. Intrigued by this discussion, I asked the student “how do you see yourself – as a swimmer or dancer?”, and he answered: “Both. I take pride in both”. This made me think about how people tend to assign other people into categories, but these ‘categories’ are multiple as are identities that form one’s concept of self. Thus, in addition to learning about a school subject or group dynamics as discussed previously, students learn about themselves.

Indeed, learning is a journey of discovery, such as becoming aware of our own role in learning, or discovering what kind of learner one is. A participant’s (Helen) response showed that she attempted to balance competing agendas in her decision-making about her class engagement - whether she was very engaged or less engaged in the course - and concluded that her learner self is different in an online course from her learner self in a traditional classroom. Helen shared that her engagement depended upon different factors, for example, her interest level in the content, her other school-related requirements, and the expectations/conduct of an external authority – the teacher. She was looking for a smaller number of tasks in her online course and said that in the online course she prefers to “observe” until she is sure of the teacher’s involvement and her own interest level. Helen said that she likes to “kind of wait to see the expectations”. She also said that she was more engaged once she concluded that the teacher had established a good interaction and high expectations but that that’s different to how she acts in a traditional classroom:

Helen: “When we started communicating and I saw the expectations and your engagement, I was like ‘Oh, okay, I need to be really diligent about participating in this class.’ In another online class, they just wanted the basics of us, just to

submit the assignment. I realised very soon I can do the bare minimum in that other online course... which is so different from how I participate in classes when we are at school. As if I become a different person online - I wait to see what has to be done because I do not see the teacher in front of me watching us constantly... I know that I did not participate much at first. But it was not that I disliked interactions and discussions, or did not want to do my best. I thought this course would be like other online classes we had during the pandemic."

It can be concluded that her 'online learner self' influenced the way the student participated in classroom interactions. This finding supports an understanding of identity as partially based on actions in specific contexts, i.e., who we are is a matter of what we choose to do and how we choose to invest in what we do. This finding also demonstrates that on a learning journey, students are clarifying values – *developing integrity*. Finally, this finding challenges the notion of a stable subject that is becoming or learning and implies the idea of an unstable and fluid notion of self.

The verb *becoming* was repeatedly used in interviews – such as "becoming able to transfer knowledge", "becoming more skilful in creating and editing videos", "becoming more responsible as a learner", and "becoming more aware". What children expressed was the *process*, an ongoing *transformation* within them; a learning experience where the physical, emotional, and cognitive are all employed in the understanding of self and others, in becoming – becoming a different 'thing' for a different student, i.e., in becoming a person.

For educators, this finding suggests that it is important to engage learners in regular classroom practices that facilitate insight and planned academic and personal *transformation*, i.e., *change in consciousness*. The results suggest a necessity to recognise the important role of schooling in facilitating the *journey of becoming* - an ongoing act of acquiring knowledge, skills, behaviours and attitudes, towards self-understanding and illuminating who we are.

4.3 Subjective Conceptual Framework

Following Charmaz's (2006) CGT in building abstractions, categories, and concepts from the data, I developed a pattern of meanings from the students' experiences mapped out as the Subjective Conceptual Framework (see Figure 4.4). In addition to cognitive processes related to acquiring subject knowledge, skills and attitudes, it became apparent that OL includes a process of transformation, evidenced, for example, in Carol's quote that describes learning as becoming a different person and change in perception and consciousness, leading to achieving greater self-understanding and understanding of others.

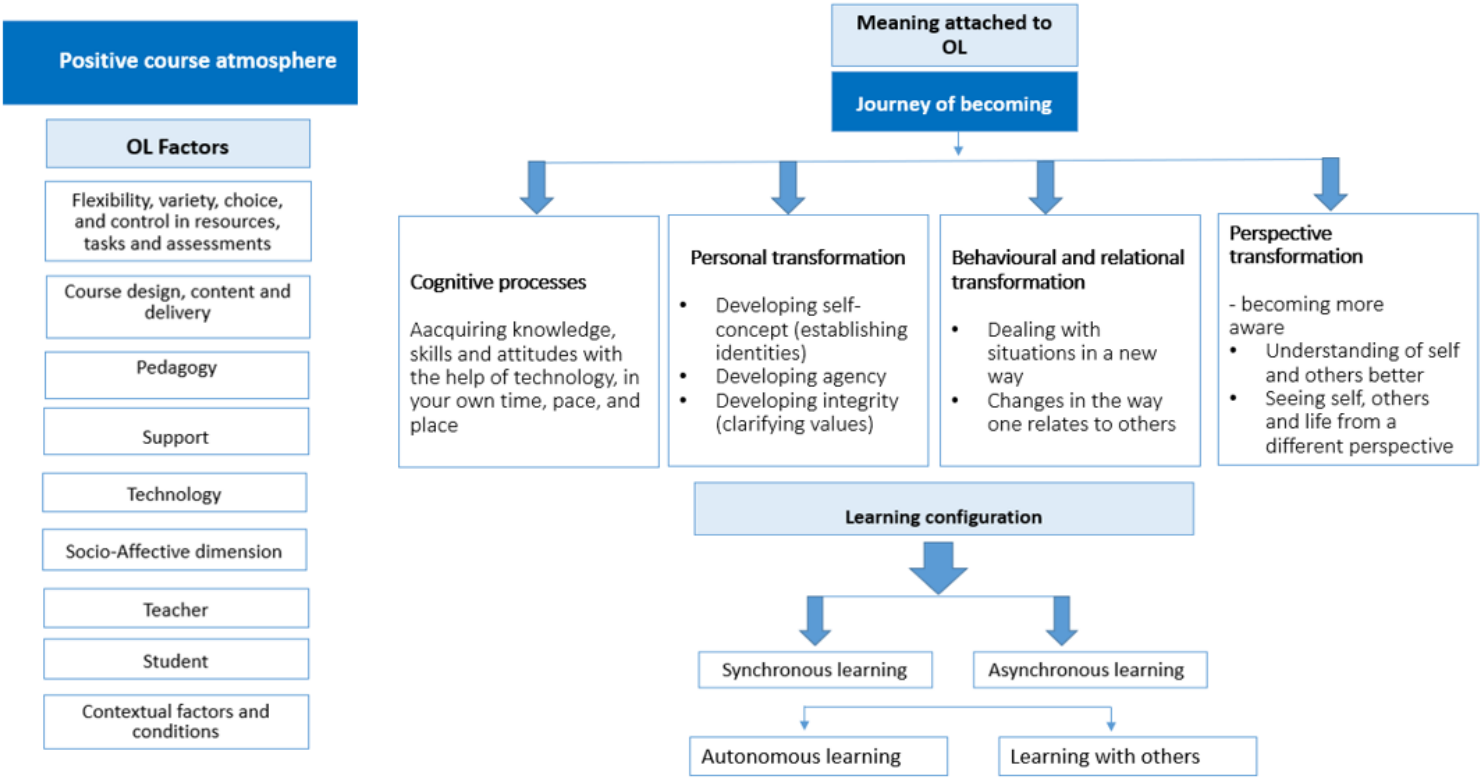

Figure 4.4: Subjective Conceptual Framework

Notably, the students identified *awareness - perspective transformation*, as one of the learning outcomes. Thus, from their answers, the conceptual organisation of OL in upper PE is configured as a *journey of becoming*. It encompasses a flexible TEL experience that endorses independence and personal control, revolving as a blend of *synchronous and asynchronous learning opportunities*, between *autonomous learning and learning with others*. Student interviews

have also identified the *Positive course atmosphere* in addition to the following nine OL success factors as required to maximise the effectiveness of this learning model, student learning outcomes, and satisfaction:

1. Course content, design and delivery; 2. Flexibility, variety, choice, and control in resources, tasks and assessments; 3. Support; 4. Socio-affective considerations; 5. Teacher; 6. Student; 7. Pedagogy; 8. Technology; and 9. Context.

Resulting from the application of CGT to study participants' experiences, Figure 4.4 depicts the components of subjective conceptualisation of learning online for upper PE, including indicators, and factors/inputs that are operating in an OL setting.

4.4 Towards the OLY Framework: Integration of the Provisional and Subjective Conceptual Framework

Following Goldkuhl and Cronholm (2010), during the process of theorising, I related the findings from the empirical study (subjective framework) to the established research (provisional framework). The existing theory - the provisional framework, was used as a building block to support the empirical data in formation of a new 'theory' - holistic conceptual framework of OL for K-12. It also served as a means for analysis and control of the validity of the created framework, with the aim of proposing a "multi-grounded" (Goldkuhl and Lind, 2010; Goldkuhl and Cronholm, 2010) conceptual tool, grounded in:

• Empirical data (mainly through an inductive approach) - empirical grounding;

• Pre-existing theories (selected for the theorised phenomena) - theoretical grounding;

• Explicit congruence within the theory itself (between elements in the theory) - internal grounding (Goldkuhl and Cronholm, 2010, p.192) (see Figure 4.5 on the following page).

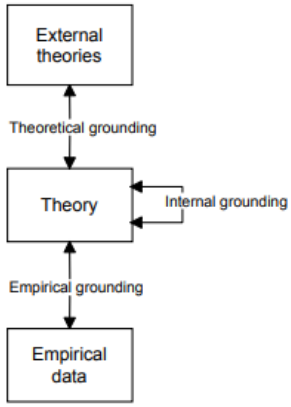

Figure 4.5: Three Complementary Grounding Sources for a Developed Theory (Goldkuhl and Cronholm, 2010)

The provisional framework exposed twelve dimensions describing and affecting OL ecology in K-12 education: *Student; Teacher; Technology; Pedagogy; Course content, design and delivery; Context acknowledgement; Planning; Support; Ongoing programme evaluation, adaptation, and improvement; Socio-affective dimension of learning; Mosaic of theories on learning; and Accessibility and inclusiveness*, in addition to the key dimension *Educating the whole-child* relating to both *learning outcomes* and *learning processes*. The metaphor of OL *ecosystem* and *ecology* highlighted the complex relationships between the identified elements.

On the other hand, the data analysis yielded slightly different key themes and factors of a holistic OL experience in upper PE. These were classified into nine categories of the subjective OL framework: *Course content, design and delivery; Flexibility, variety, choice, and control in resources, tasks and assessments; Support; Socio-affective considerations; Teacher; Student; Pedagogy; Technology; and Context*, with the key theme - *Journey of becoming*, unfolding through the *synchronous and asynchronous learning*, and *independent study and collaborative learning activities* of a course which includes a *positive atmosphere.*

The comparison reveals the organisation of learning activities within online courses into *synchronous and asynchronous learning*, and *independent study*

and collaborative learning in the subjective framework. The provisional framework outlines *synchronous and asynchronous learning, independent study and learning together* too, but designates them as sub-dimensions within the broader dimensions of *Course delivery* and *Pedagogy* respectively. Due to the significance attributed to these distinctions by students (synchronous and asynchronous learning, alongside independent study and collaborative learning), the holistic comprehension of Online Learning for Youth - OLY Framework - retains these categories as distinct and separate entities. This organisation ensures that the unique nature and impact of each learning approach is preserved and recognised in the overall OL experience.

Continuing the comparison, I present both frameworks side by side for the purpose of systematisation and to identify the inputs/factors of OL for youth upon the merger of two frameworks (see Table 4.2).

Course content, design and delivery	Flexibility, variety, choice, and control in resources, tasks and assessments	Support	Pedagogy	Teacher	Socio-Affective dimension	Technology	Accessibility and inclusiveness	Context acknowledgment	Ongoing programme evaluation, adaptation, and improvement	Planning	Mosaic of theories on learning	Student
Subjective framework												
√	√	√	√	√	√	√	x	√	x	x	x	√
√	x	√	√	√	√	√	√	√	√	√	√	√
Provisional framework												

Table 4.2: OL Factors/Inputs Across Two Frameworks

The comparison reveals a significant overlap between factors in both frameworks, and highlights five categories that are exclusive to each framework. For instance, the *Mosaic of theories on learning* is present only in the provisional framework, while the *Flexibility, variety, choice, and control in resources, tasks, and assessments* dimension is unique to the subjective framework. Continuing development of OLY, integrated overlapping categories and retained distinct categories from the two frameworks. Upon analysis, I merged the *Ongoing course evaluation, adaptation, and improvement* dimension and *Planning* dimension.

While these two dimensions have distinct focuses and timelines (one focuses on ongoing improvement during delivery, and the other on pre-implementation planning), they are interconnected and complementary. The *Planning* dimension involves the initial design and preparation of online courses and programmes before their implementation. It includes determining learning objectives, selecting appropriate instructional strategies, designing assessments, organising content, and planning the overall structure of the course. The *Ongoing Course Evaluation, Adaptation, and Improvement* dimension focuses on continuously assessing and enhancing the effectiveness of online courses/programmes during their delivery and beyond, thus, making necessary adaptations to improve the learning experiences. It emphasises the importance of being responsive to the evolving needs of students and the dynamic nature of OL environments.

Combining both dimensions ensures that online courses are well-designed from the outset, with clear learning objectives, appropriate instructional methods, and relevant assessments amongst other necessary considerations. As the courses are implemented, the ongoing evaluation dimension allows for continuous improvement based on student feedback, learning analytics, and reflections on teaching practices.

Merging the *Ongoing course evaluation, adaptation, and improvement* with the *Planning* dimension, and integrating the overlapping categories and distinct categories from the two frameworks, yielded 12 factors of a comprehensive, holistic conceptual understanding of OL for youth (see Figure 4.6 on the following page):

1. Course content, design and delivery;

2. Flexibility, variety, choice, and control in resources, tasks and assessments;

3. Support;

4. Socio-affective considerations;

5. Teacher;

6. Student;

7. Pedagogy;

8. Technology;

9. Planning and ongoing course evaluation, adaptation, and improvement;

10. Accessibility and inclusiveness;

11. Context; and

12. Mosaic of theories on learning.

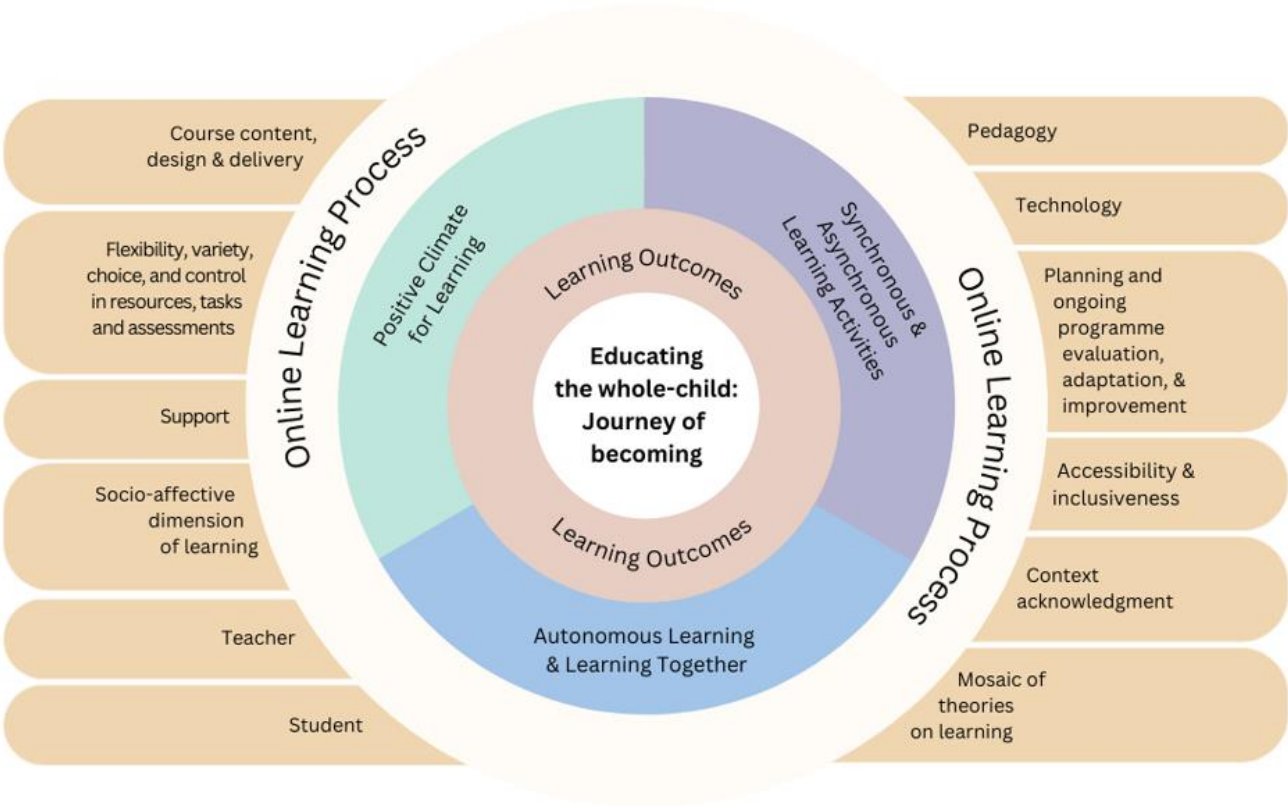

Figure 4.6: The Online Learning for Youth - OLY framework

Additionally, key themes across both frameworks were disaggregated into more precise individual factors. The comparison of sub-dimensions within both frameworks (see Appendix 5), yielded the individual sub-factors within each of the 12 dimensions of OLY framework, outlined in the following Table 4.3.

Mosaic of Theories on Learning	
1. Behaviourism, Cognitivism, and Constructivism; 2. *How people learn* (2018) report considerations; 3. Motivation; 4. Bioecological perspectives; 5. Metacognition and Self-Regulation; 6. Affect; 7. Growth mindset, Agency, and Choice; 8. Multiple Intelligences and Learning Preferences perspective; 9. Fink's Taxonomy of Significant Learning (2003); 10. Developmental Stages; 11. Universal Design for Learning; 12. Online Learning Theory	
Pedagogy	
1. Variety of instructional strategies, 2. Cross-curricular collaborations and knowledge transfer; 3. Reflection 4. Personalisation and differentiation; 5. Dialogue and discussions (student-teacher and student-student); 6. Game-based learning; 7. Criteria informed, multimodal, timely, frequent and feedback-rich assessment 8. Inquiry-based learning, 9. E-portfolio; 10. Interaction (student-teacher and student-student).	
Planning and Ongoing course/programme evaluation, adaptation and improvement	
Planning	1. Examination of the existing context of OL in the institution 2. Vision, clarity of purpose and measurable goals 3. Innovation in teaching 4. Setting priorities 5. Teacher training and support 6. Mandates for supporting OL and 7. Teaching and learning considerations.
Ongoing course/programme evaluation, adaptation and improvement	1.Identifying areas for improvement and implementing new pedagogical approaches and instructional methods; 2. Aligning course outcomes and performance with established benchmarks; 3. Evaluating the alignment between course content, activities, and assessments with the intended learning objectives; 4. Effectiveness and appropriateness of the technology used; 5. Accessibility of course materials to all learners; 6. Keeping course content and resources up-to-date and relevant 7. Adapting the course in response to changing student needs, emerging trends, and/or external factors.

Flexibility, variety, choice, and control in resources, tasks and assessments
1. Flexibility in time, place and pace of learning; flexibility in tasks and assessments; flexible scheduling; 2. Variety in instructional methods, resources, tasks, and assessments; 3. Having a choice; 4. Having control of learning
Context
1.Immediate surrounding (e.g., availability of designated learning space, physical environment, indoor environmental quality, weather conditions); 2. Relationships (e.g., family and peer relationships and support, teacher-student relationship) 3. Academic setting, School committee (board), and Education Ministry 4. Social and political influences 5. Socioeconomic conditions; 6. Geographical location; 7. Suppliers (Technology Providers, Educational Institutions, Content Providers, Other Teachers, Accreditation Bodies); 8. Special Interest Groups (e.g., Students' Commissions, Teachers' Association)
Student
1. Engagement and effort 2. Active participation in own learning 3. Willingness to do what is necessary; 4. Curiosity, 5. Initiative, focus and persistence; 7. Learning styles, 8. Self-discipline; 9. Self-regulation, 10. Self-study skills and self-teaching skills; 11. Motivation; 12. Prior knowledge of OL and ICT skills 13. Self-efficacy 14. Internet self-efficacy 15. Commitment 16. Time management.
Support
1.IT support and training for teachers and students; 2. Academic and administrative support; 3. Initial and ongoing, timely teacher support; 4. Continuing individual and group support 5. Peer and family support 6. Teacher support.
Teacher
1. Universal Design for Learning principles; 2. Technology accessibility; 3. Modified curricula; 4. Presenting information/content in various formats; 5. Clear and concise instructions, guidelines, and expectations; 6. Promoting respectful and inclusive communication, collaboration and interaction; 7. Assessments consider diverse ways of demonstrating knowledge and understanding; 8. Support for students with unique needs and challenges; 9. Ongoing evaluation, adaptation and improvement in promoting accessibility and inclusiveness.
Socio-affective considerations
1. Supportive and inclusive atmosphere; 2. Positive relationships; 3. Effective communication; 4. Cultural sensitivity 5. Students feel valued and respected 6. Sense of community and belonging 7. Praise; 8. Conflict resolution 9. Emotional support 10. Wellness and mental health; 11. Reflective practice.

Technology	
1. Infrastructure; 2. internet/broadband speed and quality 3. Consistency and effectiveness of IT: Device used to learn online is functional, reliable, and with good connectivity; Delivery medium (LMS) is easy to use, appealing, reliable, easy to navigate, user-friendly, and customised; 4. Prior experience and level of confidence with technology 5. Upgrades and Maintenance 6. Ease of use 8. Appropriateness of technology to the pedagogical content 9. Accessibility.	
Course Content, Design and Delivery	
Course Content	1. Accessible and inclusive; 2. Relevant and challenging; 3. Well-organised and Comprehensive; 4. Understandable; 5. Concise, 6. Useful and diverse; 7. Up-to-date; 8. Displayed in multiple ways, using purposeful multiple media; 9. Updated and linked to existing and new information on the subject matter and related knowledge.10. Interesting and interactive; 11. On-time content; 12. Available in manageable segments; 13. Course includes an *Introduction to the course* session.
Course Design	1. Learner-centred, responsive interface design 2. Well-structured course, organised into units; 3. Logical, intuitive, understandable course navigation 4. Courses to follow a consistent structure 5. Clearly outlined expectations, learning objectives, assessment modes and criteria 6. Rubrics for assignments are provided; 7. Scope-and-sequence handouts communicate what learners need to do and when they need to do it 8. Assessments align with objectives 9. Written guidelines for collaboration and communication are provided; 10. The main method of content presentation are self-done teacher's videos that combine visual, audio and text, supplemented with external links and podcasts; 11. Supplementary video-related text is available; 12. Expectations regarding behaviour, communication and participation are provided; 13. Student-to-student interaction is supported; 14. Links to institutional services are provided 15. Teacher contact information is stated; 16. Multiple technologies and media are utilised for content provision and presentation, to promote learner engagement and facilitate learning; 17. Appealing course and course content appearance 18. Communication and activities are used to build community.
Course Delivery	1.Reliable and robust interface; 2. Clear goals, directions and learning plans ; 3. Unit information and expectation of student roles are clear; 4. Accurate and error free materials; 5. Appropriate institutional style for Units and websites to ensure a benchmark quality of presentation; 6. Communication: course has diverse communication inputs and a range of effective communication channels, and encourages student-student and teacher-students dialogue; 7. Clear timelines and deadlines; 8. Direct as well as indirect instruction - guest teachers and student-student teaching.

Table 4.3: Twelve OLY Dimensions and its Sub-dimensions

The created conceptual framework - a map of dimensions concerning the different types of meanings ascribed to OL and the required components of learning online in K-12 education - is discussed in the following section.

4.5 Holistic Perspective on Youth Online Learning: OLY Framework

The focus of the fourth research question, and what it was meant to achieve, was a possible understanding and comprehensive, holistic configuration of OL in upper PE taking into account the lessons learned from the literature and the students' experiences:

RQ 4: Based on RQ 1, RQ 2 and RQ 3 - How can OL experiences of upper primary or lower high school age students (13-14 years) be conceptualised and integrated into a holistic framework of OL for youth (OLY)?

Relating the findings from the empirical study (subjective framework) to the established research (provisional framework) resulted in the following key themes:

OL as a *journey of becoming* within an educational environment of *positive climate for learning*, and learning being delivered between *synchronous and asynchronous learning activities*, and *autonomous and collaborative learning opportunities*. The *educating the whole-child* dimension at its centre relates to both *learning outcomes and learning processes* informed by the 12 inputs/12 dimensions, essential to the understanding and success of OL for youth.

The OLY framework arises as a complex, dynamic, and non-hierarchical construct. Further, it is suggested that OL requires an understanding and application of all identified dimensions (that interact with one another) to support learning online. The framework works in an integrated manner for its final achievement - the substantive theory of learning online for youth, revolving around the main category - *whole-child-centred OL ecology*. Understanding OL as an ecology, highlights the experience of learning as a non-linear process, emergent, and defined by the needs of learners. Students are given agency and the opportunity to take responsibility for their own learning. They are empowered to build their own personal learning paths in a more independent, autonomous space, whilst being provided with the initial and ongoing support on their journey. Furthermore, the framework places the student at its centre, and theorises OL by identifying learning not being entirely separated from

becoming. In this broadened understanding of education that includes learning as a *journey of becoming*, and rests on a *positive climate for learning*, learning is recognised as multidirectional, developing an individual's self and their knowledge, skills, attitudes, and behaviours (refer to Figure 4.6, page 176).

In this way, for policy-makers, researchers and practitioners alike, OLY provides a coherent 'frame' to locate the components of the OL puzzle. OLY is seen as the mechanism for understanding, creating, delivering, evaluating, and promoting effective OL for youth, by which theory to practice is linked. In doing so, OLY addresses the gap in K-12 literature.

What is new about this framework:

• It builds on existing theories, frameworks, and evidence-based characteristics of OL experiences in providing direction for understanding, creating, delivering, evaluating, and promoting effective OL in K-12 education.

• It is grounded in students' experiences arising from learners being engaged as OL testers, informants and/or design partners. A key strength of such an approach to creating an OLY framework, is that it acknowledges the lived reality of the individual, while not reducing OL to solely student views.

• It explores OL ecology as a *process of educating the whole child* and *learning as becoming* at the centre of *learning outcomes and learning processes* that are additionally informed by the *twelve inputs of OLY* (12 factors).

• It focuses on learning as transformation, identities' formation and developing an individual's self, in addition to developing students' knowledge, understanding, skills, behaviours and attitudes, thus, highlighting learning as multidirectional within a *positive learning climate*.

• It explicitly recognises both *synchronous and asynchronous activities,* and *autonomous and collaborative learning opportunities*.

• It incorporates theoretical principles on learning to help teachers facilitate a compelling OL experience.

• It addresses both the planning and evaluation, adaptation and improvement of OL courses and programmes.

• It represents an adaptive framework for conceptual understanding of OL for youth that can be modified to fit a specific school ecology and subject contexts.

Chapter 5: Discussion and Conclusion

The following discussion positions the findings of my study in relation to extant knowledge. It also serves to clarify the created categories and demonstrate how the OLY framework adds to existing knowledge (Charmaz, 2006; Goulding, 2017).

5.1 Discussion of Findings

In addition to the core dimension of OLY, the framework's reach and effectiveness is dependent upon and affected by *OL ecology* unfolding within *Positive climate for learning*, between *Synchronous and asynchronous learning activities, and Autonomous learning and learning with others*. Next, I discuss each dimension in detail.

5.1.1 Online Learning Ecology unfolding between Synchronous and Asynchronous Learning Activities, and Autonomous Learning and Learning Together

In light of the sector moving toward a paradigm of online learning ecology (Andrews and Haythonthwaithe, 2011; Ellis and Goodyear, 2009; Frielick, 2004; McCalla, 2004), it was considered timely and relevant that the conceptual framework for understanding OL for youth embraces a holistic, non-dualistic, and authentic mode of thinking ecologically about OL and reality, where the term holistic means cultivating the whole person. Conceiving a teaching/learning setting as an ecosystem or ecology (Brown 2000; Kelly, 1994; Nardi and O'Day, 2000), means that learning/teaching is an eco-systemic process of transforming information into knowledge, in which teacher, subject, and student relationships are embedded or situated in a context where complex interacting influences shape the experience and the quality of learning outcomes (Frielick, 2004). Like some other theoretical frames, e.g., activity theory (Bannon, 1997; Kaptelinin and Nardi, 2018) and actor-network theory (Latour, 1999), ecological views draw attention to the "cyclical and emergent nature of human activity" (Andrews and Haythonthwaithe, 2011, p. 159), and

learning as related to broader social and cultural processes (Lave and Wenger, 1991). Further, the worldview in this approach embraces the idea that “there are no separate elements … the whole is composed of inseparable aspects that simultaneously and conjointly define the whole” (Altman and Rogoff, 1991, p. 24).

Taking an ecological approach to the student experience of OL stresses cooperation, relationships and interdependence rather than polarisations. The connections and networks that are made both inside and outside of the classroom are critical to students’ current and future success and to the development of lifelong learning skills (Blaschke, Bozkurt and Cormier, 2021). Furthermore, enabling an abundance of connections between learners and their peers, learners and tutors, and learners and learning resources, liberates knowledge and democratises learning (Goodyear et al., 2005).

Drawing upon the aforementioned characteristics, thinking ecologically about OL and reality represents an extension of critical pedagogy (Boyd, 2016; Freire, 1970). This approach seeks to understand ways of being online by questioning it in the intersection of power and agency, in order to ensure a more socially just and equitable future for education (Öztok, 2019). While individual agency, i.e., an individual’s capacity to make choices and enact those choices in ways that impact their lives (Martin, 2004), can manifest itself in various forms, it may also be subject to constraints. It remains, however, imperative to foster learner agency and empower students by ensuring their autonomy, offering them opportunities for self-regulation, control, and monitoring of their learning - a perspective substantiated by insights derived from student interviews. Learner agency assumes a pivotal role in establishing and cultivating connections and networks in these digital extensions of organic spaces. Indeed, learners can build online communities, grow their social capital and form their self-concept as they engage in interactions with both living and non-living entities, and project their identities (Gourlay et al., 2021). The implications of this on education and the way children are taught are considerable, and entail an awareness of social justice issues in online education, such as, the concept of

social absence as opposed to social presence, and how individuals perform their identities within OL ecologies (Öztok, 2019).

Finally, an ecological view enables the interpretation of online spaces as highly dynamic, adaptive, self-developing, and self-organising spaces, easy to enter and exit, where students can collaborate, cooperate, negotiate, create, share, and take control of their own learning process (Blaschke, Bozkurt and Cormier, 2021). Such a view also supports the idea that these spaces are complex, chaotic, and the progress is nonlinear; thus, learning is nonlinear, connectivist, contextual, and emergent (Blaschke, Bozkurt and Cormier, 2021; Hager, 2005). In such a space, students have the opportunity to articulate 'I am still learning' (Bozkurt and Hilbelink, 2019).

Synchronous and asynchronous learning

The data analysis undertaken for this thesis shows that young students demand blending synchronous with asynchronous learning opportunities, and this finding is one of the key characteristics of OL for this age group. As presented earlier, the students in this study did not see the benefit in asynchronous learning completely replacing learning online synchronously. Indeed, the use of both synchronous and asynchronous activities is important in OL due to the unique characteristics and benefits they offer (Hrastinski, 2008). Since synchronous activities in OL occur in real-time, they provide opportunities for immediate interaction, allowing students to ask questions, receive immediate feedback, and engage in activities or dynamic discussions with peers and teachers. This promotes collaboration and enhances social presence in the OL environment (Kock, 2005). Further, as Barbour (2015) and Lindfors and Pettersson (2021) concluded in their studies, K-12 students develop a strong sense of community during their synchronous lectures which can replicate some aspects of traditional face-to-face classrooms, offering a sense of structure and shared experience (Hrastinski, 2008). Further, in synchronous activities, instructors can provide immediate feedback, address misconceptions, and offer guidance in real-time. This timely support enhances student understanding and reduces the potential for confusion or misinterpretation. It

was argued, therefore, that synchronous communication increases motivation (Robert and Dennis, 2005).

In turn, asynchronous activities occur independently of time and location, allowing students to access and engage with learning materials at their convenience. This can include pre-recorded lectures, discussion boards, online quizzes, or self-paced learning modules, providing flexibility and enabling students to study at their own pace and accommodate their individual schedules. Furthermore, asynchronous activities can cater to different learning approaches if students are allowed to engage with content in a variety of ways and if options are provided to enhance comprehension as well as accommodate different preferences (Bonk and Zhang, 2008). Also, ensuring learners can access course materials and complete assignments when it suits them best, allows for greater autonomy (Miller, 2014). Finally, it was argued that asynchronous activities encourage reflective learning as students have time to process information, think critically, and articulate their thoughts without the pressure of immediate responses (Hrastinski, 2008). This promotes deeper understanding, encourages independent thinking, and supports the development of self-directed learning skills (Lindfors and Pettersson, 2021).

By incorporating both synchronous and asynchronous activities, OL environments can harness the benefits of real-time interaction, immediate feedback, and collaborative learning (synchronous), as well as the flexibility, reflective learning, and accommodation of diverse needs (asynchronous) (Hrastinski, 2008). This combination creates well-rounded and comprehensive learning experiences that addresses different learning preferences, fosters autonomous learning and learning with others, and promotes effective learning outcomes. Additionally, it provides young students with a balanced approach to learning and allows them to optimise their participation and engagement in the OL environment.

By considering students' experiences and the perspectives coming from the analysed literature, a more nuanced understanding was gained of how an effective and comprehensive learning occurs when online courses aim to

provide experiences that support independent study and encourage active engagement, communication, and collaboration among students and teachers.

Autonomous learning and learning together

The HAD course included strategies that fostered independent learning and promoted collaboration. All interviewed students stated that online courses should aim to support learning alone and together. This finding supports previous work on the benefits of combining independent study time with bringing students together in interactive sessions (Alley and Jansak, 2001; Anderson, 2011; Picciano, 2017; Robertson and Kipar, 2010).

To promote autonomous learning, online courses should provide learners with clear learning objectives, structured content, and assessments that provide meaningful feedback (Preston, Younie and Hramiak, 2021). Learners should also have access to a range of resources, such as readings, videos, and interactive exercises, that they can use to supplement their learning. At the same time, courses should offer opportunities for collaboration and interaction, such as discussion forums, group projects, live video conferencing sessions, and interaction through telephone group messages. These activities enable learners to share ideas, engage in dialogue, and receive feedback from their peers and teachers, and can enhance the learning experience, foster a sense of community, and social presence. Learning together requires a balance between the provision of high-quality learning materials and resources, the use of technology to facilitate interactions and discussions, and the creation of a supportive learning community (Johnson and Johnson, 2002). Thus, another key to a successful online course is to provide a well-designed, engaging, and supportive learning environment that balances autonomous learning with social interaction and collaboration.

5.1.2 Positive Climate for Learning

The conducted research suggests that the climate for learning and the teacher's way of being greatly affect students' experiences. Indeed, feelings such as high interest in and enjoyment of a course can be reached when the

learner experiences a sense of friendship and closeness to peers and teacher (need for relatedness), a sense of freedom and control in learning (need for autonomy), and feels effective in learning (need for competence) (Deci and Ryan, 2000). Notably, believing that teachers are responsible for creating supportive, inclusive, productive and stimulating learning environments, students demand a positive course atmosphere and a caring teacher who supports students to learn and develop academically and personally. Previous studies similarly demonstrate that the student perception of a caring instructor added a personal touch to the online class (Robb and Sutton, 2014; Tippens, 2012). Jones (2010) argued that caring is an important factor for online students' success. Also, Chen and Jang (2010) found that "students need to be surrounded by an atmosphere that allows a free expression of feelings, thoughts, and concerns" (Chen and Jang, 2010, p. 750), whereas a form of depersonalised support can create barriers for expressing students' concerns.

Overall, an emphasis on care can facilitate genuine student connection with the educational institution and foster the development of the community of learners. Additionally, it can be assumed that OL environments should delimit the fear of learning, as the study results showed, and instead be structured in a way that encourages curiosity and excitement, as suggested by Idemudia et al. (2019).

Relationships with teachers are considered to be the crux of a learning situation (Smith, 2007) and an important factor that affects children's early academic success (Graziano et al., 2007). Furthermore, the way that children experience relationships in the home, community, and school, influences their biological development, and hence how they live, think, and learn (Harris, 2018). Also, the quality of children's relationships with their teachers has increasingly been recognised as an important contributor to children's school adaptation (Birch and Ladd, 1997; Pianta and Stuhlman, 2004). Indeed, a wide range of research framed within an attachment perspective now provides evidence that the teacher-child relationship can powerfully contribute to the emotional security which children need to thrive in school (Howes, 2011; Sabol and Pianta, 2012; Verissimo et al., 2017). An attachment perspective provides another important lens through which the elaborate interplay between emotions and school

achievement can be considered. Such a lens emphasises the role of primary attachment relationships on children's learning and development and the significance of emotional ties with teachers for school relatedness and achievement.

Specifically, the theoretical framework by Bronfenbrenner (1979) highlights the quality of the classroom environment, pedagogical practice, and children's relationships with others as one of the key influencers on children's lives, learning and development (Melhuish, 2015). Indeed, with conversations and other interactions, imitation, exploration, and self-paced practice, children build simple understandings of social rituals, language, emotions, and stories (Grazzani et al., 2018). Through active participation in daily activities and learning opportunities that allow for both novelty and predictability, students notice patterns of cause and effect, gain agency and a sense of self, and begin to figure out how the world works (Shtulman and Carey, 2007). They learn to act alone and with others' help to satisfy their curiosities and achieve their goals (Spelke, Breinlinger, Macomber, and Jacobson, 1992). Further, structured opportunities to learn from others, to explore, discover, invent and to test out the predictive power of their reasoning and calculations, help children construct a sense of agency and emotional well-being (Immordino-Yang et al., 2019). Critical to attaining these important goals is the positive climate for learning conducive to acquiring the socio-affective skills involved in figuring out how to engage with others: how to make friends, empathise, share, play cooperatively, wait patiently, and take turns; as well as to solve conflicts or problems and manage anger or frustration. Each of these skills contributes to aspects of socio-emotional learning important for schooling, such as motivation, self-determination, self-regulation, and self-awareness (Immordino-Yang et al., 2019). Thus, arguing that the student is a feeling, purposive, and intellectual being who needs to be approached as a whole person, the relaxed course atmosphere and satisfying learning climate, appropriate human interactions and caring teacher, are not merely factors that influence learning, but are central to it, and have a tangible impact on the ability to engage with learning.

5.1.3 Twelve Domains of OL in the Context of Youth Education

Figure 5.1 provides a visual frame of reference for the 12 inputs of OLY which are subsequently discussed.

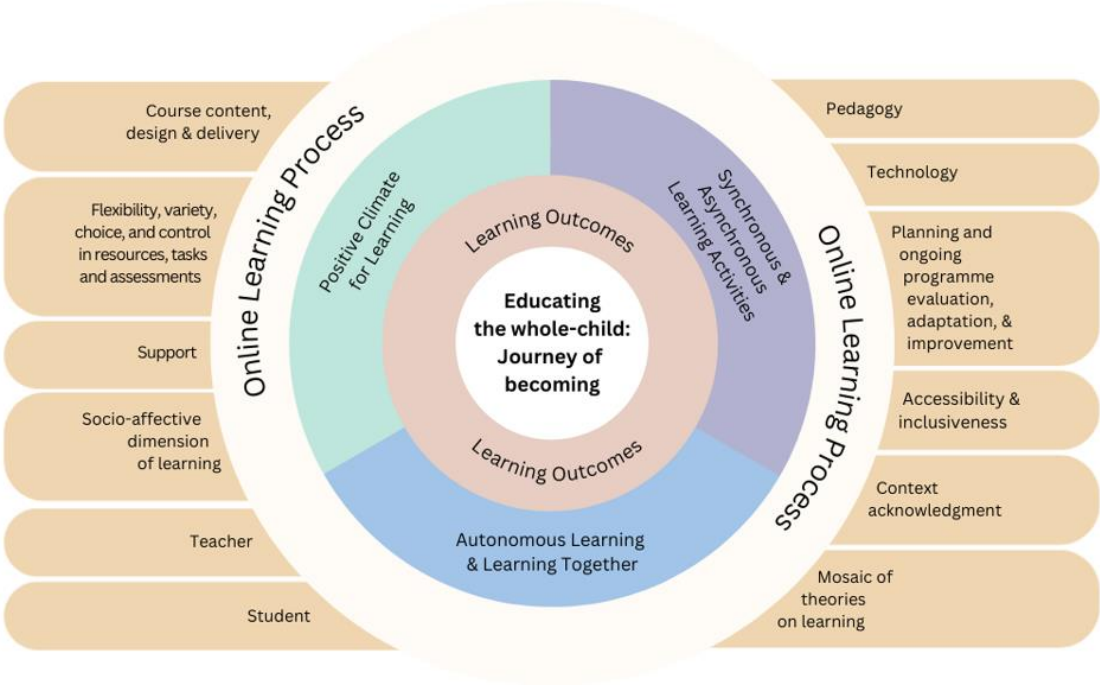

Figure 4.7: OLY Framework and its 12 Inputs

1. Technology

The effective use of technology in delivering courses to learners is essential to the success of OL (Cheawjindakarn et al., 2013; Selim, 2007). The OLY framework recognises the integral role of technology in making the delivery process as smooth as possible and interactions available in online environments. The relevant literature similarly discusses Internet/broadband speed and quality; hardware and software availability, accessibility, and reliability; ease of use; VLE interface design, functionality, interactivity, and response; and appropriateness of technology to the pedagogical content as the relevant factors and considerations related to the technology component of an OL experience (AbuSneineh and Zairi, 2010; Arbaugh, 2000; Basak, Wotto and Bélanger, 2016; Bhuasiri, et al., 2012; Cheawjindakarn et al., 2013; DeLone and McLean, 2003; Fresen, 2007; Lee, 2010; Lim, Lee and Nam, 2007;

Ossiannilsson and Landgren, 2012; Sun et al., 2008; Teo, 2010; Volery and Lord, 2000; Wu, Tennyson and Hsia, 2010).

Notably, several studies in K-12 education have shown that clear and consistent navigation is crucial in OL (Barbour, 2007; Barbour, Morrison, and Adelstein, 2014; Morris, 2002). The students in this study believe so too, as evident from Isabel's remark - "Clear and easy navigation is important so there are no surprises for us", and other student comments. However, it is equally essential to acknowledge the diverse technology backgrounds and confidence levels among students.

Students' prior experiences and confidence with technology can significantly influence their OL experience as discussed by the study participants. Indeed, students who are confident with technology can then more effectively engage in virtual discussions, contribute to group projects, and communicate with peers and instructors (DiPietro et al., 2008; Elbaum, McIntyre, and Smith, 2002). Those with a higher level of confidence may adapt more quickly to the online environment, while others may require additional support and guidance. Recognising these differences is crucial for educators and institutions; accordingly, it is essential to identify prerequisite technology skills for students (Elbaum et al., 2002; Rice, 2012).

The study participants discussed the device used to learn online as another consideration to ensure every student has equal opportunities to participate, engage, and succeed in OL, highlighting that owning an appropriate device for OL - functional, reliable, and with good connectivity, is a prerequisite to be successful. This finding is in line with the U.S. Department of Education (2017) recommendations which suggest that every student should have at least one powerful Internet access device and appropriate software and resources for research, communication, multimedia content creation, and collaboration for use out of school. Indeed, supporting learning requires ubiquitous access to devices and the technology tools that allow students to create, design, and explore.

Expectedly, equal importance that the students gave to the device used to learn online, was given to the delivery medium (LMS) requirements. As previous studies have demonstrated, the selection of an effective LMS architecture is crucial (Rice, 2012). Course designers and teachers should, therefore, ensure that the LMS meets all the necessary requirements for the course (Barbour, Morrison, and Adelstein, 2014), and that the technology used meets interoperability standards and can communicate with other systems within the institution (Coates, James, and Baldwin, 2005; Watson and Watson, 2007). Further, according to the students, the LMS has to be easy to use, appealing, reliable, easy to navigate, user-friendly, and customised. This factor is in line with Volery and Lord's (2000) critical success factors in OL and other relevant studies that claim how the ease of use, reliability, quality and medium richness are key technological aspects to be considered in online delivery (Bhuasiri et al., 2012; Sanders Lopez and Nagelhout, 1995; Trevitt, 1995). With regards to ensuring the required simplicity and consistency in navigation, Barbour, Morrison and Adelstein (2014) advise the use of a template.

Finally, in addition to having a user-friendly interface, courses should also incorporate a variety of technology tools and meet accessibility standards (iNACOL, 2011a). Multimedia should be easily accessible too, with multiple formats available to cater to different student needs and learning preferences (Barbour, 2007; Cavanaugh, 2013; Keeler et al., 2007).

2. Teacher

The role of the teacher was considered one of the most critical factors in the OL experience from the perspectives of young students. This perception is echoed by academic research and studies which highlight the significant impact of the teacher's presence, teaching style, and support on students' engagement, motivation, and overall learning outcomes in the online environment (AbuSneineh and Zairi, 2010; Bower, 2015; Caplan et al., 2008; Moore, 2005).

Concerning the teacher's technological skills, pedagogical strategies, and subject competency in an OL course, it is obvious that these aspects play

important roles for the success of OL. The instructor's technology literacy, the course knowledge and the teaching strategy implemented for the course delivery would help to keep students engaged in the OL environment (Atim et al., 2021; DiPietro et al., 2008). The findings of this study show that the students prefer that the teacher demonstrates knowledge of subject matter using a variety of techniques and media, creating spaces for collaboration, dialogue, and interaction between the students themselves and teacher and students. Further, the students believe that provision of timely, informative feedback has an important role in motivating them. Indeed, evidence suggests that feedback in online instruction supports student learning when it is frequent and meaningful (Cavanaugh et al., 2009); includes elaborated explanations as opposed to simply indicating, for example, that a response is correct or incorrect (Van der Kleij et al., 2015); and is used by the teacher to adjust instruction (Pulham and Graham, 2018). The current study's empirical evidence aligns with prior research findings and reinforces the notion that feedback is an integral factor that contributes significantly to the efficacy of OL (Darabi et al., 2006; Easton, 2003; Oncu and Cakir, 2011). Additionally, the perspective put forth by Sridharan, Deng and Corbitt (2010) asserts that teachers' specific and actionable feedback concerning assignments and assessments aids students in comprehending their strengths and identifying areas necessitating improvement, thus fostering an environment conducive to ongoing development. By embracing this practice of targeted feedback, educators not only support their students' immediate learning objectives but also create an environment that encourages continuous improvement. The philosophy underlying this approach is aligned with constructivist principles, where learning is viewed as an ongoing process of refinement and growth.

Further, scholars have found that skilled teachers lead thoughtful and structured discussions that are integral to K-12 OL (Borup at al., 2014). Posing open-ended questions and guiding students towards deeper analysis whilst they moderate discussions, teachers can encourage critical thinking and peer interaction (Ellis and Goodyear, 2013). Similar insights from the present study underline the consensus within the scholarly community regarding the

paramount importance of active student involvement in online discussions (Blass and Davis, 2003; Herrington et al., 2001). Nevertheless, K-12 teachers should also facilitate discourse with parents and between parents and students (Black, 2009; Epstein et al., 2018).

The OLY framework did not establish a direct correlation between the teacher's facilitation of discourse involving parents-teacher and parent-student interactions, and students' success and satisfaction with OL. While this absence of a direct connection might appear as a limitation, it is crucial to recognise the broader framework within which these interactions operate. OLY acknowledges the importance of parental involvement in OL within the *Support* dimension. This suggests that, while the direct influence on student outcomes might not be clearly established, the significance of parental participation in facilitating a conducive learning environment is acknowledged. This recognition underscores the multifaceted nature of student success and satisfaction in OL, extending beyond direct teacher-student interactions (Passey, 2021b).

The emphasis on teacher presence emerges as another prominent theme in this study. The impact of the teacher's presence on students' experiences and outcomes was a prevalent insight among the majority of the study participants. This concept finds alignment in the works of Garison (2009), Borup et al. (2014), DiPietro et al. (2008), Richardson (2001), Richardson and Swan (2003), and Weiner (2003), all of whom underscore the pivotal role of teacher presence in online courses. These scholars collectively argue that active teacher engagement, characterised by factors such as responsiveness, timely responses to students' queries, approachability, personalised interactions, and consistent feedback, significantly contribute to students' perceived learning outcomes and satisfaction with the OL experiences.

Borup at al. (2014) identified three teacher roles associated with teaching presence in K-12 education: nurturing, motivating and monitoring. The present research aligns with these roles, offering empirical evidence that substantiates the dimensions of Borup et al.'s delineation of teacher roles. The OLY framework, however, expands upon the understanding of the teacher's role

within the OL landscape. It underscores that teacher attributes, particularly desirable personal traits or human qualities, play an integral role in shaping the teacher's influence on K-12 students' positive OL experiences. This notion signifies a shift from solely task-based roles to a holistic recognition of the teacher as a source of motivation, guidance, and emotional support. Thus, this study makes a useful contribution to the understanding and explanation of the dynamic roles of educators, showing how *Teacher's human qualities, Teacher presence, Teacher responsiveness* and *Teacher communication* in addition to *Teacher role (course actions),* jointly affect the learning process.

Whilst all communities require care, K-12 teachers are held to a higher standard because "they are incredibly important socializing agents who nurture and support" (Picciano, Seaman and Allen, 2010, p. 29) and act as quasi-parents (Repetto, Cavanaugh, Wayer and Liu, 2010). Although the physical separation between online teachers and students can be a barrier to forming close relationships (Hawkins et al, 2011; Murphy and Rodríguez-Manzanares, 2008), researchers have found that teachers can develop caring relationships with students in an interaction-rich online environment (Borup, Graham and Velasquez, 2013; Velasquez, Graham and Osguthorpe, 2013). For example, by engaging students in conversations about content and non-content related topics to form a relationship with each student (Berge and Collins, 1995; Kanuka et al., 2007; Oren, Mioduser, and Nachmias, 2002). However, teachers should note that social interactions are unlikely unless planned and promoted (Murphy and Rodríguez-Manzanares, 2008). Thus, whilst acknowledging the physical separation and potential sense of isolation in OL, cultivating a supportive teacher-student dynamic with a personal touch comes as an effective remedy (Sridharan, Deng and Corbitt, 2010).

Lastly, it is undoubted that roles of an online teacher such as administrative duties, communication, monitoring learning, and promoting learners' internal motivations through external strategies, are additional important teacher related factors in determining success for OL (Borup, Graham and Velasquez, 2011; Borup at al., 2014; Darabi et al., 2006; Easton, 2003; Gilbert, 2015; Goodyear

et al., 2001; Harris, Mishra and Koehler, 2009; Mishra and Koehler, 2006; Oncu and Cakir, 2011; Valverde-Berrocoso et al., 2020; Volery and Lord, 2000).

As Davis and Rose (2007) explained, however, “roles and responsibilities of an online teacher vary depending on the grade level they teach” (p. 8). K-12 students tend to have less self-motivation than adult learners, placing more motivation responsibility on teachers who are not present during lessons (Weiner, 2003). In that respect, the International Association for K-12 Online Learning (iNACOL, 2011b) suggests that teachers monitor students’ management of their time and progress toward mastering learning objectives. The OLY framework is in agreement with iNACOL’s emphasis that teachers need to proactively monitor learning and student behaviour. For example, teachers can use the analytic data in monitoring student learning, and a student-tracking program could help teachers identify struggling students (Dickson, 2005; Murphy and Rodríguez-Manzanares, 2009). Nevertheless, analytics cannot replace the teachers’ needs to regularly monitor student understanding using a variety of traditional and alternative assessment methods and through interactions with students (Borup at al., 2014).

In sum, with regards to the Teacher dimension, this study contributes significantly to the comprehension of educators’ dynamic roles within OL environments. By shedding light on constructs such as the teacher’s human qualities, teacher presence, communication and responsiveness, in conjunction with teacher roles, the study accentuates the interplay of these multifaceted elements in shaping the learning process. This holistic perspective aligns with the contemporary understanding of effective online pedagogy, emphasising not just instructional strategies but also the teacher’s presence, certain human attributes and qualities, and interactions as pivotal components of the online educational experiences.

3. Mosaic of Theories on Learning

Being multidimensional in nature and including a set of processes (Passey, 2014), learning has numerous interpretations and theories of how it is

effectively accomplished. Indeed, learners may benefit from different theoretical perspectives, and educators should draw upon a diverse range of theories to inform their teaching approaches to create holistic, robust and learner-centred OL experiences that caters to the needs of a diverse student population. Thus, believing that theories are not mutually exclusive (Wilson and Peterson, 2006), to translate theories into action, the principle of "theoretical mosaic" (Ring et al., 2018) was integrated into the OLY framework as the *Mosaic of Theories on Learning* dimension.

Extrapolating from the reviewed literature, I proposed (in Chapter 2) the illustrative rather than conclusive 'mosaic of theories' to be endorsed and applied by teachers across a range of OL contexts in K-12 education as the foundation for pedagogical decisions. The mosaic makes explicit the processes and circumstances that enable learning and, by extension, offer guidance for developing activities and environments that best support learning in general and online.

Prior research (Wilson and Peterson, 2006) similarly recognises the importance of teachers combining elements across theories in ways that resonate with their teaching styles and reflect understanding of their students. Also, a narrower range of theoretical approaches may be applicable to some aspects of OL and some areas. As the research demonstrates (Ring et al., 2018), some theories will be best placed to inform different aspects of learning within the curriculum; moreover, different disciplines represented in a curriculum may vary in their epistemic underpinnings and associated theoretical orientations. That finding additionally endorses the adoption of a theoretical 'mosaic' - to support creation of a comprehensive, holistic children's OL in different disciplines across K-12 education.

4. Socio-affective dimension of learning

This domain rests on the belief that the sustainability of learning over time relies on the level of emotional and personal support we receive from others (Boud and Prosser, 2002), with a state of well-being demonstrated by the ability to

realise potential, cope with stress, work toward goals, and make meaningful social contributions and connections. Therefore, students' learning experiences have to happen in a context where learners feel accepted, safe, challenged but not threatened, and encouraged to take risks (McCombs and Vakili, 2005).

Of the reviewed approaches, only two OL models (Boud and Prosser, 2002; Picciano, 2017) explicitly posit that instruction is not simply about learning content or skill but also supports students emotionally. I borrowed from these models a concept of an OL environment that provides students with emotional support and accounts for students' feelings, and acknowledges that learning is influenced by interpersonal relations and communication with others. A number of studies have similarly found that all learners need to have opportunities for social interactions and to connect with each other at personal and academic levels (Garrison, Anderson and Archer,1999; McCombs and Vakili, 2005; Wenger, 1999). Creating learning communities in which students can work collaboratively to build effective peer-to-peer relationships is extremely valuable and necessary for student learning (Anderson, 2011; Picciano, 2017).

Reading through the data, it became apparent that the students are very much aware of the socio-emotional nature of OL experience, suggesting that facilitating children's socio-emotional development and prosocial behaviour should be at the core of educators' work with children. Thus, a research conclusion is that structures for help and support, inclusive atmosphere, building strong relationships, well-being and a sense of community, are all very important aspects for K–12 students' learning and satisfaction, as reflected in previous studies too (Borup et al., 2019; Borup, et al., 2014; Cavanaugh, et al., 2009; Ilomäki and Lakkala, 2020; Mayer, 2020). Teachers are, therefore, urged to acknowledge the important influence of the dynamic and intertwined nature of emotions, interactions, and relationships on the ability to learn.

5. Flexibility, variety, choice, and control in resources, tasks and assessments

In the OLY framework, flexibility refers to the adaptability in time, place, and pace of learning, as well as the freedom to choose tasks and assessments.

Variety entails offering different options for completing online coursework, while choice involves allowing students to make decisions about their learning tasks. Lastly, control refers to the extent to which students can influence their learning experiences. Together, these attributes empower students to take ownership of their learning process and tailor it to their individual needs and preferences.

Data analysis has shown that the flexibility students have in studying at their own convenience, pace, and skill level positively affects their enjoyment of and persistence in learning, as evident in the following quote from a student: “The fact that I can organise myself in my own way and not be bound to a set schedule, the freedom to choose when to do the work as long as it’s completed, is a clear advantage and experience I wish to have again” (Barbara). Relatedly, a recent study established a significant relationship between students’ autonomies, independence, freedom of choice, and their overall satisfaction with the learning process (Abuhassna, et al., 2020). Research has also shown that autonomy is a key substrate and the strongest predictor of students’ intrinsic motivation (Ryan and Deci, 2008; Patall, Cooper and Robinson, 2008). Even seemingly trivial choices can increase intrinsic motivation, making it essential for teachers to provide autonomy or choice (Meng and Ma, 2015). Notably, the perception of control is not only desirable, but it is likely a psychological and biological necessity (Leotti, Iyengar and Ochsner, 2010).

Further, noting that OL allowed greater flexibility than traditional classes, the students highlighted the significance of having choices, and the opportunity to have control over learning in addition to having flexibility, what, as per students’ perceptions, promoted their academic success. Providing choices to students allows them to engage with content in ways that align with their interests, strengths, and learning preferences. This may involve choosing the order of tasks, selecting from various options, setting their learning pace, or allowing students to construct and test their knowledge, develop strategies to assess their understanding and identify areas where they need more information.

Empirical studies have confirmed the necessity for students to take control of their own learning, especially in online environments, to achieve successful

outcomes (Bransford et al., 1999; Taipjutorus, Hansen and Brown, 2012; Zimmerman, 1989). Indeed, even at a young age students should be encouraged and empowered to have a say in their learning journey and actively construct and test their knowledge. While it may be tempting to provide them with pre-packaged information, true learning occurs when students are actively involved in the process of acquiring knowledge. Thus, educators should allow learners to decide for themselves to a point, what, when, how and where they learn (Snowden, Davitt Jones and Arnold, 2017). By allowing young students to construct their knowledge and encouraging a sense of autonomy, educators foster a sense of curiosity and a love for learning.

The OLY framework and empirical studies highlight that flexibility, variety, choice, and control play pivotal roles in the OL experiences for youth. Empowering students through these attributes not only enhances their satisfaction with the learning process but also fosters students' intrinsic motivation and a sense of ownership in their educational journey, which leads to successful learning outcomes. As such, flexible learning, variety, choice, and control become a value principle, like diversity or equality are in education and society more broadly (Naidu, 2017).

6. Student

In order to assist students in OL, educators need to be aware of different learner characteristics. As in the study, a variety of student characteristics with potential influence on OL can be identified in the literature. The study's findings relating to the significance of learning preferences; prior ICT knowledge and Internet experience; effective time management; self-regulated learning; computer and Internet self-efficacy; self-discipline, motivation, and initiative, commensurate with those in the literature (Dabbagh, 2007; Day and Lloyd, 2007; Dray et al., 2011; Farid, 2014; Hartley and Bendixen, 2001; Hill, 2002; ICAO, 2019; Kruger-Ross and Waters, 2013; Mercado, 2008; Pillay et al., 2007; Roper, 2007; Smart and Cappel, 2006; Stansfield, McLellan and Connolly, 2004; Tsai and Lin, 2004; Vonderwell and Savery, 2004; Watkins, Leigh, and

Triner, 2004; Wladis et al., 2016). Previous studies reported a significant relationship between these learner characteristics and students' success in OL.

Further, students recognised that effective OL is not merely a one-sided process where information is transmitted to passive recipients. Instead, learners are required to actively engage with the course content, show initiative, interact with peers, and collaborate with instructors. As suggested by Arbaugh (2000) and corroborated by interviewees, the learner's active engagement and effort in OL settings hold significant importance. Similarly, a degree of willingness to do what is necessary reinforces the proposition by Boud and Prosser (2002). This willingness to actively participate in the learning process goes beyond mere compliance. It suggests an intrinsic motivation to explore, understand, and apply the course content, participate actively in discussions, seek out resources, and collaborate with peers, ultimately leading to richer and more productive learning experiences. Boud and Prosser (2002) highlight that successful OL requires students to possess this proactive stance, showing readiness to invest effort, time, and attention into their studies. However, if educators wish to see learners demonstrate will, they need to engage them meaningfully with the material they are studying, and learners need to experience a challenge and respond to it (Boud and Prosser, 2002).

Next, student interview data recognises curiosity as another learner characteristic that is pivotal for students' success in the realm of OL. This finding resonates with previous research that has associated curiosity with particular behaviours and positive outcomes within digital environments (Engel, 2011; Pelz, Yung and Kidd, 2015). Loewenstein (1994) described curiosity as "a cognitive induced deprivation that arises from the perception of a gap in knowledge and understanding" (p.75). Students with a curious mindset are more inclined to delve deeper into subjects, ask questions, and explore diverse perspectives, leading to a richer and more comprehensive learning experience, where curiosity fuels intrinsic motivation (Kidd and Hayden, 2015). Therefore, teachers are urged to create a classroom environment that nurtures and sustains young students' curiosity, helping them become lifelong learners who are driven by a natural desire to explore and understand the world around

them. To encourage and sustain curiosity in their students, teachers can, for example, pose open-ended questions; encourage students to investigate topics of interest and guide students in the research process in an inquiry-based environment; foster a growth mindset and emphasise the value of mistakes as opportunities for learning and challenges as chances to grow; present students with thought-provoking scenarios or dilemmas and encourage them to analyse, evaluate, and discuss these situations; and finally, demonstrate curiosity in our own learning by being a role model (Arnone et al., 2011; Binson, 2009).

The study findings also support prior research on the importance of student motivation. For example, Selim (2007) classified the critical success factors for OL into four factors, one of them being motivation as a necessary student characteristic. Indeed, as reported in the analysed models, frameworks, theories, and outstanding literature (Bond and Bedenlier, 2019; Boud and Prosser, 2002; Eom and Ashill, 2018; Harrell and Bower, 2011; Heatly and Votruba-Drzal, 2018; Picianno, 2017; Sun et al., 2008; Vekiri, 2010), learners' motivation may influence students' perceptions of OL and OL success. However, learning in online settings may pose challenges to students' motivation to learn, and require them to exercise self-discipline to a greater degree than in face-to-face learning settings (Carter et al., 2020), a notion supported by interviewees. Learners who are self-disciplined, with strong self-study skills, can organise their learning independently, research topics effectively, and build a solid foundation of knowledge. Similarly, in the absence of immediate teacher guidance, self-teaching skills enable students to learn autonomously. These skills involve the ability to comprehend and make sense of course materials on one's own. Relatedly, a self-regulated learner is empowered and able to create goals and strategies, make sense of the learning task, and able to implement actions to meet his or her goals within a learning context. As noted earlier, the concept of self-regulation involves three general aspects of learning: self-regulation of behaviour, self-regulation of motivation, and self-regulation of cognition (Zimmerman, 1989). Each of these characteristics contributes to self-directedness and effective participation in learning. Together, they empower students to navigate the challenges and

opportunities of online education, fostering independence, engagement, and a proactive approach to learning that aligns well with the self-paced nature of OL. However, as pointed out by Farmer (1994), it does not necessarily follow that a student will be able to direct their own learning simply by being assigned to an online course. To help them develop these skills, Chiu (2012) advises offering individual and small-group consultation sessions for solving individual learning problems or helping students devise and implement self-study plans. In such learning support sessions, students can identify their own learning targets and ask the teacher to give them guidance. Thus, a great deal of teacher and institutional support is clearly needed to help students develop into self-directed learners (White and Morrison, 2011).

Further, the undertaken study revealed that prior knowledge of OL and ICT skills is necessary to understand the course. In an Internet-based course environment, this experience has been associated with spending more time in the course, logging on to the course site more frequently, and being more likely to take additional courses via the medium in the future (Hiltz, 1994). The study's finding which emphasises the influence of prior experience underscores the importance of equipping students with the necessary technological competencies and the ability to seamlessly navigate online platforms, fostering positive learning experiences.

Finally, OLY acknowledges that learning approaches play a critical role in the success of K-12 learners in OL due to their impact on how students process information, engage with content, acquire new knowledge, and retain information (Cabual, 2021; Cooze and Barbour, 2005). Cardino and Cruz (2020) argue that students' variance is manifested in at least three areas: the student's readiness, interest, and learning profile. Nevertheless, according to some studies (Alshammari and Qtaish, 2019; Shih et al., 2008), there is little attention paid to the needs and preferences of individual learners, and as a result, all learners are treated in the same way. However, understanding and accommodating these distinct learning preferences becomes crucial for reasons such as facilitation of better retention, comprehension, engagement

and enjoyment (Cooze and Barbour, 2005; El-Sabagh, 2021; Mödritscher, Garcia-Barrios and Gütl, 2004; Pinchot and Paullet, 2014).

7. Accessibility and inclusiveness

This dimension focuses on creating an environment where every student has equal opportunities to participate, engage, and succeed in OL (Ossiannilsson and Landgren, 2012). It refers to the design and implementation of educational experiences that are readily accessible and inclusive for all learners, regardless of their diverse backgrounds, abilities, or learning preferences.

Previous studies and reviewed OL models/frameworks have emphasised the importance of promoting accessibility and inclusiveness in OL by the use of modified curricula, underpinned by inclusive practice for students with special educational needs, to ensure that content and activities are accessible and beneficial to a wide range of learners (Al-Fraihat, Joy and Sinclair, 2017; Burgstahler, 2015; Hitchcock et al., 2002; Lowenthal et al., 2020; Ossiannilsson and Landgren, 2012).

Further, employing accessible and inclusive pedagogical design choices can make a difference for the students who have visible disabilities in addition to supporting a much larger population of individuals who have invisible disabilities or other undocumented learning challenges (Lowenthal et al., 2020). Therefore, the use of instructional strategies that consider diverse ways of demonstrating knowledge and understanding and applying modifications to assessment, is another necessary accommodation when designing courses that provide multiple means of representation, engagement, and expression (Hitchcock et al., 2002; McGuire, Scott and Shaw, 2006;).

With regards to technology accessibility, Rose and Meyer (2002) argue that VLEs, websites, and course materials need to be accessible to all learners including individuals with disabilities. This may involve providing alternative formats for content (e.g., transcripts, captions, screen reader compatibility), adjustable display settings, and navigation features that are intuitive and easy to use. Equally so, presenting information and content in various formats such

as text, audio, video, and interactive elements, accommodates different learning preferences, allowing students to engage with the material in ways that suit their needs.

Part of creating accessible and inclusive OL experiences entails providing clear and concise instructions, guidelines, and expectations to students by using plain language, avoiding jargon, and offering additional support materials which can help ensure that all learners can understand and participate effectively (EADSNE, 2003; Pearson and Koppi, 2002). At the same time, promoting respectful and inclusive communication, collaboration and interaction among students by creating opportunities for meaningful engagement and discussion, encouraging considering diverse perspectives, and fostering a supportive learning community (Lowenthal et al., 2020), can help online teachers to recruit interest, sustain effort and persistence in their learners (Meyer, Rose and Gordon, 2014).

Upon recognising how diverse learners are and the specific needs and challenges different learners might have, online educators need to identify the unique support these learners might need to benefit from OL, which includes offering access to support such as disability services, technical support, and academic advising (Burgstahler, 2015).

Creating accessible and inclusive OL experiences requires educators to regularly evaluate and reflect on the effectiveness of OL practices in promoting accessibility and inclusiveness (Baker, 1995; DES, 2007; Gross, 2002; Khan, 2005b; Norwich and Lewis, 2001; Rose and Howley, 2007).

However, the fundamental start to creating an accessible course is to get to know the learners. Understanding the user's experiences is the next consideration, followed by design of the course for diverse learner needs (Lowenthal and Davidson-Shivers 2019) and employment of inclusive pedagogical design choices, i.e., "empathetic design" (Lowenthal et al., 2020, p. 12), while being flexible and empathetic with students while a course is being taught.

8. Support

Literature indicates that student support is a key determinant of learners' satisfaction and acceptance of e-learning systems (Lee, 2010; Pham et al., 2019). Additionally, support is crucial to ensure that both learners and teachers have the necessary resources, guidance, and assistance for effective engagement in OL. This dimension of the OLY framework is associated with a number of factors and support mechanisms that that enable students to navigate the OL environment successfully and jointly enhance the OL experience for the learner.

ICT Support and training for teachers and students includes providing technical assistance to both stakeholders. It ensures that learners can access OL platforms, troubleshoot problems, and utilise the necessary tools effectively. Turugare and Rudhumbu (2020) suggest that the availability of ICT support to assist in adopting OL is a critical success factor. It may include, for example, needs assessment, prerequisites, 800 numbers (UK phone numbers where the receiver is charged for the call, not the caller), e-mail, peer networks, real-time chats, instant messenger software, and online tutorials (Phipps and Merisotis, 2000; Vakili, 2001). In parallel, teachers should be assisted in the transition from classroom teaching to OL and supported in the process, such as through peer mentoring, teacher training for online delivery that continues throughout the progression of the online course to successfully deal with issues arising from students' OL (Phipps and Merisotis, 2000). Equally so, technical assistance in course development and delivery has to be available to teachers (Govindasamy, 2001).

In addition to support for any issues related to technology use, OLY recognises that *initial and ongoing timely teacher support for students* is vital for young learners - this matches previous findings by Lindfors and Pettersson (2021). Teacher support for students involves prompt and meaningful communication, clarifying course objectives, providing feedback on assignments, and offering guidance and assistance when needed, providing various levels of direction and structure for academic inquiries (McCombs and Vakili, 2005). It can also

involve providing explicit instruction and guidance on effective study strategies, such as note-taking, summarising, and reviewing material, that can enhance primary students' abilities to learn and retain information in an OL environment (Akçayır and Akçayır, 2018). Importantly, timely responses to learner inquiries and ongoing active participation in online discussions are recognised as crucial aspects of teacher support by the study participants. In addition, educational settings are considered 'high quality' when children experience individualised support for positive behaviour and exposure to developmental and educational activities that build on play, previous learning, and routines (OECD, 2019). Further, *teacher support* plays a pivotal role in facilitating the transition from traditional classroom teaching to online instruction (Cheawjindakarn et al., 2013; Phipps and Merisotis, 2000). Finally, OL requires self-discipline and effective time management skills. Support in this area can involve providing guidance on scheduling, study strategies, and goal setting to young learners who may benefit from resources and tips to enhance their study skills and manage their time efficiently (Uzir et al., 2020).

Notably, *Peer and Family Support* additionally enables learners to learn online effectively, as the study identified. Peer support refers to the role of peer interactions and collaborative activities in enhancing the learning experience for students. It can be facilitated through discussion forums, group projects, peer feedback, or virtual study groups, and allows learners to exchange ideas, share experiences, and support each other in the learning process (Conrad and Donaldson, 2011). Indeed, in addition to teachers and parents, peers are assumed to play a key role in shaping students' experiences and engagement (Aparicio, Bacao, and Oliveira, 2016; Zhang et al., 2019). Relatedly, research shows that peer interactions can enhance student engagement and motivation in OL activities, fostering a sense of belonging and community (Vonderwell, 2003). Classmates, friends, and popular students can all be expected to affect student behaviour through the norms they install (Kwon and Lease, 2014). Although peer effects are assumed to be relevant to all learners, some students may be more susceptible to such effects than others (Steenberghs et al., 2021). Nevertheless, peer support and meaningful peer interactions in OL is essential

for creating a sense of belonging, promoting active engagement, and enhancing the overall learning experiences.

Family and parents play a significant role in students' OL too. Family involvement distinguishes the OL experiences in K-12 from OL in HE. Referring to environmental support, emotional support, and capability support (Gao et al., 2021), parental involvement is crucial in supporting K-12 students' OL. Parents can help with scheduling, providing necessary resources, and creating a conducive learning environment at home (Greenhow and Askari, 2017; Passey, 2021b). Further, family relationships, level of parent education, and parental involvement and engagement with student learning can play a large role in student engagement (Diogo, Silva and Viana, 2018; Doctoroff and Arnold, 2017; Wong et al., 2018). Families can also affect the level of student involvement with, use of, and attitude towards technology (Krause, 2014; Stevenson, 2008), with students often learning their computing skills from their parents (Bond and Bedenlier, 2019; Passey, 2021b).

It is apparent that family dynamics can impact various aspects of students' interactions with technology. Furthermore, it can be argued that family values and perspectives exert an influence on the adoption of OL practices. Recognising this dynamic, i.e., the role of families in shaping students' technological engagement and the resultant implications on OL, underscores the importance of fostering open communication with families and working towards establishing shared perspectives that pertain to the OL experience.

Administrative Support, in turn, encompasses aspects such as access to academic resources (Borup et al., 2014). Efficient administrative processes and readily available support, including the establishment of clear and responsive communication channels by administrators to address inquiries and concerns and provide timely support to students and families (Murphy and Stewart, 2017), contribute to a positive learning experience. Overall, however, educational institutions are not only responsible for ensuring the availability of adequate services, but also for guaranteeing that people know how to use them and ensuring their quality (Miranda et al., 2017).

9. Context

The contextual determinants refer to the elements that constitute the environment in which OL unfolds including the student's immediate learning environment, psychosocial influences such as the teacher-student relationship, family and peer relationships, and sociocultural dimensions such as the political and social environment (Bond and Bedenlier, 2019). As this study has shown, context in its broader terms and as a learning space, plays a critical role in shaping the overall learning experience for students, including their motivation to learn.

The study participants hold that the physical environment in which students are learning can affect learners' abilities to concentrate and focus on the material and their level of comfort. While not entirely surprising, this is a noteworthy finding that confirms the importance of good environmental conditions and learning place quality on students' learning experiences, as pointed out in prior research (e.g., Alphonse, Orellana and Kanzki-Veloso, 2019). Prior studies have similarly identified good ventilation, attractive interior design, absence of noise, and a pleasant view as key factors in creating a high-quality indoor environment (Brachtl et al., 2023). Furthermore, previous studies have found consistent physiological and cognitive benefits in indoor environments with diverse biophilic design features, associating overall positive perceptions of the physical-spatial environment with well-being, positive cognitive outcomes, and a more positive impact on the overall learning experience (Amicone et al., 2018; Weber and Trojan, 2018; Yin et al., 2018).

Students in this study emphasised the importance of the positive physical learning environment in their learning experience too, particularly the availability of designated learning space and access to necessary equipment (e.g., desk). They also believe that external factors such as weather conditions can also impact their OL. This finding is significant in that it reaffirms the crucial role of favourable environmental conditions and well-equipped learning spaces in shaping students' learning, as noted in the existing research (Alphonse et al., 2019; Brachtl et al., 2023; Carvalho et al., 2020). Notably, the bioecological

theory of child development by Bronfenbrenner (1979), encompasses five ecological systems as the key influences on a child, and proposes the idea of environment as the “third teacher” after adults and peers.

Further, students in this study stressed the impact of family, physical and academic learning environments, as well as instructional design by teachers on their OL experience, engagement, and success in learning online. Existing research similarly highlights that in addition to learning environments (Fredericks et al., 2004; Shi, Tong and Long, 2021), student engagement in learning is also influenced by contextual variations such as teacher strategies (Heilporn, Lakhal and Bélisle, 2021) and family environment and expectations (Gao et al., 2021; Mudrák et al., 2020). The previously mentioned bioecological theory also highlights family and community contexts, the quality of the classroom environment, pedagogical practice, children’s relationships with others, and responsive curriculum and policy contexts as the key influences in children’s learning and development. The theory identifies the range of external influences that affect the capacity for healthy development within families and emphasises the impact of the inter-relationships of contextual factors with each other and ultimately on the child. It thus encourages educators and course designs to consider the wider influencing factors and context of development, suggesting that family is the principal context in which human development takes place.

Finally, considering the broader contextual factors that influence the learning experience (such as institutional settings, existing policies, and events), allows educators more insight into how to more successfully build OL environments and ultimately improve outcomes for students. The institutional setting comprises the formal and informal social constraints that regulate the OL implementation in a given educational institution (Viennet and Pont, 2017). The societal trends that may have repercussions on the education policy sector, be they of political, cultural, technological, socio-economic, geographical or demographic nature, also shape the OL environment (Adhikari, Mathrani and Scogings, 2016; Bond, 2019; Hohlfeld, Ritzhaupt and Barron, 2010; Warschauer and Xu, 2018) and students’ attitudes towards technology

(Mansaray et al., 2011). Thus, the impact of external conditions including geographic location (e.g., country, language, urban/rural), has to be recognised for playing a role in shaping the context within which OL is framed and enacted, and impacting the way actors perceive and experience OL and related issues.

It is important to recognise that OL is not a one-size-fits-all approach and that every student's context is unique. By considering the wider cultural, geographical, economic, and socio-political context, and the micro-level of home and classroom culture that influences student OL, a more holistic and clearer understanding of the concept can be gained.

10. Course content, design and delivery

The analysis of students' comments on elements/components of the course surfaces a number of aspects of the student learning process that have received attention elsewhere. Next, each component is discussed separately.

Course content

The study findings emphasise that the course content has to be relevant and challenging; it should be aligned with the learning objectives and engage students deeply with the subject matter. The emphasis on 'relevant and challenging content' aligns with the pedagogical principle that learning should be purposeful and intellectually stimulating (Garrison, 2003). In agreement with Bhuasiri et al. (2012), the OLY framework outlines that content should reflect current knowledge, research, and best practices in the field. It highlights the importance of engaging students with material that not only matches their developmental level but also encourages critical thinking and deeper engagement (Abdel-Gawad and Woollard, 2015; Anggrainingsih, Umam and Setiadi, 2018). Moreover, OLY underscores the importance of content being up-to-date and comprehensive. Keeping content current ensures that it keeps pace with evolving knowledge while comprehensive content covers essential topics in detail; thus, this research confirms the value of current study materials as previously shown by Gilbert, Morton and Rowley (2007).

In turn, in the context of academic research and the OLY framework, diverse content refers to the inclusion of a wide range of materials, perspectives, formats, and sources within the course content. This approach aims to provide students with a holistic and multifaceted understanding of the subject matter (McCombs and Vakili, 2005). Incorporating content from various viewpoints, disciplines, and cultural backgrounds enriches the learning experience by presenting a well-rounded understanding of a topic. Additionally, presenting content of varying complexity levels enables learners to gradually deepen their understanding and knowledge. Finally, diverse content presupposes balancing contemporary content with historical context offering insights into how knowledge and perspectives have evolved over time.

As the empirical study findings have indicated, it is important to provide an introduction to each course session for students. This sets the stage for learning, offering context and expectations (Chen, 2007; Conrad, 2002; Horvath et al., 2019; Ralston-Berg et al., 2015). For example, in the study by Walters-Archie (2018), the majority of students (94%) found all phases of the online orientation beneficial, suggesting that pre-class training facilitated students' overall learning experiences and progress.

In addition to having clear instructions for how to get started in the course and find various course components, the evidence shows the students' agreement that content has to be concise and understandable. Selim (2003) similarly found that understandable content helps students grasp concepts effectively and reduces confusion. Indeed, in the context of OL where physical presence and immediate clarification from teachers might be limited, the role of understandable content becomes even more significant. When the material is presented in a clear, concise, and understandable manner, students can focus their cognitive resources on understanding the concepts rather than deciphering complex language or convoluted explanations (Mayer and Moreno, 2003). This also reduces cognitive load, allowing learners to engage more deeply with the content (Kirschner, 2002). Finally, content that is straightforward and easy to understand aids in information retention (Alqahtani and Rajkhan, 2020).

Importantly, however, the content has to be available in manageable segments, as the study findings have demonstrated and as it has been previously noted by Sedera, Gable and Chan (2004). Breaking down content into manageable portions enhances understanding and prevents overwhelming learners (Mayer and Moreno, 2003). For example, in a study by Mayer and Chandler (2001), a narrated animation was broken in segments to explain lightning formation. Students who received the segmented presentation performed better on subsequent problem-solving tests than did students who received a continuous presentation, which holds several key implications for instructional design and pedagogical practices.

Interview data also identify that the majority of students agree that course content has to be well-organised. This is not surprising as organisational structure aids in logical progression, making it easier for students to follow the course's flow. Such findings are related to previous research (Georgouli, Skalkidis and Guerreiro, 2008; McCombs and Vakilia, 2005; Swan, 2001) indicating that well-organised content is an important factor in the success of online courses. Further, the students have highlighted the significance of enhancing engagement through content that is interesting, interactive, and displayed in multiple ways. As McDonald (2002) concluded, online materials need to be relevant, interactive and problem-orientated. Relatedly, Grigorovici, Nam and Russill (2003) found that interactive online syllabi formed positive student impressions of the online course and the instructor.

Employing various media formats and interactive elements makes learning more engaging and caters to different learning preferences. Additionally, employing diverse media and interactive tools aligns with modern students' expectations and learning preferences (Cyrs, 1997; Sun et al., 2008; Vakili, 2001). Likewise, the learning material, according to Merrill's (2002) principles of instruction, should contain links to supplementary information on the subject matter or to related knowledge.

Enabling students to explore content through linkages between existing and new information in non-linear ways embraces the reality that not all learners

progress in the same way (Jonassen, 1996; Thorsen, 1998). Previous studies and OLY highlight how allowing for flexibility and autonomy in exploring content promotes student agency (Christensen, Anakwe, and Kessler, 2001; Harper, 2002; McCombs, 2001), making an even stronger case for this sub-dimension. Nevertheless, the course content should also have practical applicability, enhancing the overall learning experience and its real-world relevance, as found in the results and previous studies (Merrill, 2002). For instance, in the research by Yang and Durrington (2010), the usefulness of content, i.e., practical applicability, influenced students' perceptions of overall course quality.

The OLY framework identifies that updating course content regularly ensures that students receive accurate information. Updated content not only ensures accuracy but also connects students to ongoing developments in their chosen field. Similar conclusions were made by Barker (2001) and Ralston-Berg et al. (2015).

In support of the notion of 'on-time content'- referring to the timely availability and delivery of course materials, resources, and information to learners - the present study emphasises that educational content should be made accessible to students according to a predetermined schedule or timeline. In support of this notion, the study by Bhuasiri et al. (2012) found that timely content delivery establishes a consistent rhythm for learners, helping them manage their studies effectively. Regularly scheduled content keeps learners engaged and motivated to participate in the course and ensures that students have the necessary information to build upon previous knowledge (Herrington et al., 2001). Students can plan their study schedule better when they know when to expect new content, enabling them to allocate time for learning, assignments, and assessments, which helps prevent overwhelming students with a sudden influx of materials that they need to review or complete. In essence, 'on-time content' within the OLY framework emphasises the need for educational institutions and educators to have a structured schedule for presenting course materials.

Another important sub-theme is content accessibility and inclusivity which have been shown necessary in promoting an equitable learning experience whilst

ensuring equal learning opportunities. Herrington et al. (2001) reported that ensuring content represents a diverse range of voices, cultures, genders, and perspectives, fosters an inclusive learning environment. Similarly, Barker (2001) found that incorporating content from different geographical regions helps students understand the global context and appreciate cultural nuances related to the subject. The findings in this study were able to support prior research on supporting a diverse range of learners through content that embodies inclusivity and meets the needs of the heterogeneous learner population. By aligning with prior research, the study underscores the universal relevance of these principles, reinforcing the conviction that effective education must be inclusive, adaptable, and considerate of diverse learners.

Course Design

Well-designed courses, curriculums, and learning materials are key factors that influence learning performance (Brophy, 2000), and have a major impact on student satisfaction (Smith, 2012). Course design encompasses the overall structuring and organisation of the course, including how the content is presented, how the learning activities are sequenced, and how interactions and assessments are integrated. A simple, intuitive, and consistent design was suggested as being most appropriate (Soo Ting, 2016). Students in this study similarly emphasised the importance of courses to follow a consistent structure. This finding is in agreement with prior research related to ensuring consistent and efficient design and navigation, in which respect, institutions and/or programmes should consider applying a common navigation system to all courses as much as possible (Ko and Rossen, 2017; Ralston-Berg et al., 2015; Swan et al., 2000). Indeed, a course design with common names and consistent location of common elements reduces the learning curve between courses (Dykman and Davis, 2008).

Students also expressed a desire for clearly outlined expectations. This sentiment aligns with earlier research that underscores the significance of well-defined expectations, particularly concerning assignments and evaluation (Barker, 2001; Durrington, Berryhill, and Swafford, 2006; Jaggars and Xu,

2016). Additionally, providing a “scope-and-sequence handout” that outlines what learners need to do and when they need to do it, reveals learners’ desires to be guided through the course through planning which ensures they understand the sequence of topics, activities, and assessments (Bhuasiri et al., 2012). In the practitioner literature, Grandzol and Grandzol (2006) also suggest that a consistent and clear structure - including navigational documents that explicitly instruct students in terms of where to go and what to do next - is vital to student success. Incorporating a clear scope-and-sequence document as part of course design helps students understand the course’s flow, expectations, and deadlines. It aids in time management, allows students to prepare for upcoming tasks, and contributes to a structured learning experience (Gilbert, Morton and Rowley, 2007). As per students’ responses, the rubrics for assignments need to be provided for similar reasons too. According to Jaggars and Xu (2016), both relevant assessments with provided rubrics for assignments and a transparent grading policy contribute to student satisfaction.

Further, students express a desire for clearly outlined learning objectives. This finding aligns with earlier research that emphasised the importance of having goals and objectives clearly stated on a course website (Selim, 2003; Song et al., 2004). In OL, where learners often navigate content in a self-directed manner, the presence of clearly defined learning objectives serves as a navigational beacon. These objectives act as signposts, guiding students through the learning journey and providing a roadmap for their educational endeavours. Well-defined learning objectives establish a sense of purpose, informing learners of what they will achieve by the end of a particular course; this clarity aids in setting expectations and focusing learners’ attentions on the core concepts and skills they need to master (Rovai, 2003). Furthermore, explicit objectives foster a sense of achievement as learners can tangibly track their progress toward predetermined OL outcomes (Chao, Saj and Tessier, 2006). According to Johnson et al. (2023), incorporating clear learning objectives, linking content to real-world relevance, offering choices, and celebrating milestones are strategies that bolster learners’ intrinsic motivation and commitment to their educational journey.

In a parallel vein, the participants in this study have expressed a clear need for written guidelines that govern collaboration and communication within their online learning environment. This resonates strongly with the research and insights put forth by Barker (2001). Written guidelines provide a clear roadmap for students to navigate the intricacies of collaboration and communication, and when expectations are well-documented, there is less room for ambiguity or misunderstandings. Barker highlights that effective communication practices are closely linked to student engagement. When students have written guidelines that outline the rules and etiquette of online collaboration and communication, they are more likely to participate actively. It empowers them to contribute to discussions, collaborate on projects, and reach out for assistance when necessary. Barker's work also underscores the importance of inclusive communication. Written guidelines can include principles of respect, inclusivity, and cultural sensitivity. This ensures that all students feel valued and included in discussions and collaborations. Finally, written guidelines serve as a point of reference throughout the course. Students can revisit them whenever needed, fostering consistency and a common understanding among learners.

Notably, the students place significant importance on a particular course design characteristic, that of self-created teacher videos that combine visual, auditory, and textual elements, supplemented with external links and podcasts. This insight invites a deeper exploration of why this method of content presentation resonates so well with students and how it contributes to successful learning experiences. Firstly, teacher-created videos add a personal touch, fostering a connection between the teacher and students, whilst the integration of visual, auditory, and textual components stimulates multiple senses, enhancing engagement (Calvert et al., 1999). Visual aids, audio narration, and accompanying text create a multisensory experience that caters to various learning preferences, making the content more accessible and memorable (Dotterer, 2011). Also, certain concepts are better conveyed through visuals, while others benefit from verbal elaboration. Finally, combining different modes of information delivery distributes cognitive load (Oviatt, Coulston and Lunsford, 2004), whilst the inclusion of external links and podcasts enriches the learning

experience by providing diverse perspectives and supplementary resources. Janicki and Liegle (2001) have synthesised the work of a range of instructional design experts to develop a list of concepts they believe support effective OL, one of them being the use of a variety of presentation styles. Students in this study have similarly highlighted the importance of multiple technologies and media being utilised for content provision and presentation. Relatedly, they also revealed that supplementary video-related text has to be made available to them. This is consistent with Rothschild (2005) who found that an effective online course will enable the student to listen to the content as well as view it and read it, with text complementing the multimedia.

Further, the OLY framework and previous literature (Mather, 2000; Thorsen, 1998) highlight that a comprehensive course includes multiple pathways through text, graphics, audio, video, or animation that allow learners to take advantage of the nonlinear and individualised learning features. Equally so, prior studies (Arbaugh, 2000; Barker, 2001) substantiate the importance that students place on the content presentation that is not only informative but also enjoyable, as well as courses that possess an appealing appearance. An appealing course appearance sets a positive tone for the learning environment. It creates a welcoming atmosphere that encourages students to participate actively. Notably, content that is presented in an enjoyable manner, whether through compelling visuals, interactive elements, or engaging narratives, has a positive impact on student motivation (Reyna, 2013). In their book, Kimmons and Caskurlu (2020) emphasise the profound influence of visual design on multiple dimensions of the learning experience, such as, enriching the value of communication, harnessing the innate capabilities of the human brain, elevating engagement levels, and catering to the aesthetic preferences of the audience. This underscores the need for educators and course designers to consider not only the substance of the content but also the manner in which it is presented and the overall look and feel of the course (Chao, Saj and Tessier, 2006).

Support for student-to-student interaction is another course design dimension that was found to have a positive impact on student experiences. OL does not mean learning entirely in isolation; student-to-student interaction must be

supported too. The results of the present study support the findings by Blass and Davis (2003) indicating that even within the electronic medium, engagement and the sense of interacting with people (rather than just with computers) can, and should, be an objective. Indeed, students learn a lot from each other - group work, informal interactions and problem-sharing are key features of a learning environment (Blass and Davis, 2003). They possess a wealth of knowledge and insights that they can share with their peers. In the ever-evolving landscape of OL, fostering of meaningful student-to-student interactions remains an essential cornerstone. It empowers students to connect, collaborate, and grow together, and it is pivotal in nurturing engaged, informed, and successful learners.

Finally, the findings of this study introduce a novel sub-dimension within the *Course Delivery*, namely *Direct and indirect instruction: guest teachers and peer-to-peer learning*. This discovery is noteworthy as it expands the scope of what is considered as effective course delivery. Direct instruction typically refers to teacher-led methods, while 'indirect instruction' may include student-centred, collaborative, or peer-to-peer learning (Rüütmann and Kipper, 2011). There are various ways to use indirect strategies. The inclusion of guest teachers introduces an element of expertise and variety into online courses. Guest teachers can provide unique insights, real-world experience, and a fresh perspective, thus, enriching the learning experiences for students (Fulton, 2020). The concept of peer-to-peer learning, in turn, emphasises that students actively participate in teaching their peers and giving and receiving peer feedback (Raymond at al., 2016). This not only reinforces their own understanding but emphasises student agency and peer interaction whilst fostering a collaborative and supportive learning community (Thomas et al., 2014). Further, peer-to-peer learning approaches support reflection in action and reflection on action (Schön, 1987), with less experienced students benefiting from the experience of their peers in 'communities of practice' (Lave and Wenger, 1991). Recognising the importance of both direct and indirect instruction, as well as guest teachers and peer-to-peer learning, suggests that a holistic approach to OL should incorporate a variety of instructional methods,

providing a fresh perspective on how educators can enhance the OL experiences for young learners.

Course Delivery

Delivery strategies, concerning how the course is presented to learners, emerge as a pivotal factor in the OL experiences. This significance is apparent in Herrington et al.'s (2001) framework, which offers a valuable tool for assessing and evaluating OL materials in the form of a checklist. It lists critical components for creating effective OL environments around elements within three primary domains: pedagogical approaches, educational resources, and delivery strategies that address issues related to how the course is imparted to learners. A number of other studies have emphasised course delivery dimension as related to learner satisfaction and high-quality OL (e.g., Jaggars and Xu, 2016; Ozkan and Koseler, 2009; MacDonald et al., 2001). Within the course delivery factor, a substantial body of research has underscored the significance of a reliable and robust interface with materials ensuring accuracy and error-free functionality (Herrington et al., 2001; Rothschild, 2005). In a parallel vein, other scholarly work has asserted that the clarity of goals, instructions, and learning pathways, including the transparency of unit information and expectations regarding student roles, significantly influences students' satisfactions with their online courses (Song et al., 2004). This study's findings align with these assertions.

Findings from this study are also in accordance with prior research which indicated that the appearance of web pages and a recognisable style for Units, i.e., adoption of an appropriate institutional style of presentation, were important in students' course experiences (Steward, Hong and Strudler, 2004). Further, the current study results offer valuable affirmation for the concept of the course overall (and each unit), engaging students with each other and their teacher through various modes of communication, as advocated by scholars such as Howell (2001) and Kanuka et al. (2007). Employing multiple channels of communication within the online educational context is a cornerstone of successful teaching and learning - engaging with students through various

channels facilitates personalised interactions and keeps students engaged and motivated whilst fostering deeper comprehension by accommodating diverse cognitive preferences (Herrington et al., 2001). Therefore, the course should ensure that appropriate communication channels are available to students, and students should be able to use a variety of technologies to communicate and collaborate, as highlighted by OLY and previous research (Barker, 2001; Mather, 2000; Thorsen, 1998; Wei and Chou, 2020). In turn, clear timelines and deadlines factor pertains to how the teacher manages the pacing and timing of various course elements (e.g., assignments, assessments, discussions) to ensure students are aware of when tasks are due. This study's findings resonate with Rotar's (2022) research that demonstrated how clear timelines and deadlines have a positive effect on learners' satisfaction with online courses.

11. Pedagogy

Pedagogical factors are some of the first issues educators consider when they plan to teach (AbuSneineh and Zairi, 2010). Under the Pedagogy category, several factors were identified. To begin with, embracing a variety of pedagogical strategies can facilitate meaningful learning (Conole et al., 2008; Govindasamy, 2001) and lead to sustainable success in OL. Notably, however, some students emphasised a significant distinction among the strategies educators can employ to ensure the effectiveness of OL. For example, a few recognised the pivotal role of incorporating personalisation and differentiation to attain success in OL. Others emphasised the importance of embracing a proactive teacher-moderated collaborative approach to foster active learning strategies, while many advocated for the implementation of game-based learning. This signals that teachers have a task to ensure that students of varying learning preferences are supported through sound instructional design which includes embracing a variety of pedagogical strategies.

Further, similar to the earlier observations (see Hall and Hewitt-Gervais, 2000; Theodosiadou, and Konstantinidis, 2015), the current study illuminated that e-Portfolio can be an effective tool for both instruction and assessment. The

existing literature validates e-Portfolio as a means of encouraging a sense of personal identity (Ward and Grant, 2007), a platform which has the potential to help students develop ICT competence (Wall et al., 2006) and skills that will support their independent lifelong learning (Chau and Cheng, 2010; Joyes, Gray, and Hartnell-Young, 2010). Whilst building an e-Portfolio can be time-consuming (Ocak and Ulu, 2009), it has repeatedly been suggested that the advantages of e-Portfolio activity outweigh its disadvantages in so far as it gives rise to students' active and autonomous learning (Attwell, 2009), and embraces constructivist-based pedagogies and learner-centred philosophies (Abrami and Barrett, 2005; Barrett and Wilkerson, 2004).

Additionally, this study contributes to and extends the existing body of research by shedding light on the significance of leveraging concepts such as cross-curricular collaboration and knowledge transfer. This approach enables students to apply knowledge and skills across diverse subjects, fostering a more profound comprehension of real-world applications (Iglesias-Pradas, Ruiz-de-Azcárate and Agudo-Peregrina, 2015). Among interviewees, the prevailing positive comments regarding cross-curricular collaboration is a noteworthy finding. It can be argued that emphasising interdisciplinary connections empowers educators to design learning experiences that transcend isolated subject boundaries.

Notably, many interviewees revealed a favourable attitude towards using games. Game-based learning provides a blending of ICT as a toy as well as a tool, bringing home developed skills and recognising them in the classroom - this is important for many students (Blackmore et al., 2003). It can provide meaningful learning experiences by immersing students in "transformational play" (Barab, Gresalfi and Ingram-Goble, 2010) and authentic contexts, and engage them in problem-solving activities that go beyond traditional instruction (Squire, 2006). Several studies have highlighted the significance and benefits of play and game-based learning in online courses for young students. Gamification has been shown to enhance student motivation and engagement, with research suggesting that incorporating game elements, such as challenges, rewards, and progress tracking, can increase students' interests

and enjoyment in the learning process (Dicheva et al., 2015). Studies have also shown that well-designed educational games can improve students' knowledge acquisition, problem-solving skills, critical thinking abilities, and retention of information (Squire, 2006; Barab et al., 2010). Further, multiplayer games can foster collaboration and social interaction among students by promoting teamwork, communication, peer learning, and allowing students to work together towards common goals (Gee, 2003). Moreover, games can create tailored learning experiences that cater to different learning preferences and abilities (Papert, 2020); and can support emotional and cognitive development where students can experiment, take risks, and learn from failure. This can contribute to the development of problem-solving skills, resilience, creativity, and emotional regulation (Gee, 2003; Barab et al., 2010).

With regards to the personalisation and differentiation dimension, the views of the respondents were in line with the strategic policy directions (Cachia, 2021; European Commission, 2021b; U.S. Department of Education, 2008; 2010) and research (Huang and Mille, 2006; Sridharan, Deng and Corbitt, 2010) regarding the improvement of the effectiveness of OL through adapting learning resources and pedagogies to suit individual levels and preferences in learning (Cooze and Barbour, 2005; Miranda et al., 2017).

Online technologies hold promise for creating individualised learning environments (U.S. Department of Education, 2017). Evidence exists that online courses can provide opportunities to adjust technology and resources for individual students or groups of students, tailoring instruction and learning activities to meet the needs of various learners within a class (Bray and McClaskey, 2013). Additionally, technology allows for accelerated options for gifted learners (D. Thomson, 2010). By utilising personalisation and differentiation strategies, online teachers foster self-efficacy, autonomy, and a sense of purpose in learners.

Although diverse cognitive development levels of K-12 students complicate personalised instruction (Cavanaugh et al., 2004), Pulham and Graham (2018) identified aspects of differentiation and personalisation that include

accommodating learning preferences, pacing, and choice. For instance, web-based conferencing in elementary online courses enabled teachers to adjust pacing and offer content delivery choices (McCarthy, 2020). However, the ability of teachers to tailor instruction depends heavily on the context. For example, a study by Hawkins, Barbour and Graham (2011), unveiled teacher-student loads from as few as two to as many as 1,726 students per teacher within a virtual high school. Given this substantial workload, teachers had limited time available for delivering personalised instruction, and perceived their role as assessors rather than facilitators of individualised learning experiences. Despite these challenges, educators and curriculum designers are compelled to undertake measures to accommodate the diverse needs of students by, e.g., providing a range of content formats and supplemental resources (Keeler et al., 2007), employing diverse ongoing assessment methods, organising small group activities or discussions that allow for more focused interactions and tailored support for each student's learning journey, by encouraging peer collaboration and peer teaching and maintaining open channels of communication (Anderson and Dron, 2011; Keeler et al., 2007; Scalise, 2007).

The study further supports Sridharan, Deng and Corbitt's (2010) previous findings on discussions and dialogue as critical success factors in OL ecosystems, and extends current understanding about utilising e-portfolios to support communication whilst facilitating interactions and knowledge sharing among students. By incorporating discussion forums or utilising e-portfolios, educators provide opportunities for students to ask questions, share insights, provide feedback, and engage in meaningful conversations related to the course content, overall, promoting effective OL (Martin and Bolliger, 2018). Discussions serve multiple purposes in the learning process – to facilitate active learning, collaboration, engagement with and expanding upon that content, enabling students to interact, share ideas, and construct knowledge collectively. Further, discussions foster critical thinking skills as students debate ideas and analyse different perspectives, and promote deeper understanding and knowledge construction, exchanges of information and learning from each other's experiences (Eom and Ashill, 2016).

It was interesting to observe that, while the students enjoyed the HAD module in general, its content and structure, and particularly the regular formative assessments, their interest in grading and the desire for summative assessments also stand out. This dual attitude reflects the multifaceted nature of the students' learning expectations. While they appreciate the ongoing feedback and learning opportunities provided by formative assessments, their emphasis on grading underscores the significance they attach to evaluation and measurable outcomes in their academic journey. Moreover, summative assessments can serve as markers of progress and milestones, providing students with a tangible sense of accomplishment (Perera-Diltz and Moe, 2014). This finding highlights the importance of striking a balance between ongoing formative assessments, which support continuous learning and improvement, and the inclusion of summative assessments, which offer a sense of accomplishment and contribute to a holistic learning experience. The students' interest in both elements suggests that a well-rounded assessment approach that combines formative and summative components can cater to their diverse needs and preferences, enhancing their overall engagement and satisfaction in the OL environment.

The effective assessment of learning must be valid, reliable, flexible and fair (Chantanarungpak, 2010; Masrom, Zainon and Rahiman, 2008; Wands and Blanc, 2001). Also, a recent study by Johnson et al. (2023), emphasised the need for assessment to be used frequently within online K–12 schooling, and apply constructivist learning principles (Perera-Diltz and Moe, 2014), coupled with constructivist pedagogy for OL (Herrington and Standen, 2000). Nevertheless, whilst basing assessment on the progressive problem-solving and decision-making capabilities of learners, it is necessary that educators remain informed about newly available tools (Perera-Diltz and Moe, 2014).

This study finally acknowledges the importance of reflective practice that systematically supports students in reflecting on their learning experiences and their own development. The reflective practice consists of a recurrent, systematic process of reflection, containing various phases: become aware, analyse current state, draft and plan a solution, take action and, finally, reflect in

and on action (Heymann et al., 2022). The use of tools, such as chats, blogs, e-portfolios, and online discussion forums supporting reflective learning activities, has become increasingly more prevalent (Kori et al., 2014). Therefore, the integration of these and other mechanisms that support reflective learning activities is essential as they offer students the means to engage in structured self-reflection, facilitating their journey toward becoming more self-aware, self-directed learners. Through this process, students can better understand their own learning strategies, adapt to challenges, and continually improve their outcomes.

12. Planning and ongoing course evaluation, adaptation and improvement

Surveying the literature reveals that there is a consensus about the necessity and importance of a systematic process of planning for OL (Al-Fraihat, Joy and Sinclair, 2017; Care and Scanlan, 2001; Khan, 2005a; MacDonald et al., 2001; Naveed, et al., 2017; Robinson, 2000). Effective planning ensures that OL experiences are well-structured, organised, and aligned with desired learning outcomes. The literature on this topic (Anderson, 2008; Bates and Sangra, 2011; Mariani et al., 2012) proposes that in the planning phase an examination of the existing infrastructure, policies, resources, and support services related to OL in the institution is necessary to identify the strengths, weaknesses, and opportunities for improvement within the institution's OL landscape. The OLY framework is in line with this perspective, additionally acknowledging the necessity of having a well-defined vision and purpose guiding decision-making, resource allocation, and instructional design processes.

Several studies (Bates, 2010; Bates and Sangra, 2011; Bothel, 2001; Ghirardini, 2011; Pappas, 2014) similarly highlight the need for institutions to articulate their goals and objectives for OL and establish measurable outcomes (Baldwin and Ching, 2019) as pre-implementation considerations. Bates (2010) also mentions, as a point to consider before an online course delivery, exploring new instructional strategies, pedagogical approaches, and technological tools that can enhance student engagement, interaction, and learning outcomes and lead to more effective and engaging learning experiences. OLY highlights this

criterion too, recognising it as another justified factor contributing to creating a well-structured and purposeful OL environment.

Setting priorities, as in identifying the most critical areas or initiatives that align with the institution's goals and available resources, is essential in helping to allocate resources, focus efforts, and ensure that the most impactful aspects of OL receive attention and support. This phase becomes relevant once the institution's current context of OL is studied, the requirements are gathered, and the goals and purpose for using the technology for teaching and learning are clearly determined (Broadbent, 2002; Bates and Sangra, 2011; Levy, 2003; Robinson, 2000).

The *Teacher training and support* element emphasises the importance of providing professional development opportunities, training programmes, and ongoing support to educators to enhance their pedagogical and technological skills and keep them up-to-date. Existing research (Anderson and Middleton, 2002; Arabasz and Baker, 2003; Bates and Sangra, 2011; Levy, 2003; McNaught, 2002) advises that teacher training should not be ignored during online course planning. In turn, the *Mandates for supporting OL* - as institutional specific guidelines in place to promote, support and sustain OL - are recognised in earlier findings as essential in providing support by aligning institutional policies, procedures, and resources (Bates, 2010). Mandates can include requirements for course design standards, accessibility guidelines, student support services, and quality assurance measures. Finally, *Teaching and learning considerations* relate to designing a curriculum that supports effective teaching and learning in the online environment for achieving desired learning outcomes (Bothel, 2001; McNaught, 2002). This consideration also emphasises the significance of integrating educational and pedagogical considerations into the curriculum design process, and aligning the online course content, instructional strategies, and assessments with established educational principles and pedagogical best practices (Al-Fraihat, Joy and Sinclair, 2017).

On the other hand, evaluations of online courses/programmes, during their delivery and beyond, can identify whether courses/programmes, and online

resources are performing as promised, and can point to areas for improvement. Therefore, MacDonald et al. (2001) argue that to make necessary adjustments and improvements, online course evaluation needs to assess the inputs, processes, and the outcomes with reference to the intended goals, whilst incorporating feedback from students and other stakeholders.

In the literature (Aschbacher, 1999; Bain, 1999; Biggs and Collis, 2014; Biggs and Tang, 2011; Edström, 2008; Joint Committee for Educational Evaluation, 1981; Juwah, 2003; Lebrun, 2007; Morris, 2008; Nevo, 2013; Stiggins and Conklin, 1992; UN, Online Learning Framework and Toolkit), a number of strategies and processes were proposed to continuously assess and enhance the effectiveness of online courses. These include:

- encouraging instructors to reflect on their teaching practices and identify areas for improvement and explore and implement new pedagogical approaches and innovative instructional methods;
- comparing the course outcomes and performance with established benchmarks or best practices;
- evaluating the alignment between course content, activities, and assessments with the intended learning objectives;
- evaluating the effectiveness and appropriateness of the technology used in the online course;
- conducting regular reviews to ensure that the course materials and online platform are accessible to all learners, including those with different abilities;
- keeping course content and resources up-to-date and relevant to reflect the latest developments in the field; and
- adapting the course or program in response to changing student needs, emerging trends or external factors.

With this in mind, teachers and institutions can continuously evaluate, adapt, and improve their online courses and programs, ensuring that they meet the needs of learners and maintain high-quality educational experiences.

5.1.4 Educating the Whole Child

Situating the child at the centre of the framework comes from the analysis of the evidence from the learning sciences; several branches of educational research stress the need to support the kinds of relationships and learning opportunities required to promote children's holistic well-being, healthy development, and transferable learning. Furthermore, educating the whole child dimension of the OLY framework has support in the recent synthesis of the research on learning and development that highlights an emerging consensus about approaching any learning and teaching situation (including OL) with the whole child at the centre (Darling-Hammond et al., 2020; Darling-Hammond and Cook-Harvey, 2018; García and Weiss, 2016; Slade and Griffith, 2013).

Educating the whole-child domain that lies at the heart of the OLY framework, means attending to cognitive, social, emotional, physical, ethical, artistic, creative, spiritual and talent development, as well as inspiring children's self-knowledge and cultivating young people's reverence for the natural environment, a sense of social justice and compassion (ASCD, 2007; Darling-Hammond et al., 2020; Kochhar-Bryant and Heishman, 2010; Miller, 2008). The definition of a whole-child approach evolved from the work of the Association for Supervision and Curriculum Development's (ASCD) - Commission on the Whole Child (ASCD, 2007). According to the Commission's report, the whole child is:

a. Intellectually active

b. Physically, verbally, socially, and academically competent

c. Empathetic, kind, caring, and fair

d. Creative and curious

e. Disciplined, self-directed, and goal oriented

f. Free

g. A critical thinker

h. Confident, and

i. Cared for and valued (ASCD, 2007, p. 10).

ASCD leaders, like many other educators and child development experts (ASCD, 2007; Darling-Hammond et al., 2020; Kochhar-Bryant and Heishman, 2010; Miller, 2007; 2008; UNESCO, 2015), argue that the overarching goal of education is to promote the highest possible levels of cognitive, social, emotional, physical, ethical, artistic, creative, and spiritual potentials for each child. Additionally, it was argued that whole-child education must also inspire children's self-knowledge and cultivate reverence for the natural environment and a sense of social justice and compassion (Miller, 2007). In this way, the term holistic education means both cultivating the whole person and helping individuals live more consciously as individuals within their communities and natural ecosystems (Miller, 2007).

John P. Miller (2005; 2008), one of the leading proponents of holistic education, identified the following core qualities that characterise a holistic education:

1. It encourages experiential learning and learning beyond the confines of the classroom and the formal educational environment towards education as growth, discovery and broadening of horizons.

2. Personal relationships are considered to be as important as academic subject matter. These learning environments strive to cultivate a sense of community and belonging and qualities of safety, respect, caring, and even love.

3. There is a concern for the interior life of children; that is, for the feelings, aspirations, ideas, and questions that each student brings to the learning process. Education is no longer viewed as the transmission of information; instead, it is a journey inward as well as outward into the world.

4. Holistic education expresses an ‘ecological consciousness’. It recognises that everything in the world exists in context; that is, in relation to inclusive communities. This involves a deep respect for the integrity of the biosphere, if not a sense of reverence for nature. It is a worldview that embraces diversity, both natural and cultural.

This concept makes it clear how children’s development and learning along with identity formation are shaped by interactions among the environmental factors, relationships, and learning opportunities they experience in and out of school, through physical, psychological, cognitive, social, and emotional processes that influence one another - both biologically and functionally (Fischer and Bidell, 2006; Rose, Rouhani, and Fischer, 2013). Although our society and our schools often compartmentalise these developmental processes - treat them as distinct from one another, and treat the child as distinct from the many contexts they experience – this study and the sciences of learning and development demonstrate how tightly interrelated they are and how they jointly produce the outcomes for which educators are responsible (Darling-Hammond et al., 2020). That is why O’Hara (2006) explained that our current educational goals and practices are insufficient to the level of complexity of our world, noting that they cannot deal with the uncertainty, flexibility, creativity, negotiation, understanding, and wisdom being asked of the 21st-century ‘traveller’. What is being called for is, therefore, “the cultivation of levels of consciousness and habits of mind that go way beyond the mental capacities canonised in the Western industrialised world” (O’Hara, 2006, p. 111). To address these issues, a holistic, ecological view of OL is needed that underscores the importance of a whole-child approach to education, such as promoted by the OLY framework.

The data and findings from the study support the existing knowledge about what constitutes holistic education. For example, holistic learning frameworks (Wood, 2019) emphasise creating a safe, supportive environment. The following student quotes show that students recognised the importance of prioritising open communication and personal relationships to cultivate a sense of community, belonging, and mutual respect among students and teachers alike:

Tania: “Like, in our HAD classes everyone’s voice matters. Also, building friendships is just as important as getting good grades.”

Helen: “Our classes were about understanding stuff and being able to talk about it in different ways.”

Mia: “In this course I have realised that education isn’t just about what’s in the textbooks; it is about ourselves too… and our online learning included discussions about life skills and not just academic stuff.”

Insights from student interviews shed light on another important characteristic of holistic learning – its interconnected nature which encourages students to explore the relationships between different subjects and perspectives:

Victoria: “When we studied a particular dance style, we learned about the music of that time, the history behind the dance, and how it reflected the culture. It made me see that dance history isn’t just about moving… Our learning wasn’t just about learning dance history; it was about understanding the world around us.”

Carol: “Our HAD course was not just about memorising facts. It was about understanding how everything is connected. We had this project about the evolution of dance. You collaborated with the music and history teachers. It was cool because we got to see how music, history, and dance all influence each other. We even got to learn some of the old dance moves.”

By integrating various subjects and perspectives, students are encouraged to explore cross-curricular connections, learn from the community around them, as well as reflect on their actions and their impact on the global and local community.

Further, as demonstrated in this study and supported by the previous literature, holistic learning environments place a strong emphasis on understanding and

nurturing the interior life of children, acknowledging their feelings, aspirations, and questions:

> Maja: “I have learned so much from our online HAD course because I felt comfortable asking about anything, even if it was not directly related to the lesson.”
>
> Tea: “What I really liked is that whilst we were expected to memorise facts, we were also encouraged to understand the bigger picture and ask about real-world applications, to look at things from different perspectives and challenge our ideas.”

Rather than viewing their online learning as a mere transmission of information, the study participants saw learning as a journey inward as well as outward into the world. A central implication for educators, learning designers and policymakers is that this holistic, integrated, and dynamic learning experience is optimally provided when the educational environments support the dimensions outlined by the OLY framework, ensuring all children find positive pathways to their development and adulthood.

5.1.5 Online Learning as a Journey of Becoming

In my study, the students discussed their learning experience as transformative. The complexity of the learning experience as a transformative force was perhaps first alluded to Dewey (1938 [1997]), who pointed out that the educational experience “modifies the one who acts and undergoes” (p. 35). Further, a range of studies of learning in different contexts has shown interest in the relationship between learning and identity which led some authors to describe learning as a process of becoming (Chee, 2011; Colley, James, Diment, and Tedder, 2003). In Rogers’s (1995) seminal work: *On becoming a person*, one of America’s most distinguished psychologist (Haggbloom et al., 2002) describes his experiences in helping people to discover the path to personal growth through an understanding of their own limitations and potential.

Rogers believed that a person's behaviour is a factor motivated by self-actualisation tendencies to work and achieve the highest level of their potential and achievement. During this process, a person forms a structure of self or self-concept.

By recognising learning as personal growth, transformative experience, and formation of self-concept, and by identifying *what is developing in the child*, an educator has made a first step towards understanding the possible ways to supply that child's developmental needs to create an optimal learning environment. Neville (1999) speaks of the multilevel awareness of the student when discussing students' innate capacities - intellectual, imaginative, emotional, physical, and relational, and asks for educators to facilitate their integration. Indeed, education must provide opportunities for the emergence of these and other capacities as well as students' self-knowledge, which means placing the development of the 'consciousness' of the child at the heart of education (Luvmour, 2001). Consciousness is primarily evidenced in changes in perception, which determines behaviour, identity construction, ego development, relationship, knowledge formation, and emotional connection (Kegan, 2018). The data analysis undertaken for this thesis similarly shows that students describe learning as change in perception and consciousness, leading to achieving greater self-understanding and understanding of others:

Carol: "I realised that I was stubborn; but we talked about it in our feedback session - how I set my standards very high and don't accept help from anyone, and that, by this, I make learning difficult for myself."

Interviewer: "So, you say you are aware of the obstacle now, that you see your stubbornness. Can you explain the difference with before?"

Carol: "I think that before I was struggling with my pride to accept help from the teacher and peers, and now I feel more OK with it. I didn't see it before, where actually teacher help, or help that I now seek from my peers when I don't understand something, helps me progress even faster."

Parts of the course content and tasks facilitated change in perspective and thinking for another student too:

> Maja: “My definition of dance was too simple. I felt bad after I compared my definition with the definition of dance offered in the video-lesson. The course made me reflect upon things and myself, and gave me some different ideas about dance and situations that were clear to me but might not have been that clear after all, or that needed to be looked at from a different perspective. My definition of dance completely changed; for example, I became aware of dance for persons with different abilities.”

Notably, the students identified that OL includes a process of achieving greater awareness evidenced, for example, in these two quotes. The importance of self-knowledge and consciousness to the individual as well as to the community can hardly be underestimated, and the approach to learning as becoming a person is increasingly stressed by educators (Jarvis, 2012; Veggetti, 2018; Woodhead, 2013) and confirmed in this study.

Data analysis revealed that students had learned different skills – subject-related skills and life skills. They shared, for example, that they now know how to deal with certain situations. Another student shared the difficulties they face amongst regular school children who mock him about going to ballet. The student also goes to swimming lessons and he explained that he is unsure still if he will choose a career as a swimmer or a dancer. Intrigued by this discussion, I asked the student “how do you identify yourself – as a swimmer or dancer?” The student answered: “I take pride in both”. This made me think about how people often assign other people into categories. Student identities, however, cannot be neatly determined, and navigating between worlds (including online and offline worlds) necessitates exploring other and multiple personal identities and negotiating and adapting their identities in both embodied and digital contexts.

Under the broader concept of ‘learning as becoming’, the OLY framework includes the acknowledgment that the student is in a set of relationships within

multiple educational settings and their sense of self is dynamic and fluctuating, varying according to the situation being experienced.

In the literature, there is a range of various formulations of the term 'identity' (see, for example, Abdi, 2001; Abrams and Hogg, 2006; Gleason, 1983; Guralnik, 1984). According to Katzenstein (1996), identity is constructed and evolved in a shared manner by those who define and those who are defined. In this regard, Clifford defines identity as a nexus of relations and transactions (1988). Finally, as indicated in Hall's definition, identity is dynamic and it changes from time to time. Hall (1989) writes that:

> Identity emerges as a kind of unsettled space or an unresolved question in that space, between a number of intersecting discourses... [Until recently, we have incorrectly thought that identity is] a kind of fixed point of thought and being, a ground of action... the logic of something like a 'true self'... Identity is a process, identity is split. Identity is not a fixed point but an ambivalent point. Identity is also the relationship of the other to oneself. (p.9)

Identity is, therefore, a *product* of several personal and/or group characteristics such as socially constructed categories of race, gender, nationality, professional status, social position, and even personal history, as well as a *process* - an ambivalent point rather than a fixed point. Importantly, our relationships, activities, tasks, functions, and understandings do not exist in isolation; they are part of broader systems of relations in which they have meaning. These relations arise out of and are reproduced and developed within social communities, and a student is defined by, as well as defines these relations. Thus, as Lave and Wenger (1991) suggest, "learning implies becoming a different person with respect to the possibilities enabled by these systems of relations. To ignore this aspect of learning is to overlook the fact that learning involves the construction of identities" (p. 53).

Accordingly, I suggest educators might better understand the OL experience if they see the transformation – 'becoming' – as a central part of that process. In that respect, online pedagogy serves as an instrument for *becoming.* Indeed,

"pedagogy draws from experiences and simultaneously provokes experiences through contradictory and complex processes as we individually and collectively generate our visions for ourselves and each other" (Salazar, 2013, p. 136).

Children create themselves and help create others, whilst educators contribute to the creation of children's other-selves because they are an important part of the environment (Simpson, 2001). Relatedly, Tharp, Estrada, Dalton, and Yamauchi (2000) argue that, "each of us becomes those people with whom we work, talk, share, and grow" (p. 60). Then, in addition to recognising the self as a human creation and a lifetime undertaking, we also need to appreciate that educators in part guide this creation and are co-partners with students in the transformation (Simpson, 2001).

Building upon this, I put forward a proposition of the self as interdependent and interrelated. The notion of 'learning as becoming' in this conceptualisation proposes learning as a socially situated process - we are who we are through the relations we have within the world and we become through the shifts in these relations (Hager and Hodkinson, 2009), in the capacity to affect and be affected and form new relations. In this respect, Hager and Hodkinson (2009) propose the metaphor of 'becoming' to signify learning as a social, embodied, and never-ending process in which the learner is constantly reconstructed through the process.

In line with the constructivist approach, Bryson and Hand (2008) similarly argue that educational institutions should be about more than getting qualifications and incorporate the notion of becoming. In turn, studying vocational education in a Swedish secondary school, Frykholm and Nitzler (1993) consider learning as an active process of becoming, drawing on the theories of Bourdieu and Bernstein.

In the educational philosophies of John Dewey and Paulo Freire, identity, even if it has not been separately treated, remains an important component of the teaching of the two philosophers. In *Pedagogy of the Oppressed*, Freire (1970) describes humanising pedagogy as an approach to instruction that "ceases to

be an instrument by which teachers can manipulate students but rather expresses the consciousness of the students themselves" (p.51). Examining identity formation, Dewey (1990) argued that educational activities need to be directed toward valuable outcomes. To successfully pursue desirable outcomes, Dewey believed that the purpose of education was not just to transmit customs, beliefs, and occupations to the young, but also to help create souls, selves, or people (Simpson, 2001).

More than ever, children now create and participate in multiple realities, realms and platforms (Arnott and Yelland, 2020). Anna Craft (2012) spoke about 'Pluralities' as being one of the four Ps of digital childhoods (the others being playfulness, possibilities and participation). Craft's notion of Pluralities extends to the sense of self and identity, with the virtual dimension to children's lives offering opportunities to engage and experiment with places to play, socialise and create, people to engage with and activities to participate in, enabling exploration of other and multiple personal identities (Craft, 2012). It can be argued, therefore, that within contemporary culture children have evolving multiple identities – such as their embodied identities (physical, spatial and temporal) and digital/virtual identities (Grieshaber and Cannella, 2001), which impacts on the way educators conceptualise learning and the way they teach.

5.1.6 Curriculum, Learning, and Becoming as Ongoing Processes

Implicit in the notion of 'becoming' is the notion of change. Further, there is no fixed state or identity to 'become'; instead, there is the continuity of becoming as a lifelong process without a destination, and that process in itself is learning. Thus, an underlying assumption in the understanding of identity is that identity is not static but dynamic, with our self-conceptions selectively but constantly changing (Ghosh, 1996; Hartman, 1997).

In addition to understanding 'becoming' as an ongoing enterprise, related conceptualisation of learning also emphasises a processual understanding of learning, i.e., learning as *processes* in contrast to learning as a product or

outcome (Hager and Hodkinson, 2009). Some of the key characteristics of this perspective are:

> "Learning is a social and embodied (practical, physical and emotional as well as cognitive) process."
>
> "When a learner constructs or reconstructs knowledge or skills, they are also reconstructing themselves... people are becoming through learning and learn through becoming."
>
> "The metaphor of becoming ... entails a sense that learning is never complete." (Hager and Hodkinson, 2009, p.633)

Relatedly, the curriculum can also no longer be understood as a fixed body of knowledge that needs to be transferred to the students, as the study findings suggest. Students gave examples of how the HAD curriculum changed based on their needs:

Nicole: "Well, we were supposed to watch and analyse classical ballet performances, but some of us were finding it hard to connect with them. So, you let us explore other dance styles and performances instead. It was nice because we felt like our opinions mattered."

Understanding of curriculum as a process, has implications for how teachers teach, and suggests embracing the notion of 'emergent curricula' (McCombs and Vakili, 2005), signalling that a curriculum should not be rigidly defined but based on student needs and/or developmental considerations. It should serve as a narrative map of where the student should go, and this map should be inclusive and reflective of different potential pathways between the beginning and end of the journey (North, 2007).

This perspective, thus, entails recognising the complexity of a child's OL landscape and moving beyond the availability of quality resources (Arnott and Yelland, 2020). Building on these ideas allows me to reframe learning not only as what Bruner (1996) calls 'learning about', but as a process that finds

resonance with and enables ‘learning to be’ (Roth, 2010; Thomas and Brown, 2007). To this end, the OLY framework suggests a different conceptualisation of the ontology of knowing.

5.1.7 The Relationship between Ontology and Epistemology in the OLY Framework

As a further theoretical outcome, I draw attention to the need to conceptualise the ontology of knowing without maintaining the dualistic perspective that separates the two, acknowledging that the presumption of a sharp divide between *being* and *knowing* needs to be bridged. I argue that there is a strong correspondence between *knowing* and *being* in persons - the knowledge-like beings who are not reducible to their constituent parts (Lowney, 2013) - and where the whole is more than the sum of its parts. To this end, I propose the use of a conceptual tool of the onto-epistemology, whereby being and knowing are not seen as separate phenomena but emergent through the same “intra-action”, i.e., “the mutual constitution of entangled agencies” (Barad, 2007, p. 33). I base this assumption on physicist Karen Barad’s (2007) onto-epistemological stance. Barad points to the Cartesian origin of the analytical separation of epistemology and ontology and stresses the analytical inseparability of the two:

> The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse. *Onto-epistem-ology* [emphasis in original] - the study of practices of knowing in being – is probably a better way to think about the kind of understandings that are needed to come to terms with how specific intra-actions matter. (Barad, 2003, p. 829)

Relatedly, in Dewey’s theory of knowing (1916a), knowledge is connected with action and experience because of the indispensable role of ‘action’ in the process that results in knowledge. Additionally, the ‘intervention’/the action through which we appropriate, is also the one through which we give ourselves

to being. This philosophical idea suggests interconnectedness, i.e., that our interactions with the world are influencing both what we take from the world and what we contribute back to it, ultimately shaping our own existence.

These counts call to also consider Polanyi's (1958; 1966; 1969) notion of self and reality, tied to his concept of tacit knowledge and meaning. Michael Polanyi, a well-known philosopher, sociologist, and scientist, similarly argues that humans engaged in personal knowing are in closely related ways both discovering and creating reality/meaning and themselves/who they are, their identity (Gulick, 1986). Polanyi's central thesis is that "the organism's placing of itself in its environment prefigures the process by which we both shape and are shaped by our world" (Greene, 1969, p. xi). Thus, one could say that epistemology and ontology fit together isomorphically like a hand into a glove. However, the glove metaphor is not fully adequate to demonstrate human involvement in reality, for not only do we dwell in reality, but we also indwell it (Polanyi, 1969). That is, as Polanyi has convincingly argued, we internalise what we learn and rely upon it in seeking further comprehension of ourselves and our world.

To recap, the presented argument proposes a theory of knowing rooted in the onto-epistemological position of individuals, and in the flow of experience within their sociocultural histories. Like the notion of identity, the understanding of the meaning and knowing concepts needs to be kept broad enough to cover both: the reality involved, and the being of a comprehensive entity - human. This further means that to know, i.e., to have an awareness of the existence of something such as self, "is to be an object for subsidiary awareness and, ontologically speaking, it is to be a subsidiary component of a comprehensive entity" (Stines, 1984, p. 16). Being an awareness of the existence of something, and having an awareness of the existence of something, may be seen as the full experience of knowing (Gulick, 1986). This dual process of simultaneously discovering and creating reality and meaning as well as our own identity (Gulick, 1986), is foundational to understanding how individuals evolve through personal and educational experiences, and it is reflected in the concept of the 'journey of becoming' at the centre of the OLY framework.

In light of this, it is vital for educators to perceive transformation – the journey of becoming – as integral to the OL experience. Online pedagogy, therefore, acts as a catalyst for this transformative journey. My study reveals that students view their learning as a transformative experience. Recognising learning as personal growth and self-concept formation is the first step for educators to address the 'whole-child developmental needs' and create optimal learning environments.

As previously discussed, this perspective also highlights the educator's role as a co-partner in the student's transformation (Simpson, 2001), emphasising the need for education to foster the development of multilevel awareness in students (Neville, 1999) and self-knowledge, placing the development of the child's consciousness at its core (Luvmour, 2001). What is being advocated is the cultivation of consciousness and habits of mind that extend beyond the mental capacities as changes in consciousness, evidenced through shifts in perception, influence on behaviour, identity construction, ego development, relationships, knowledge formation, and emotional connections (Kegan, 2018). Addressing these issues requires a holistic, ecological approach to OL and a broader understanding of 'how we know' where being and knowing are not seen as separate phenomena, as captured in the concept of onto-epistemology promoted by the OLY framework.

Theoretically, this integrative perspective of learning as proposed by the OLY framework enriches the philosophical grounds of knowing by transcending dualist thinking to achieve an organic understanding of the ontology of knowing, rather than the binary logic prevalent in discussions of learning.

5.2 Significance of the Study

The contribution of the study is theoretical, practical, and methodological. It makes a contribution to the growing literature on OL in several ways. It adds to existing knowledge and literature of OL in K-12 by using qualitative research to examine the phenomena whose value has been emphasised (Blackmon and Major, 2012). It also serves the purpose of introducing potential researchers to

a CGT approach for carrying out research in their field, and the study provided an example of the use of pre-existing theory to advance a CGT empirical study. While I departed from the foundations of GT as a purely inductive process, I found that using GT methods with a reference to existing theories provided a concentrated investigation of the participants' experiences, as well as allowed for more abstract themes to develop. This study thus makes a contribution to the GT literature.

Considering that OL was proven to be relevant not just in the time of the Covid-pandemic, but also prior to and in the post-pandemic context for K-12 education, the study contributes to understanding of OL and its potential, as reported by the students. It informs school leaders, educators, policy makers, course designers, and researchers of OL as a complex, evolving, non-linear process, emergent, and defined by the needs of learners – an ecology, involving different stakeholders and factors. Further, the study provides an example and understanding of students engaged in an online course. Unpacking students' experiences could in turn benefit the field of K-12 education in a number of important ways. Data about student experiences can help institutions and teachers design and deliver better courses, which could help enhance student outcomes, satisfaction with OL, and improve their learning in these courses.

This research, therefore, potentially targets K-12 school teachers and trainee teachers, teachers of dance history in K-12 grades, school leaders, education policymakers, teacher educators, designers of online courses, and the relevant audience from the technology industry that looks into the user experiences.

Next, this study provides an example of an online course design and delivery, and builds on the literature of underlying pedagogic and pragmatic assumptions with regards to OL. It is hoped that depicting the development of the pilot online course will provide directions to those who are looking for guidance before embracing online instruction as a valuable learning model in schools. Consequently, this resulted in my research having a practical significance for

educators and designers, in elaborating an online dance history course design that could be applied to similar settings in the future.

In addition to this more general application, the findings have significance at the institutional level in terms of providing “Vezica” school with a roadmap for adding this online HAD course onto the curriculum, whilst developing further the TEL provision that can permeate learning culture throughout the school.

One final contribution of this thesis is theoretical – OLY is a theory-based and data-driven conceptual framework that should be viewed as an instrument for understanding, organising, inquiring, and creating argument about and for OL. It is argued that, by understanding the *why* (ontology) of OL experience as the starting point of an analysis of *what* of OL experience (content) and *how* (processes used when teaching-learning online), educators can begin to holistically support TEL in schools.

There are several reasons why OLY is an example of a holistic approach to learning. In this context, a holistic approach to conceptualising OL entails considering all dimensions within the OLY framework together. It involves acknowledging the complex interplay of individual and organisational impacts, pedagogical, technological, social, and support-related factors, among others, with equal importance, whilst placing a strong emphasis on a sense of community and collaboration.

Moreover, as a holistic framework, it addresses how sustainable OL can be achieved – by creating OL experiences that are reliable yet flexible and adaptable. Building on the principles of holistic OL, the OLY framework, views OL as an ecology rather than a hierarchical structure. This perspective emphasises the interconnectedness of various dimensions within the learning environment, ensuring that each aspect - from technological tools to social interactions - contributes equally to the overall educational experience. In the OLY framework, no single dimension is prioritised over others; instead, they all function together synergistically to create a rich, balanced learning ecosystem. This approach aligns with the broader view of OL as an integrated system

where diverse elements work in harmony, reflecting the ecological model that promotes interdependence, holistic growth, and the cultivation of consciousness and habits of mind that extend beyond the cognitive capacities.

Additionally, grounding young students' OL in a holistic perspective involves understanding the needs and experiences of the learners themselves taking into account the student's personal strengths, interests, socio-emotional development, and agency. This involves creating an atmosphere of respect, trust and inclusion that allows children to feel comfortable and empowered. Further, from an educational point of view, taking a holistic approach relates to extending learning beyond academic performance to encompass various dimensions of a student's development, such as social, emotional, and physical aspects, as well as self-knowledge. The holistic OLY framework ensures that student development, learning motivation, need for exploration, discovery, creativity and achievements are addressed and accounted for.

Another part of what makes up holistic education is the idea that students' growth is improved when multiple subjects are addressed together. The OLY framework recognises the benefits of creating integrated programmes where teachers from different disciplines come together to teach so that issues are addressed from multiple perspectives.

A holistic perspective of OLY also acknowledges that learning occurs within a broader context, including the student's family, community and cultural background. Consequently, it considers the impact of these contextual factors on the student's learning, ensuring culturally responsive and inclusive OL experiences.

The OLY framework accounts for inputs into the learning process, such as resources and technologies, as well as outcomes like learner self-awareness, satisfaction and achievement, and the learning process itself, which includes engagement, interaction, and feedback. By considering all these components, the OLY framework ensures that OL environments are sustainable and capable of evolving to meet diverse learner needs over time. Finally, it is widely

accepted in the field of education that theory should guide pedagogy to ensure meaningful learning. The OLY framework ensures the connection between learning theories, course design and delivery, technology use, and outcomes, strengthening holistically the effectiveness of OL for youth.

Theoretically, the OLY framework also suggests an integrative perspective of learning that enriches the philosophical grounds of knowing. It does so by transcending dualist thinking to achieve an organic understanding of the ontology of knowing, where being and knowing are not seen as separate phenomena but emergent through the same intra-action. The last contribution of my thesis is to suggest the questions that future research might investigate.

5.3 Ensuring Research Quality and Validity

There are different guidelines for judging qualitative research and these criteria remain unsettled (Charmaz and Thornberg, 2020; Corbin and Strauss, 2014; Foley and Timonen, 2015). Moreover, GT has its own set of criteria for evaluating research quality due to its unique features (Berthelsen, Grimshaw-Aagaard, and Hansen, 2018; Charmaz and Thornberg, 2020; Chiovitti and Piran, 2003; Elliott and Lazenbatt, 2005). Within a constructivist GT, Charmaz (2006, 2014) proposes four main criteria for grounded theory studies: 1. Credibility; 2. Originality; 3. Resonance; 4. Usefulness.

Credibility

Having sufficient relevant data for asking incisive questions about the data, making systematic comparisons throughout the research process, and developing a thorough analysis, ensures credibility (Charmaz, 2017). Credibility also presumes a researcher's strong reflexivity throughout the investigation. Further, the researchers must explicate their assumptions which require gaining 'methodological self-consciousness' of how hidden beliefs can enter the research process (Charmaz, 2017).

As the researcher, I am acutely aware of the potential influence of my background, beliefs, and experiences on this study. My background as an

educator experienced in delivering lessons online, and my personal interest in constructivist theories in education naturally predisposed me to certain perspectives. Recognising the significance of reflexivity, I approached this research with a critical self-awareness. Throughout the study, I actively considered how my own beliefs might impact my interactions with participants and the interpretation of their responses. I also recognised the potential for confirmation bias, where I might inadvertently seek out or emphasise data that aligned with my pre-existing views.

To mitigate these influences, I consistently engaged in self-reflection and sought to bracket my own beliefs and assumptions during data collection and analysis. Moreover, I maintained open communication with colleagues who provided valuable peer debriefing sessions, enabling an external perspective to help uncover and address any potential biases that may have emerged during the research process. This ongoing reflexivity and commitment to minimising personal biases played a crucial role in ensuring the trustworthiness of the study's findings.

Credibility checks were also held at several stages of the data analysis. I developed intimate familiarity with the context and focus of the study, and established a strong and transparent connection with study participants. I actively listened, encouraged open and honest responses during the interviews, and at the end of every interview, participants were asked whether they wanted to add further information that had not been addressed in the interview. After the data were collected, I explicated how I engaged in procedures of analysis. It required substantial efforts to work with the data, however, I was transparent about the entire process and I acknowledged the influence of my perspective and background. I worked in a systematic manner to form conclusions and interpretations (Stiles, 1993) and attempted to stay open to any information coming from the narratives throughout the entire process. The ultimate themes were formed by asking critical questions regarding codes and categories.

Originality and Resonance

Originality can take varied forms such as offering new insights, providing a fresh conceptualisation of a recognised problem, whilst resonance demonstrates that the researcher has constructed concepts that not only represent their research participants' experiences but also provide insight to others (Charmaz and Thornberg, 2020). The originality was achieved as the study has developed new insights about OL for youth and addressed the gap in the literature - the lack of a conceptual framework in K-12 education. Further, this study has satisfied the resonance element in that the findings depict the lived experiences of participants, and I ensured that the findings made sense to the participants themselves (Charmaz, 2006; Priya, 2013).

Usefulness

The usefulness criterion includes forming a foundation for policy and practice applications, contributing to creating new lines of research, and revealing pervasive processes and practices (Charmaz and Thornberg, 2020). Since OL is possibly on its way to becoming an ongoing experience across all phases of schooling, the study provides useful insights to educators in K-12 online teaching and learning environments, policymakers, and course designers, and thus, the discipline advances.

5.4 Limitations of the Study

While this study achieved its objectives, it also has limitations. This study was limited to students' experiences in a public school in Croatia. Another limitation was the low number of participants and short period that was examined; therefore, a limited generalisability of study findings presents a possible weakness. Further, differences between girls and boys engaged in OL were not studied, although perceptions of OL could be significantly different for either boys or girls. Therefore, studies with other samples addressing gender differences are needed to strengthen the generalisability of the results.

Of relevance is also the fact that the interview is “a power-invested social event” (Cousin, 2009, p.189). Nevertheless, I ensured that interviews with students were “dialogic and reflective discourse” (Cousin, 2009, p.189) and that my background and beliefs were explicit in the thesis. Additionally, when studying the interview extracts, as a teacher-researcher I was also in a learning situation, and my analysis has not brought to light universal experience or absolute truth about dimensions of OL; rather, they are my “interpretations of others’ interpretations" (Johansson et al., 1985, p.249). Thus, another aspect of the validity of my analyses that could be raised is whether another researcher would suggest the same dimensions after having worked with the same material. Nevertheless, in order to make the results trustworthy, the created categories are supported by excerpts from the transcripts. A critical and honest exposure of quotes from the interviews demonstrates the plausibility of the synthesis of the existing evidence. To further achieve rigour in the analysis of my findings, I approached the analysis of transcripts with openness to learning about the students’ experiences by being attentive to the meanings and actions suggested by these data, discerning explicit and implicit processes in the data, yet acknowledging multiple realities, seeking diverse perspectives, and engaging in critical analysis throughout the research process. At the same time, I was making transparent what I learned by conducting research thoroughly and systematically (Charmaz and Thornberg, 2020). Further, I ensured “the maximum exercise of empathic understanding” (Ashworth and Lucas, 2000, p.300), taking great care when creating categories to make sure they reflect the voices of the interviewees.

It is important to emphasise, however, that the results of the present study are based on data collected at a single point in time and are not longitudinal experimental data. As such, I cannot suggest causal interpretations of OLY elements, i.e., any links between dimensions should be interpreted as correlation rather than causation. Another limitation was that this study was concluded before the end of the COVID-19 pandemic, so OL experience and processes were studied in times of crisis and that was not addressed. With the pandemic being a stage of massive turbulence in education and society in

general, it is a relevant component to consider in future research. The study is further constrained by representing a single online course platform (Moodle-like LMS - Loomen) and a course run by a single guest teacher, myself.

5.5 Limitations of the OLY Framework

Educators and researchers should be cautious regarding the adoption of OLY, as it comes with certain limitations. The question is whether the framework and its concepts present a reasonable theory for scholars and practitioners studying the phenomenon across different disciplines. Consequently, OLY should be re-evaluated and tailored within a specific learning domain. Further, since the OLY framework is partially based on analysis of published literature and qualitative data from upper primary students (13 and 14 years), I appreciate the need to validate the framework further. To this aim, the OLY framework has yet to be presented at a number of OL/TEL-focused conferences, workshops and/or events. Feedback from both practitioners and academics is necessary, including comments such as whether OLY provides clarity and a useful way of organising thoughts, for example.

Although a considerable effort was made to review a wide range of existing literature, I do not claim the OLY framework to be ‘static’, ‘finished’ and/or ‘exhaustive’. I appreciate a need, over time, to evaluate and systematically adapt OLY dimensions, i.e., to highlight new factors and/or propose changes. If teachers, for example, can reflect on their uses of OL in terms of their teaching, students’ learning, and their curriculum context, then their engagement with the OL environment can be seen as a learning process. Subsequently, they can seek to identify areas to question, plan, organise, and hopefully respond to emerging circumstances when using OLY. Regularly performed re-evaluation of each OLY domain, as a result of responding to changes in education technology, infrastructure, government policy, etc., will help stakeholders understand what are the needed updates for the framework.

One noteworthy limitation of the OLY is its contextual specificity. The HAD course, which served as the foundation for students to share their experiences

and views on online learning, was an online course in dance history. While it offered valuable insights into OL, it may not be entirely representative of the broader OL landscape encompassing diverse subjects and disciplines. Moreover, it is crucial to recognise that my research involved an insider study approach with my active participation in the students' learning journey. This insider perspective may introduce a potential limitation in the framework by way of potential researcher bias.

Further, I argued that the different dimensions of OL are dependent on each other, interlinked rather than discrete and disconnected. However, to describe the whole framework as an interconnected ecological network fails to recognise that there is a dominant direction of influence from the teacher to student experience and from course content and design to the perceived benefits and learning outcomes. That being said, I appreciate a need over time to describe these mechanisms more precisely, and by describing them, create a refined framework that provides further clarity for academic and professional practitioners, course designers, and policy-makers, about which mechanisms need to be activated, to what degree, and according to which hierarchy of importance. Thereupon, I suggest the development of a practical questionnaire to support the evaluation of the OLY framework to help stakeholders explore how factors are contextually relevant. I suggest that, over a range of studies, multiple statements should be developed and tested for each factor, to ensure that only statements that effectively represent each dimension are used in the final practical questionnaire supporting the identification of issues about OL and pointers and guidance for OL. Importantly, however, the framework highlights that there are numerous avenues for improving student OL experiences and that the responsibility for this lies with all parties: the student, teacher, institution, and the government.

5.6 What next? Further Work

Considering the small number of participants (15) and lack of diversity in terms of male/female participants (14 females and 1 male), I suggest future research to increase sample size and address the lack of gender diversity. Furthermore,

the validity and reliability of the framework would improve if different schools in Croatia and beyond, and students from a variety of backgrounds, cultures, and countries were interviewed too. It is also not clear whether student perceptions of OL would be different at lower-level classes of primary education or in secondary schools; therefore, this work should be extended to include students across different levels of K-12. Likewise, it would be interesting to explore OL from the students' perspectives using a different VLE. Finally, quantitatively collected data could be added and triangulated with the qualitative data that were collected in this research so as to reach an even more comprehensive understanding of OL, its merits and challenges.

Since the examined period was quite short, it is to explore whether perhaps student perceptions would be different if the study was conducted, for example, after a year of student participation in the HAD course. Such exploration was unfortunately not feasible, given the requirements of this programme and thesis, and considering that the study was planned for uncovering characteristics of OL before a school-wide implementation of a new learning model. As technology advances at a fast pace, a longitudinal study could help researchers monitor students' attitude changes over a longer period of time. Future study may also look more specifically at mobile OL as another dimension of OLY.

This study was based on students' perceptions; however, different groups of OL stakeholders (e.g., teachers and administrators) could enrich the research with different points of view, and provide their understanding of the issues facing OL success. Further, there is the importance of the discipline to be considered too - even though the concept of effective OL may be deemed applicable to most disciplines, different disciplines may require different approaches to learning online.

5.7 Conclusion

The world has witnessed a significant surge in OL since the onset of COVID-19. Nevertheless, even prior to the pandemic an increasing number of educational

institutions were providing online, distance, and hybrid education programmes, with OL adoption rapidly expanding across all levels of education (Barbour, 2013; Barbour and Harrison, 2016; US Department of Education, 2017). Then, over the course of the pandemic, OL provided an invaluable service by enabling continued learning, proving that technology is critical to the future of education as Ron Packard (2013) - one of the leading experts in customised OL - was correctly arguing.

Undoubtedly, the digital is increasingly occupying relevant space among all people including children and the academic environment. For this reason, educators and scholars agree that technologies will more and more act as tools that enable the acquisition of core competencies for learning and lifelong learning, and be used as mediators of students' learning experiences (European Communities, 2006). The governmental policy in Croatia concerning TEL aligns with those arguments, advocating for the utilisation of ICTs to benefit students at all education levels and across various subjects. However, regrettably, this policy has not been effectively implemented in practice and has been overlooked in the Croatian public dance schools' curricula.

In my attempt to address the governmental guidelines for TEL by implementing an online course for History and Appreciation of Dance (HAD) for upper primary (13 and 14 years old) students, I looked for a blueprint that would inform the design decisions and integration of OL in a Croatian dance school. Nevertheless, I identified a research gap - an extensive number of frameworks/models and theories describe OL in HE and assess its implementation and success; however, few of these address the OL experience in an integrated fashion, and none of them offers conceptual and pragmatic guidance on how to understand, design, implement and evaluate OL for K-12 students.

That being said, building on previous research, I designed and delivered a pilot HAD course to explore upper primary students' OL experiences and practices. I investigated students' OL experiences using qualitative methods for an in-depth analysis of their narratives – semi-structured, intensive interviews. The results

identified the characteristics of the OL model, the meanings students ascribed to OL, and confirmed a plethora of factors influencing students' experiences, satisfactions with, and successes in learning online. Upon illuminating OL characteristics in the empirical study, my ultimate objective was to create a holistic conceptual framework of OL for youth to serve both theory and practice in the field, and hopefully become a guide to decision-making when creating, delivering and evaluating OL courses in schools. This was done, as mentioned previously, by building on pre-existing OL models/frameworks, and theories of learning and developmental stages of children, summarised in the provisional conceptual framework. The provisional conceptual framework together with the empirical study data - the subjective framework - informed and guided the development of the OLY. A key strength of envisioning OL in this way is that it acknowledges the lived reality of the individual, while not reducing OL to solely student views.

With its holistic focus, a plethora of factors, and having a whole-child development at its centre, the framework zooms in on the OL of upper primary students, and OL constituents. This study, thus, achieved its objectives, and the resulting holistic framework is hoped to serve two purposes: firstly, as a determinant framework that seeks to conceptualise, describe, and help understand the multiple influences on OL in upper primary education; and secondly, as an evaluation framework it is hoped to help clarify the context, setting, and implementation aspects to be addressed when designing an OL course or when examining OL implementation success or lack thereof. That being said, with the aim of a) advancing the learning sciences, and b) suggesting actionable, tailored online course design following OLY, the study findings have a dual function: *about* OL, as well as providing pointers and guidance *for* OL to designers, teachers, policy-makers, and researchers. In that sense, the outcomes of this research have served both theory and practice in the field, addressing the gap in the existing knowledge.

Focusing on the *whole-child education* and OL as a *journey of becoming,* OLY capitalises on the richness and complexity of the experience of being human and human learning. It consists of 12 major clusters of factors affecting OL and

illuminating its characteristics. These 12 dimensions are broken down into sub-dimensions which, together with the core dimensions, provide a blueprint for understanding the OL experience more generally. Arguably, all dimensions should be considered in concert when aiming for a holistic OL experience and ways of teaching and learning pertaining to *educating the whole child* in a *process of becoming a person* in contemporary times.

The framework, however, does not claim to depict *all* possible influences on OL experience or their relationships. Rather, it disaggregates and organises the central factors and characteristics of the learning model being studied.

The study recognises the teacher as a critical actor in OL. Importantly, the teacher's presence and desirable personal, human characteristics, proved to be the most critical part of the teacher's role and students' positive OL experiences. Together with the opportunities for appropriate interactions, the teacher plays an instrumental role in counterbalancing the potential of OL to cause personal and social isolation and alienation. Accordingly, it is highlighted that the human element cannot be left out of technology-supported learning communities. Thus, to ensure successful learners, all students must experience quality content, processes, and relationships. Beyond that, it must be recognised that, aside from the people involved, one of the biggest factors to the success of OL is the established context of safety, care, and support for students and learning. Finally, it is to be noted that this paradigm must value and respond to diverse learners and OL contexts anytime, anywhere to meet students' different learning approaches and abilities. Such 'just enough, just-in-time, just-for-me' nature of OL activities, serves to create a personalised, tailored learning journey.

The data analysis further showed that students appreciate online instruction that draws on individual and social aspects of learning in supporting and fostering their learning processes and activities. Students reported that they appreciate both aspects of the learning configuration, and believe the two need to be carefully balanced in any online course. Next, technology was recognised as helpful in ensuring the role of students as co-creators and contributors,

enabling them to take control of their own learning process and self-organise their learning. Observed was how the sense of control students had in studying at their own convenience, pace, and place, and having variety and a choice in resources, tasks and assessment modes, appeared to impact positively on their enjoyment of and persistence in OL. Thus, from the students' perspectives, OL wishes to promote students' independence, personal control, and freedom of choice, re-iterating the importance of the Pedagogy dimension of OLY and the instructional strategies employed to achieve such ends. In that respect, the principles from learning theories and developmental influences on learning, identified as the *Mosaic of theories on learning*, should be applied as part of the *educating the whole child* paradigm.

On a final note, I reiterate the potential of a new framing of OL for youth, where technology, stakeholders, and practices are in service to learners on their *journey of becoming* - as transformation, expanding consciousness, and personal change. This understanding enables a student to experience multidirectional transformations in the learning process, such as enhanced self-awareness and new dimensions of connectedness with self, others and the world. In this more expansive, holistic, 'onto-epistemological' perspective of students' educational experiences, taking into account who and what students are becoming is required (Bowden, Tickle and Naumann, 2021).

Turkle has pointed out that, "on the Internet, we are encouraged to think of ourselves as fluid, emergent, decentralised, multiplicious, flexible, and forever in process" (1995, p. 263). The notion of learning as a life-long process of becoming, 'forever in process', thus, assumes that every human being is a learner in her/his everyday existence, including online. In other words, we are learning by virtue of the way we navigate our everyday lives. To this end, the OLY framework suggests a different conceptualisation of the ontology of knowing - reframing learning as 'becoming', and a metaphor for learning to emphasise:

a) learning 'to be' rather than only 'learning about';

b) the acquisition of and multitude of identities (acknowledging that children have evolving multiple identities); and

c) that ‘learning as becoming’ is never complete - one never ‘becomes’, signalling the infinitude of identity, i.e., that the identity of someone lies in the flux, fluidity, and movement itself.

Theoretically, this integrative perspective enriches the philosophical grounds of learning by transcending dualist thinking: by seeing *being* and *knowing* not as entirely separate phenomena; i.e., by proposing achieving an organic understanding of the ontology of knowing, rather than the binary logic prevalent in discussions of learning. Thus, rather than focusing on *what* we become through experience and knowledge construction resulting in shifts in identity, the focus lies in *how* we are becoming in experience and the search for meaning.

In conclusion, from a holistic, *educating the whole child,* learner-centred perspective, OL can bring the promise of providing the tools and capacity to expand and transform notions of learning and schooling. Viewed from this perspective, a teacher’s goal is to identify the whole child education and development and learning-as-journey-of-becoming as inseparable parts of the journey of skills, attitudes, behaviours, knowledge and self-acquisition. It is argued that, by understanding the *why* (ontology) of the OL experiences as the starting point of our analysis of the *what* of an OL experience (content), and *how* (the processes we use when learning online), we can holistically support OL in schools for successful student learning and overall development.

References

AACTE (American Association of Colleges of Teacher Education). (2008). *Handbook of technological pedagogical content knowledge (TPCK) for educators.* Committee on Innovation and Technology. New York: Routledge/Taylor and Francis Group.

Abdel-Gawad, T., and Woollard, J. (2015). Critical success factors for implementing classless e-learning systems in the Egyptian higher education. *International Journal of Instructional Technology and Distance Learning,* 12(4), 29-36.

Abdi, A. A. (2001). Identity in the philosophies of Dewey and Freire: Select analyses. *The Journal of Educational Thought (JET)/Revue De La Pensée Éducative,* 181-200.

Abrami, P. C., and Barrett, H. C. (2005). Directions for research and development on electronic portfolios. *Canadian Journal of Learning and Technology,* 31(3).

Abrams, D., and Hogg, M. A. (2006). *Social identifications: A social psychology of intergroup relations and group processes.* Routledge.

Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B., and Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education,* 17(1), 1-23.

AbuSneineh, W., and Zairi, M. (2010). An evaluation framework for E-learning effectiveness in the Arab World. *International Encyclopedia of Education,* (pp. 521-535). Elsevier Science Ltd.

ACSS, R. I. (2013). *Research ethics in ethnography/anthropology.* European Commission.

https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/ethics-guide-ethnog-anthrop_en.pdf

Adarkwah, M. A. (2021). “I’m not against online teaching, but what about us?”: ICT in Ghana post Covid-19. *Education and Information Technologies,* 26(2), 1665–1685.

Adhikari, J., Mathrani, A., and Scogings, C. (2016). Bring Your Own Devices classroom: Exploring the issue of digital divide in the teaching and learning contexts. *Interactive Technology and Smart Education,* 13(4), 323–343.

Akçayır, G., and Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers and Education,* 126, 334-345.

Al-Adwan, A. S., Albelbisi, N. A., Hujran, O., Al-Rahmi, W. M., and Alkhalifah, A. (2021). Developing a holistic success model for sustainable e-learning: a structural equation modelling approach. *Sustainability,* 13(16), 9453.

Al-Fraihat, D., Joy, M., and Sinclair, J. (2017, June). Identifying success factors for e-learning in higher education. In International conference on e-learning (pp. 247-255). *Academic Conferences International Limited.*

Al-Fraihat, D., Joy, M., and Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior,* 102, 67-86.

Ali, S., Uppal, M. A., and Gulliver, S. R. (2018). A conceptual framework highlighting e-learning implementation barriers. *Information Technology and People,* 31(1), 156-180.

Aljawarneh, S.A., (2020). Reviewing and exploring innovative ubiquitous learning tools in higher education. *Journal of Computing in Higher Education,* 32(1), 57–73.

Alkahtani, A. (2016). The challenges facing participants integration of ICT in Teaching Saudi secondary schools. *Innovative Journal,* 1(2), 39-40.

Allen, N., and Davey, M. (2018). The value of constructivist grounded theory for built environment researchers. *Journal of Planning Education and Research,* 38(2), 222-232.

Allen, I. E. and Seaman, J. (2011). Going the Distance: Online Education in the United States, 2011 [online]. Sloane Consortium. http://sloanconsortium.org/publications/ survey/going_distance_2011

Allen, I. E., and Seaman, J. (2016). *Online report card: Tracking online education in the United States*. Babson Survey Research Group. Babson College, 231 Forest Street, Babson Park, MA 02457.

Alley, L. R., and Jansak, K. E. (2001). The ten keys to quality assurance and assessment in online learning. *Journal of Interactive Instruction Development,* 13(3), 3-18.

Ally, M. (2004). Foundations of educational theory for online learning. *Theory and Practice of Online Learning*, 2, 15-44.

Alphonse, A., Orellana, A., and Kanzki-Veloso, E. (2019). How online students describe their physical learning environment. *Quarterly Review of Distance Education,* 20(2), 27.

Alqahtani, A. Y., and Rajkhan, A. A. (2020). E-learning critical success factors during the Covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Education Sciences,* 10(9), 216.

AL-Sabawy, A. Y. (2013). Measuring e-learning systems success (Doctoral dissertation, University of Southern Queensland).

Alshammari, M., and Qtaish, A. (2019). Effective adaptive e-learning systems according to learning style and knowledge level. *JITE Research,* 18, 529–547.

Alsoudi, A. M. A., and Adaieleh, A. A. (2005). University Students' Use, Knowledge and Attitudes Towards Computers and ICTs: Comparative Study

between Two Jordanian Universities: A Sociological-Educational Approach. *Human and Social Sciences,* 32(2).

Altman, I., and Rogoff, B. (1991). World views in psychology: Trait, interactional, organismic and transactional perspectives. In D. Stokols and I. Altman (Eds.), *Handbook of environmental psychology, Vol. 1* (pp. 7-40). Malabar, FL: Krieger.

Ambient Insight. (2011). *Learning technology research taxonomy: Research methodology, buyer segmentation, product definitions, and licensing model.* Monroe, WA: Author. http://www.ambientinsight.com/Resources/Documents/AmbientInsight_Learning_Technology_Taxonomy.pdf

Amicone, G., Petruccelli, I., De Dominicis, S., Gherardini, A., Costantino, V., Perucchini, P., and Bonaiuto, M. (2018). Green breaks: The restorative effect of the school environment's green areas on children's cognitive performance. *Frontiers in Psychology,* 9, 1579.

Anderson, T. (2008). Teaching in an online learning context. In T. Anderson (Ed.), *The theory and practice of online learning* (2nd ed., pp. 343–365). Edmonton, AB, Canada: Athabasca University Press.

Anderson, T. (2011). *The theory and practice of online learning.* (2nd Edition). Edmonton, AB: AU Press.

Anderson, T., and Dron, J. (2011). Three generations of distance education pedagogy. *International Review of Research in Open and Distributed Learning,* 12(3), 80-97.

Andersson, A., and Grönlund, Å. (2009). A conceptual framework for e-learning in developing countries. *The Electronic Journal of Information Systems in Developing Countries,*1-16.

Anderson, S. K., and Middleton, V. (2002). You want me to do what? The cultural and psychological struggle of putting a course online. *The Technology Source,* January/February. http://technologysource.org/article/436/

Andreski, S. (1972). *Social Sciences as Sorcery.* London. Andre Deutsch.

Andrews, R. L. and Haythornthwaite, C. (2011). E-learning ecologies. In C. Haythornthwaite, and R. L. Andrews, *E-learning. Theory and Practice* (pp. 144-160). London: SAGE.

Angeli, C., and Valanides, N. (2005). Preservice elementary teachers as information and communication technology designers: An instructional systems design model based on an expanded view of pedagogical content knowledge. *Journal of Computer Assisted Learning,* 21(4), 292-302.

Anggrainingsih, R., Umam, M. Z., and Setiadi, H. (2018). Determining e-learning success factor in higher education based on user perspective using Fuzzy AHP. In *MATEC web of conferences,* 154 (pp. 03011). EDP Sciences.

Angrosino, M. V. (2005). Recontextualizing observation: Ethnography, pedagogy, and the prospects for a progressive political agenda. In N. K. Denzin and Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 729-745). Thousand Oaks, CA: Sage.

Aparicio, M., Bacao, F., and Oliveira, T. (2016). An e-learning theoretical framework. *Educational Technology and Society*, 19(1), 292-307.

Arabasz, P. and Baker, M.B., (2003) Evolving Campus Support Models for E-learning Courses. *Educause Center for Applied Research Bulletin,* 1-9.

Arbaugh, J. B. (2000). Virtual classroom characteristics and student satisfaction with Internet-based MBA courses. *Journal of Management Education*, 24(1), 32-54.

Arhin, A. O., and Johnson-Mallard, V. (2003). Encouraging alternative forms of self-expression in the Generation Y student: A strategy for effective learning in the classroom. *ABNF Journal,* 14(6), p. 121-122.

Arnone, M. P., Small, R. V., Chauncey, S. A., and McKenna, H. P. (2011). Curiosity, interest and engagement in technology-pervasive learning

environments: A new research agenda. *Educational Technology Research and Development,* 59, 181-198.

Arnott, L. (2016). An ecological exploration of young children's digital play: framing children's social experiences with technologies in early childhood. *Early Years,* 36(3), 271–288.

Arnott, L., and Yelland, N. J. (2020). Multimodal lifeworlds: Pedagogies for play inquiries and explorations. *Journal of Early Childhood Education Research*, 9(1), 124-146.

Aschbacher, P. R. (1999). Developing Indicators of Classroom Practice to Monitor and Support School Reform. CSE Technical Report. (CSE Technical Report 513). National Center for Research on Evaluation, Standards, and Student Testing. University of California, Los, Angeles.

ASCD. (Association for Supervision and Curriculum Development). (2007). *The Learning Compact Redefined: A Call to Action. A Report of the Commission on the Whole Child.* Alexandria (VA). https://library.ascd.org/m/21e2f544234c3e97/original/WCC-Learning-Compact.pdf

Ashworth, P., and Lucas, U. (2000). Achieving empathy and engagement: a practical approach to the design, conduct and reporting of phenomenographic research. *Studies in Higher Education,* 25(3), 295-308.

Astin, A.W. (1993). *What matters in college? Four critical years revisited.* San Francisco, CA: Jossey-Bass.

Atim, A., Kiziltas, E., Mahadi, I., and Abdul Malik, N. E. D. (2021). Critical success factors in e-learning - A case study. *E-Bangi: Journal of Social Sciences and Humanities*, 18(4), 42-58.

Attwell, G. (2009). E-portfolio: the DNA of the Personal Learning Environment? *Journal of E-learning and Knowledge Society,* 3(2).

Aubrey, C., and Dahl, S. (2008). A review of the evidence on the use of ICT in the early years foundation stage. Early Childhood Research Unit, Institute of Education, University of Warwick, Coventry. https://dera.ioe.ac.uk/1631/2/becta_2008_eyfsreview_report.pdf

Avsec, S., and Kocijancic, S. (2014). The effect of the use of an inquiry-based approach in an open learning middle school hydraulic turbine optimisation course. *World Transactions on Engineering and Technology Education,* 12(3), 329-337.

Awang, H., Osman, W. R. S., and Aji, Z. M. (2018). A conceptual model to evaluate virtual learning environment among Malaysian teachers. *Journal of Telecommunication, Electronic and Computer Engineering*, 10(2–4), 59–63.

Bacsich, P., Pepler, G., Phillips, B., Öström, M., and Reynolds, S. (2011). *Virtual schools and colleges: Providing alternatives for successful learning. Volume 1.* ATiT bvba; Roosbeek, Belgium.

Bacsich, P., Frank Bristow, S., Op de Beeck, I., Pepler, G., and Philips, B. (2012). *Virtual Schools and Colleges. Providing Alternatives for Successful Learning. Volume 2.* ATiT bvba; Roosbeek, Belgium.

Bailey, J. E., and Pearson, S. W. (1983). Development of a tool for measuring and analysing computer user satisfaction. *Management Science,* 29(5), 530–545.

Bain, J. D. (1999). Introduction: Learning centred evaluation of innovation in higher education. *Higher Education Research and Development*, 18(2), 165-172.

Baker, E. T. (1995). The effects of inclusion on learning. *Educational Leadership,* 52(4), 33-35.

Baker, S. E., and Edwards, R. (2012). How many qualitative interviews is enough? National Centre for Research Methods Review Paper. Discussion Paper. NCRM. (Unpublished) https://eprints.ncrm.ac.uk/id/eprint/2273/

Baker, J. D., Bouras, C., Hartwig, S. M., and McNair, E. R. (2005). K12, Inc. and the Colorado Virtual Academy: A virtual charter school. *Virtual Schools: Planning for Success,* 133-142.

Balanskat, A. (2007). STEPS. Study of the impact of technology in primary schools-Synthesis Report. https://erte.dge.mec.pt/sites/default/files/Recursos/Estudos/synthesis_report_steps_en.pdf

Baldwin, S. J., and Ching, Y. H. (2019). An online course design checklist: development and users' perceptions. *Journal of Computing in Higher Education,* 31, 156-172.

Baldwin, S., Ching, Y. H., and Hsu, Y. C. (2018). Online course design in higher education: A review of national and state wide evaluation instruments. *TechTrends*, 62, 46-57.

Ballas, F. A., and Belyk, D. (2000). Student achievement and performance levels in online education research study. Red Deer, AB: Schollie Research and Consulting.

Bannon, L. (1997). Activity Theory. http://www.irit.fr/ACTIVITES/GRIC/cotcos/pjs/TheoreticalApproaches/Actvity/ActivitypaperBannon.htm

Barab, S. A., Gresalfi, M., and Ingram-Goble, A. (2010). Transformational play: Using games to position person, content, and context. *Educational Researcher,* 39(7), 525-536.

Barab, S., Thomas, M., and Merrill, H. (2001). Online Learning: From information dissemination to fostering collaboration. *Journal of Interactive Learning Research,* 12(1), 105–143.

Barber, M., Bird, L., Fleming, J., Titterington-Giles, E., Edwards, E., and Leyland, C. (2021). *Gravity Assist: Propelling Higher Education Towards a*

Brighter Future. Report of the digital learning and teaching review. London: Office for Students.

Barbour, M. K. (2007). Principles of effective web-based content for secondary school students: Teacher and developer perceptions. *Journal of Distance Education,* 21(3), 93-114.

Barbour, M. K. (2013). The landscape of K-12 online learning: Examining what is known. In M. G. Moore (Eds.), *Handbook of distance education* (3rd ed.) (pp. 574-593). New York: Routledge.

Barbour, M.K. (2017). K– 12 Online Learning and School Choice Growth and Expansion in the Absence of Evidence. In Fox, R. A. and Buchanan, N. K. (Eds.), *The Wiley Handbook of School Choice: An International Sourcebook for Practitioners, Researchers, Policy-Makers and Journalists.* John Wiley and Sons, Incorporated. ProQuest Ebook Central.

Barbour, M. K. (2019). The landscape of K-12 online learning: Examining the state of the field. In M. G. Moore and W. C. Diehl (Eds.), *Handbook of distance education* (4th ed.) (pp. 521-542). New York: Routledge.

Barbour, M. K., and Adelstein, D. (2013). *Voracious appetite of online teaching: Examining labour issues related to K-12 online learning.* Vancouver, BC: British Columbia Teachers Federation.

Barbour, M. K., and Harrison, K. U. (2016). Teachers' perceptions of K-12 online: Impacting the design of a graduate course curriculum. *Journal of Educational Technology Systems*, 45(1), 74-92.

Barbour, M. K., and Mulcahy, D. (2008). How are they doing? Examining student achievement in virtual schooling. *Education in Rural Australia,* 18(2), 63-74.

Barbour, M. K., and Mulcahy, D. (2009). Student performance in virtual schooling: Looking beyond the numbers. *ERS Spectrum*, 27(1), 23-30.

Barbour, M. K., Morrison, J., and Adelstein, D. (2014). The forgotten teachers in K-12 online learning: Examining the perceptions of teachers who develop K-12 online courses. *International Journal of Online Pedagogy and Course Design,* 4(3), 18-33.

Barbour, S. R., and Schostak, J. (2005). Interviewing and Focus Groups. In Somekh, B., and Lewin, C. (Eds.). (2005). *Research methods in the social sciences.* (pp. 95- 105). Sage.

Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of Women in Culture and Society,* 28(3), 801-831.

Barad, K. (2007). *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning.* Durham, NC: Duke University Press.

Barker. K. (2001). Quality guidelines for online education and training. http://futured.com/form/pdf/english.pdf

Barker, K., and Wendel, T. (2001). *e-Learning: Studying Canada's virtual secondary schools.* Kelowna, BC: Society for the Advancement of Excellence in Education. http://web.archive.org/web/20040720185017/http://www.saee.ca/pdfs/006.pdf

Barrett, L. F., Mesquita, B., and Smith, E. R. (2010). The context principle. In B. Mesquita, L. F. Barrett, and E. R. Smith (Eds.), *The mind in context (*pp. 1–22). New York, NY: Guilford Press.

Barrett, H. C., and Wilkerson, J. (2004). Conflicting paradigms in electronic portfolio approaches: Choosing an electronic portfolio strategy that matches your conceptual framework. http://electronicportfolios.com/systems/paradigms.html

Barrot, J. S. (2020). Scientific mapping of social media in education: A decade of exponential growth. *Journal of Educational Computing Research.*

Basak, S. K., Wotto, M., and Bélanger, P. (2016). A framework on the critical success factors of e-learning implementation in higher education: A review of the literature. *International Journal of Educational and Pedagogical Sciences,* 10(7), 2409-2414.

Bastien, S. and Holmarsdottir, H., B. (2015). Growing up global – towards the critical engagement of youth and youth voices in research to address global wicked problems. In Bastien, S. and Holmarsdottir, H. B. *Youth 'At the Margins' Critical Perspective and Experiences of Engaging Youth in Research Worldwide,* p. 1-19.

Bates, T., (2010). "Why you need an e-learning plan". [online] http://www.tonybates.ca/2011/10/30/why-you-need-an-e-learning-plan.

Bates, T. (2011). Understanding Web 2.0 and its implications for e-learning. In Web 2.0-Based E-learning: Applying social informatics for tertiary teaching (21-42). IGI Global.

Bates, A.W., and Sangra, A., (2011). *Managing technology in higher education: Strategies for Transforming Teaching and Learning*. John Wiley and Sons.

Becker, H. S. (1986). *Writing for social scientists: How to start and finish your thesis, book, or article.* Chicago: University of Chicago Press.

Benbasat, I., and Barki, H. (2007). Quo vadis TAM? *Journal of the Association for Information Systems,* 8(4), 7.

Bentley, Y., Selassie, H., and Shegunshi, A. (2012). Design and Evaluation of Student-Focused eLearning. *Electronic Journal of E-learning,* 10(1), 1-12.

BERA (2018). Ethical Guidelines for Educational Research. https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2018

Berenson, R., Boyles, G., and Weaver, A. (2008). Emotional intelligence as a predictor of success in online learning. *International Review of Research in Open and Distributed Learning, 9*(2), 1-17.

Berge, Z. L., and Clark, T. (2005). *Virtual schools: Planning for success.* New York, NY: Teachers College Press.

Berge, Z. L., and Collins, M. (1995). Computer-mediated communication and the online classroom in distance learning. *Computer-Mediated Communication Magazine,* 2(4), 613.

Bernard, R. M., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., ... and Huang, B. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research*, 74(3), 379-439.

Berthelsen, C. B., Grimshaw-Aagaard, S., and Hansen, C. (2018). Developing a guideline for reporting and evaluating grounded theory research studies (GUREGT). *International Journal of Health Sciences,* 6(1), 64-76.

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., and Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers and Education,* 58(2), 843-855.

Bigbie, C., and McCarroll, W. (2000). *The Florida high school evaluation 1999-2000 report*. Tallahassee, FL: Florida State University.

Biggs, J. B., and Collis, K. F. (2014). *Evaluating the quality of learning: The SOLO taxonomy (Structure of the Observed Learning Outcome).* Academic Press.

Biggs, J.B. and Tang, C. (2011). *Teaching for Quality Learning at University.* (4th ed.). Maidenhead: McGraw Hill Education and Open University Press.

Bingham, S. (2015). We are passing the smile around: personal, social, health and emotional education in the early years. In Whitebread D. and Coltman, P. (Eds.), *Teaching and learning in the early years* (4th ed.), (pp 185-208), London: Routledge.

Binson, B. (2009). Curiosity-Based Learning (CBL) Program. *Online Submission*, 6(12), 13-22.

Birch, S. H., and Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology*, 35(1), 61-79.

Bird, J., and Edwards, S. (2015). Children learning to use technologies through play: A Digital Play Framework. *British Journal of Educational Technology,* 46(6), 1149–1160.

Birks, M., Hoare, K., and Mills, J. (2019). Grounded theory: the FAQs. *International Journal of Qualitative Methods,* 18, 1609406919882535.

Birks, M., and Mills, J. (2015). *Grounded theory: A practical guide.* Sage.

Birringer, J. (2002). Dance and media technologies. *PAJ: A Journal of Performance and Art,* 24(1), 84-93.

Black, E. W. (2009). An evaluation of familial involvements' influence on student achievement in K-12 virtual schooling (Doctoral dissertation, University of Florida).

Blackmon, S. J., and Major, C. (2012). Student Experiences in Online Courses: A Qualitative Research Synthesis. *Quarterly Review of Distance Education,* 13(2).

Blackmore, J., Hardcastle, L., Bamblett, E., and Owens, J. (2003). Effective use of information and communication technology (ICT) to enhance learning for disadvantaged school students. Deakin Centre for Education and Change, Institute of Disability Studies, Deakin University and Institute of Koorie Education, Deakin University, Australia.

Blake, R. J. (2013). *Brave new digital classroom: Technology and foreign language learning.* Georgetown University Press.

Blaschke, L. M., Bozkurt, A., and Cormier, D. (2021). Learner agency and the learner-centered theories for online networked learning and learning ecologies. In H. Stewart and B. Lisa (Eds.), *Unleashing the Power of Learner Agency.* EdTech Books.

Blass, E., and Davis, A. (2003). Building on solid foundations: establishing criteria for e-learning development. *Journal of Further and Higher Education,* 27(3), 227-245.

Blumberg, P. (2000). Evaluating the evidence that problem-based learners are self-directed learners: A review of the literature. In Evensen, D. H., Hmelo, C. E., and Hmelo-Silver, C. E. *Problem-based learning: A research perspective on learning interactions*. Routledge.

Böhm, A. (2004). 5.13 TheoreticaI Coding: Text Analysis in Grounded Theory. In Flick, U., von Kardoff, E., and Steinke, I. (Eds.). *A companion to qualitative research.* Sage, 270-275.

Bonbright, J. M., Bradley, K. K., Bucek, L., Faber, R., Gibb, S. L., Hagood, T. K., ... and Press, C. M. (2004). *Research Priorities for Dance Education: A Report to the Nation.* National Dance Education Organization.

Bonner, A., and Tolhurst, G. (2002). Insider-outsider perspectives of participant observation. *Nurse Researcher*, 9(4), 7-19.

Bond, M. (2019). Flipped learning and parent engagement in secondary schools: A South Australian case study. *British Journal of Educational Technology,* 50(3), 1294-1319.

Bond, M., and Bedenlier, S. (2019). Facilitating student engagement through educational technology: towards a conceptual framework. *Journal of Interactive Media in Education*, 2019(1).

Bonk, C. J., and Zhang, K. (2008). *Empowering online learning: 100+ activities for reading, reflecting, displaying, and doing.* John Wiley and Sons.

Booth, A. (2008). Unpacking your literature search toolbox: on search styles and tactics. *Health information and libraries journal,* 25(4), 313.

Borup, J., Chambers, C. B., and Stimson, R. (2019). K-12 student perceptions of online teacher and on-site facilitator support in supplemental online courses. *Online Learning,* 23(4), 253–280.

Borup, J., Graham, C. R., and Drysdale, J. (2014). The nature of online teacher engagement in an online high school. *British Journal of Educational Technology,* 45, 793806.

Borup, J., Graham, C. R., and Velasquez, A. (2011). The use of asynchronous video communication to improve instructor immediacy and social presence in a blended learning environment. In A. Kitchenham (Ed.) *Blended learning across disciplines: Models for implementation* (pp. 38–57). Hershey, PA: IGI Global.

Borup, J., Graham, C. R., and Velasquez, A. (2013). Technology-mediated caring: Building relationships between students and instructors in online K-12 learning environments. In *Emotion and school: Understanding how the hidden curriculum influences relationships, leadership, teaching, and learning* (pp. 183-202). Emerald Group Publishing Limited.

Borup, J., West, R. E., Thomas, R., and Graham, C. R. (2014). Examining the impact of video feedback on instructor social presence in blended courses. *The International Review of Research in Open and Distributed Learning,* 15(3).

Bosch, C. (2017). Promoting self-directed learning through the implementation of cooperative learning in a higher education blended learning environment (Doctoral dissertation, North-West University (South Africa), Potchefstroom Campus).

Bossman, A., and Agyei, S. K. (2022). Technology and instructor dimensions, e-learning satisfaction, and academic performance of distance students in Ghana. *Heliyon*, 8(4).

Bothel, R. (2001). Bringing it all together. *Online Journal of Distance Learning Administration,* 4(1), 1-8.

Boud, D., and Prosser, M. (2002). Appraising new technologies for learning: A framework for development. *Educational Media International,* 39(3–4), 237–245.

Bowden, J. L. H., Tickle, L., and Naumann, K. (2021). The four pillars of tertiary student engagement and success: a holistic measurement approach. *Studies in Higher Education,* 46(6), 1207-1224.

Bower, M. (2015). A framework for adaptive learning design in a web-conferencing environment. In Bower, M., *Learning design* (pp. 223-255). Routledge.

Boyd, C. O. (2001). Phenomenology the method. In P., L., Munhall (Ed.), *Nursing research: A qualitative perspective* (3rd ed.), (pp. 93-122), Jones and Bartlett Pub., Boston.

Boyd, D. (2016). What would Paulo Freire think of Blackboard: Critical pedagogy in an age of online learning. *The International Journal of Critical Pedagogy,* 7(1).

Bozkurt, A., and Hilbelink, A. (2019). Paradigm Shifts in Global Higher Education and e-learning: An ecological perspective. *eLearn,* 2019(5).

Brachtl, S., Ipser, C., Keser Aschenberger, F., Oppl, S., Oppl, S., Pakoy, E. K., and Radinger, G. (2023). Physical home-learning environments of traditional and non-traditional students during the COVID pandemic: exploring the impact of learning space on students' motivation, stress and well-being. *Smart Learning Environments,* 10(1), 1-22.

Brackenridge, C., and Rhind, D. J. (2014). Institutional responses to child abuse in sport: Reflections on 30 years of science and activism. *Soc Sci,* 3, 326-40.

Brady, E. H., and Hill, S. (1984). Research in review: Young children and microcomputers. *Young Children,* March, 49-61.

Bransford, J., Brown, A., and Cocking, R. (Eds.) (1999). *How people learn: Brain, mind, experience, and school.* Washington, D.C.: National Academy Press.

Bray B., and McClaskey, K. (2012). Personalization vs differentiation vs individualization. Students at the Center Hub. www.my-ecoach.com/online/resources/925/PersonalizationvsDifferentiationvsIndividualization.pdf

Broadbent, B., (2002). *ABC's of e-learning: Reaping the benefits and avoiding the pitfalls.* John Wiley and Sons, Inc. San Francisco: Jossey-Bass.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Bronfenbrenner, U. (1986). The ecology of the family as a context for human development. *Developmental Psychology,* 22(6), 723-742.

Bronfenbrenner, U. and Morris, P.A. (1998). The ecology of developmental process. In Lerner, R., (Ed.), *Handbook of child psychology. Vol.1: Theoretical models of human development,* 5th ed., New York, NY: John Wiley and Sons, 9931028.

Brophy, J. E. (2000). *Teaching: Educational practices Series-1. Geneva: International Academy of Education.* International Bureau of Education (IAE).

Brown, J. S. (2000). Growing up: Digital: How the web changes work, education, and the ways people learn. *Change: The Magazine of Higher Learning*, 32(2), 11-20.

Brown, J. S. (2001). Learning in the digital age. In *The Internet and the university: Forum (Vol. 71), (pp 72).* Washington, DC: Educause.

Brown, C. (2006). Learning to Dance with Angelfish: Choreographic Encounters between Virtuality and Reality. In Broadhurst, S. and Machon J. (Eds.), *Performance and Technology,* (pp 85-99). Basingstoke: Palgrave MacMillan.

Bruner, J. (1996). *The culture of education.* Cambridge, MA: Harvard University Press.

Bryant, A. (2002). Re-grounding grounded theory. *Journal of Information Technology Theory and Application,* 4(1), 25–42.

Bryant, A. and Charmaz, C. (2007). The Sage handbook of grounded theory. In A. Bryant and C. Charmaz (Eds.), *The Sage handbook of grounded theory* (pp. 21–57). Los Angeles, CA: Sage.

Bryman, A. (2008). *Social Research Methods.* (3rd ed.) Oxford: Oxford University Press.

Bryson, C. and Hand. L. (2008). *An introduction to student engagement. In SEDA special 22: Aspects of student engagement, 5-13.* Nottingham, UK: Staff and Educational Development Association.

Burgstahler, S. (2015). Opening doors or slamming them shut? Online learning practices and students with disabilities. *Social Inclusion,* 3(6), 69-79.

Burnett C., Merchant G., Parry B. (2016). Past, present, future. In Parry B., Burnett C., Merchant G. (Eds) *Literacy, Media, Technology: Past, Present and Future,* London: Bloomsbury.

Butt, S., Mahmood, A., Saleem, S., Rashid, T., and Ikram, A. (2021). Students' performance in online learning environment: The role of task technology fit and actual usage of system during COVID-19. *Frontiers in Psychology,* 12, 759227.

Bytheway, J. (2018). Using Grounded Theory to Explore Learners' Perspectives of Workplace Learning. *International Journal of Work-Integrated Learning,* 19(3), 249-259.

Cabual, R. A. (2021). Learning styles and preferred learning modalities in the new normal. *Open Access Library Journal,* 8(4), 1-14.

Cachia, R., Velicu, A., Chaudron, S., Di Gioia, R. and Vuorikari, R. (2021). *Emergency remote schooling during COVID-19*. EUR 30866 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-42550-2. https://publications.jrc.ec.europa.eu/repository/handle/JRC125787

Callahan, C., Saye, J. and Brush, T. (2013). Designing web-based educative curriculum materials for the social studies. *Contemporary Issues in Technology and Teacher Education,* 13(2), 126-155.

Calvert, G. A., Brammer, M. J., Bullmore, E. T., Campbell, R., Iversen, S. D., and David, A. S. (1999). Response amplification in sensory-specific cortices during crossmodal binding. *Neuroreport,* 10(12), 2619-2623.

Caplan, D., Graham, R., Anderson, T., and Elloumi, F. (2008). The development of online courses. In Anderson, T. (Ed.), *Theory and practice of online learning,* (pp. 245-265). Athabasca university press.

Cardino Jr, J. M., and Cruz, R. A. O. D. (2020). Understanding of learning styles and teaching strategies towards improving the teaching and learning of mathematics. *LUMAT: International Journal on Math, Science and Technology Education*, 8(1), 19-43.

Care, W.D. and Scanlan, J.M., (2001). Planning and Managing the Development of Courses for Distance Delivery: Results from a Qualitative Study. *Online Journal of Distance Learning Administration*, 4(2), 1-9.

Carstens, R., and Pelgrum, W. J. (2009). *Second Information Technology in Education Study: SITES 2006 Technical Report.* International Association for

the Evaluation of Educational Achievement. Herengracht 487, Amsterdam, 1017 BT, The Netherlands.

Carter R. A. Jr., Rice M., Yang S., Jackson H. A. (2020). Self-regulated learning in online learning environments: Strategies for remote learning. *Information and Learning Sciences,* 121(5/6), 321–329.

Carvalho, L., Nicholson, T., Yeoman, P., and Thibaut, P. (2020). Space matters: framing the New Zealand learning landscape. *Learning Environments Research*, 23(3), 307–329.

Cavanaugh, C. (2013). Student achievement in elementary and high school. In Moore, M. G. (Ed.), *Handbook of distance education* (3rd ed.), (pp. 574–593). New York, NY: Routledge.

Cavanaugh, C. S., Barbour, M. K., and Clark, T. (2009). Research and practice in K-12 online learning: A review of open access literature. *The International Review of Research in Open and Distributed Learning,* 10(1).

Cavanaugh, C., Gillan, K. J., Kromrey, J., Hess, M., and Blomeyer, R. (2004). *The effects of distance education on K-12 student outcomes: A meta-analysis.* Learning Point Associates/North Central Regional Educational Laboratory (NCREL).

Cavanaugh, C., Gillan, K. J., Bosnick, J., Hess, M., and Scott, H. (2005). *Succeeding at the gateway: Secondary algebra learning in the virtual school.* Jacksonville, FL: University of North Florida.

Chambers, J., H. (1992). *Empiricist research on teaching: a philosophical and practical critique of its scientific pretensions.* Dordrecht, Kluwer Academic Publishers.

Chantanarungpak, K. (2010). Development of success indicators of e-Learning system for higher education institutions in Thailand. (Doctoral Thesis, Bangkok: Chulalongkorn University).

Chao, T., Saj, T., and Tessier, F. (2006). Establishing a quality review for online courses. *Educause Quarterly,* 29(3), 32.

Charmaz, K. (1990) 'Discovering' chronic illness: using grounded theory. *Social Science and Medicine,* 30(11), 1161–72.

Charmaz, K. (1995). Between positivism and postmodernism: Implications for methods. *Studies in Symbolic Interaction,* 17(2), 43-72.

Charmaz, K. (2000). Constructivist and objectivist grounded theory. In N. K. Denzin and Y. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.), (pp. 509–535). Thousand Oaks, CA: Sage.

Charmaz, K. (2002). Grounded theory analysis. In J. F. Gubrium and J. A. Holstein (Eds.), *Handbook of interview research,* (pp. 675–694). Thousand Oaks, CA: Sage.

Charmaz, K. (2005). Grounded theory in the 21st century: Applications for advancing social justice studies. In *Qualitative Research Conference*, Carleton University, Ottawa, ON, Canada.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage.

Charmaz, K. (2008). Constructionism and the grounded theory method. In J.A. Holstein and J. F. Gubrium (Eds.), *Handbook of constructionist research,* 1(1), 397-412.

Charmaz, K. (2013). Grounded theory methods in social justice research. In Denzin, N. K., Lincoln, Y. S. (Eds.), *Strategies of qualitative inquiry* (4th ed., pp. 291–336). Thousand Oaks, CA: Sage.

Charmaz, K. (2014). *Constructing grounded theory.* (2nd ed.) Thousand Oaks, CA: Sage.

Charmaz, K. (2017). The power of constructivist grounded theory for critical inquiry. *Qualitative Inquiry,* 23(1), 34–45.

Charmaz, K. and Bryant, A. (2011). Grounded Theory and Credibility. In Silverman (Ed). *Qualitative Research: Issues of Theory, Method and Practice.* (3rd ed.) London: Sage.

Charmaz, K. and Mitchell, R. (1996). The myth of silent authorship. *Symbolic Interaction,* 19, 285–302.

Charmaz, K., and Thornberg, R. (2020). The pursuit of quality in grounded theory. *Qualitative Research in Psychology*, 1-23.

Chau, J., and Cheng, G. (2010). Towards understanding the potential of e-portfolios for independent learning: A qualitative study. *Australasian Journal of Educational Technology,* 26(7), 932-950.

Chavez, C. (2008). Conceptualizing from the inside: Advantages, complications, and demands on insider positionality. *The Qualitative Report,* 13(3), 474-494.

Cheawjindakarn, B., Suwannatthachote, P., and Theeraroungchaisri, A. (2013). Critical success factors for online distance learning in higher education: A review of the literature. *Creative Education*, 3(08), 61.

Chee, Y. S. (2011). Learning as becoming through performance, play and dialogue: A model of game-based learning with the game Legends of Alkhimia. *Digital Culture and Education*, 3(2), 98-122.

Chen, K. C., and Jang, S. J. (2010). Motivation in online learning: Testing a model of self-determination theory. *Computers in Human Behavior,* 26(4), 741–752.

Chen, R. T.-H. (2010). Knowledge and knowers in online learning: Investigating the effects of online flexible learning on student sojourners. (Doctoral

Dissertation, University of Wollongong, NSW, Australia). https://ro.uow.edu.au/cgi/viewcontent.cgi?article=4099andcontext=theses.

Chen, S. J. (2007). Instructional design strategies for intensive online courses: An objectivist-constructivist blended approach. *Journal of Interactive Online Learning,* 6(1), 72-86.

Chen, S. and Macredie, R. (2002). Cognitive styles and hypermedia navigation: development of learning model. *Journal of the American Society for Information Science and Technology,* 53(1), 3–15.

Cheng, Y. M. (2014). Extending the expectation-confirmation model with quality and flow to explore nurses continued blended e-learning intention. *Information Technology and People,* 27(3), 230-258.

Chickering, A. W., and Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin,* 39(7), 3–7.

Chingos, M. M., and Schwerdt, G. (2014). *Virtual schooling and student learning: Evidence from the Florida Virtual School.* Cambridge, MA: Harvard Kennedy School. http://www.hks.harvard.edu/pepg/PDF/Papers/PEPG14_02FVS_Chingos_Schwerdt.pdf

Chiovitti, R., and Piran, N. (2003). Rigour and grounded theory research. *Journal of Advanced Nursing,* 44(4), 427–435.

Chiu, H. L. (2012). Supporting the development of autonomous learning skills in reading and writing in an independent language learning centre. *Studies in Self-Access Learning Journal,* 3(3).

Chizmar, J. F., and Walbert, M. S. (1999). Web-based learning environments guided by principles of good teaching practice. *Journal of Economic Education,* 30(3), 248–264.

Christensen, D., Anakwe, U., and Kessler, E. (2001). Receptivity to distance learning: The effect of technology, reputation, constraints, and learning preferences. *Journal of Research on Computing in Education,* 33(3), 263–279.

Chun Tie, Y., Birks, M., and Francis, K. (2019). Grounded theory research: A design framework for novice researchers. *SAGE Open Medicine*, 7, 2050312118822927.

Chuttur, M. Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions. *Working Papers on Information Systems,* 9(37), 9–37.

Cidral, W. A., Oliveira, T., Di Felice, M., and Aparicio, M. (2018). E-learning success determinants: Brazilian empirical study. *Computers and Education,* 122, 273–290.

Cigala, A., Venturelli, E., and Bassetti, M. (2019). Reflective Practice: A method to improve teachers' well-being. A longitudinal training in early childhood education and care centers. *Frontiers in Psychology,* 2574.

Clark, R. C., and Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning.* John Wiley and Sons.

Clarke, A. E. (2003). Situational analyses: Grounded theory mapping after the postmodern turn. *Symbolic Interaction,* 26, 553–576.

Clarke, A. E. (2005). *Situational analysis: Grounded theory after the postmodern turn.* Thousand Oaks, CA: Sage.

Clarke, A. E. (2006). Feminisms, grounded theory, and situational analysis. In S. Hess-Biber and D. Leckenby (Eds.), *Handbook of feminist research methods,* (pp. 345– 370). Thousand Oaks, CA: Sage.

Clements D.H., and Sarama J. (2003). Young children and technology: What does the research say? *Young Children*, 56(6), 34–35.

Clifford, J. (1988). *The predicament of culture: Twentieth-century ethnography, literature, and art (Vol. 1).* Harvard University Press.

Clouse, B. (2019). Jean Piaget. *Salem Press Biographical Encyclopedia.* EBSCO.

Coates, H. (2007). A model of online and general campus-based student engagement. *Assessment and Evaluation in Higher Education,* 32(2), 121-141.

Coates, H., James, R., and Baldwin, G. (2005). A critical examination of the effects of learning management systems on university teaching and learning. *Tertiary Education and Management,* 11, 19-36.

Coelho, C., and Menon, S. (2020). Online Dance Training in a Social Distancing Environment: Examining Preferences of Latin and Ballroom Dancers. *Dance Education in Practice*, 6(4), 23-29.

Cohen, L., Manion, L., and Morrison, K. (2011). *Research methods in education* (7th ed.) New York. NY: Routledge.

Colley, H., James, D., Diment, K., and Tedder, M. (2003). Learning as becoming in vocational education and training: class, gender and the role of vocational habitus. *Journal of Vocational Education and Training,* 55(4), 471-498.

Collision, G., Elbaum, B., Haavind, S., and Tinker, R. (2000). *Facilitating Online Learning. Effective Strategies for Moderators*. Madison, WI: Atwood Publishing.

COMPED. (1989-1992). The IEA Study of Computers in Education: Implementation of an innovation in 21 education systems. https://www.iea.nl/studies/iea/other#spy-para-162

Compton, M., and Barrett, S. (2016). A Brush with Research: Teaching Grounded Theory in the Art and Design Classroom. *Universal Journal of Educational Research,* 4(2), 335-348.

Conlon, C., Carney, G., Timonen, V., and Scharf, T. (2015). 'Emergent reconstruction' in grounded theory: learning from team-based interview research. *Qualitative Research,* 15(1), 39-56.

Conole, G., De Laat, M., Dillon, T., and Darby, J. (2008). 'Disruptive technologies,' 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology. *Computers and Education*, 50(2), 511-524.

Conrad, D. (2002). Engagement, excitement, anxiety and fear: Learners' experiences of starting an online course. *American Journal of Distance Education,* 16(4), 205-226.

Conrad, R.-M., and Donaldson, J. A. (2011). *Engaging the online learner: activities and resources for creative instruction.* San Francisco: Jossey-Bass.

Cook, D. A., and Dupras, D. M. (2004). A practical guide to developing effective web-based learning. *Journal of General Internal Medicine,* 19(6), 698-707.

Cook, D. A., and Ellaway, R. H. (2015). Evaluating technology-enhanced learning: a comprehensive framework. *Medical Teacher,* 37(10), 961-970.

Cooze, M., and Barbour, M. K. (2005). Learning styles: A focus upon e-learning practices and pedagogy and their implications for designing e-learning for secondary school students in Newfoundland and Labrador. *Malaysian Online Journal of Instructional Technology*, 2(1).

Cope, B. and Kalantzis, M. (2010). Introduction: The Beginnings of an Idea. In Cope, B. and Kalantzis, M. (Eds.). *Ubiquitous Learning.* Champaign, IL: University of Illinois Press.

Cope, B., and Kalantzis, M. (2013). Towards a new learning: The scholar social knowledge workspace, in theory and practice. *E-learning and Digital Media,* 10(4), 332-356.

Cope, B., and Kalantzis, M. (2017). *e-Learning Ecologies*. New York, USA: Routledge.

Copeland, W. E., McGinnis, E., Bai, Y., Adams, Z., Nardone, H., Devadanam, V., and Hudziak, J. J. (2021). Impact of COVID-19 pandemic on college student mental health and wellness. *Journal of the American Academy of Child and Adolescent Psychiatry*, 60(1), 134–141.

Corbett, F., and Spinello, E. (2020). Connectivism and leadership: harnessing a learning theory for the digital age to redefine leadership in the twenty-first century. *Heliyon,* 6(1), e03250.

Corbin, J., and Strauss, A. (2008). Strategies for qualitative data analysis. Basics of Qualitative Research. *Techniques and Procedures for Developing Grounded Theory,* 3(10.4135), 9781452230153.

Corbin, J., and A. Strauss. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* (4th ed.). Thousand Oaks, CA: Sage.

Cousin, G. (2009). *Researching learning in higher education: An introduction to contemporary methods and approaches*. Routledge.

Craft, A. (2012). Childhood in a digital age: creative challenges for educational futures. *London Review of Education,* 10(2), 173–190.

Creswell, J. (2007). Qualitative research designs: Selection and implementation. *The Counselling Psychologist,* 35(2), 236.

Creswell, J. W., and Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches.* Sage publications.

Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process.* Sage, London.

Croatian Personal Data Protection Agency. (2003). Croatian Act on Personal Data Protection. National Legislation. *Official Gazette,* 103/2003.

Cullen, R., and Harris, M. (2018). Conditions for online learning autonomy. *International Journal of Process Education,* 2(1), 11-18.

Cunningham, N., and Carmichael, T. (2017, June). Sampling, interviewing and coding: Lessons from a constructivist grounded theory study. In *European Conference on Research Methodology for Business and Management Studies* (pp. 78-85). Academic Conferences International Limited.

Cyrs, T. (1997). Visual thinking: Let them see what you are saying. In T. Cyrs (Ed.), *Teaching and learning at a distance: What it takes to effectively design, deliver, and evaluate programs,* (pp. 27–32). San Francisco: Jossey-Bass.

Dabbagh, N. (2005). Pedagogical models for E-Learning: A theory-based design framework. *International Journal of Technology in Teaching and Learning*, 1(1), 25-44.

Dabbagh, N. (2007). The online learner: Characteristics and pedagogical implications. *Contemporary Issues in Technology and Teacher Education,* 7(3), 217-226.

Danby, S., Evaldsson, A.-C., Melander, H., and Aarsand, P. (2018). Situated collaboration and problem solving in young children's digital gameplay. *British Journal of Educational Technology*, 49(5), 959–972.

Dania, A., Hatziharistos, D., Koutsouba, M., and Tyrovola, V. (2011). The use of technology in movement and dance education: Recent practices and future perspectives. *Procedia-Social and Behavioral Sciences,* 15, 3355-3361.

Darabi, A. A., Sikorski, E. G., and Harvey, R. B. (2006). Validated competencies for distance teaching. *Distance Education,* 27(1), 105-122.

Darling-Hammond, L., and Cook-Harvey, C. M. (2018). Educating the Whole Child: Improving School Climate to Support Student Success. Learning Policy

Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Educating_Whole_Child_REPORT.pdf

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., and Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science,* 24(2), 97-140.

Davies, R. S. and West, R. E. (2014). Technology integration in schools. In J. Michael Spector, M. David Merrill, Jan Elen, M. J. Bishop (Eds) *Handbook of research on educational communications and technology* (4th ed.), (pp. 841–853). Springer New York.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science,* 35(8),982–1003.

Davis, K., Drey, N., and Gould, D. (2009). What are scoping studies? A review of the nursing literature. *International journal of nursing studies,* 46(10), 1386-1400.

Davis, N. and Rose, R. (2007). *Professional development for virtual schooling and online learning.* Vienna, VA: North American Council for Online Learning.

Day, D., and Lloyd, M. M. (2007). Affordances of online technologies: More than the properties of the technology. *Australian Educational Computing,* 22(2), 17-21.

Deci, E. L., and Ryan, R. M. (2000). The “what” and the “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*,11, 227–268.

Deci, E. L., and Ryan, R. M. (2008). Self-determination theory: a macro theory of human motivation, development and health. *Canadian Psychology,* 49(3), 182-185.

DeLone, W. H., and McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research,* 3(1), 60–95.

DeLone, W. H., and McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems,* 19(4),9–30.

Denscombe, M. (2007). *The good research guide: for small-scale social research projects.* McGraw-Hill Education (UK).

Denzin, N.K. and Lincoln, Y.S. (1994). *Handbook of Qualitative Research*. Sage Publications, London.

DES (2007). *Inclusion of students with special educational needs: Post primary guidelines.* Dublin: Government Publications.

Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education.* New York, NY: Macmillan.

Dewey, J. (1916a). Introduction to Essays in experimental logic. In Jo Ann Boydston (Ed.), *The Middle Works (1899-1924),* 10 (320-369). Carbondale and Edwardsville: Southern Illinois University Press.

Dewey, J. 1938 [1997]. *Experience and Education.* New York: Simon and Schuster.

Dewey, J. (1990). *The school and society and the child and the curriculum.* Chicago, IL: The University of Chicago Press.

Dey, I. (1999). *Grounding Grounded Theory: Guidelines for Qualitative Inquiry.* London: Academic Press.

Dicheva, D., Dichev, C., Agre, G., and Angelova, G. (2015). Gamification in education: A systematic mapping study. *Journal of Educational Technology and Society,* 18(3), 75-88.

Dickson, W. P. (2005). Toward a deeper understanding of student performance in virtual high school courses: Using quantitative analyses and data visualization to inform decision making. *A Synthesis of New Research in K–12 Online Learning,* 21-23.

DiPietro, M., Ferdig, R. E., Black, E. W. and Preston, M. (2008). Best practices in teaching k–12 online: Lessons learned from Michigan Virtual School teachers. *Journal of Interactive Online Learning,* 7(1).

Diamond, R., and Willan, J. (2020). Coronavirus disease 2019: achieving good mental health during social isolation. *The British Journal of Psychiatry,* 217(2), 408-409.

Diogo, A.M., Silva, P. and Viana, J. (2018). Children's use of ICT, family mediation, and social inequalities. *Issues in Educational Research,* 28(1), 61–76.

Doctoroff, G.L., and Arnold, D.H. (2017). Doing homework together: The relation between parenting strategies, child engagement, and achievement. *Journal of Applied Developmental Psychology,* 48, 103–113.

Doll, W. J., and Torkzadeh, G. (1988). The measurement of end-user computing satisfaction. *MIS Quarterly,* 259–274.

Donahue-Wallace, K., La Follette, L., and Pappas, A. (Eds.). (2009). *Teaching art history with new technologies: Reflections and case studies.* Cambridge Scholars Publishing.

Douglas, D. (2003). Grounded theories of management: A methodological review. *Management Research News*, 26, 44-60.

Dotterer, G. P. (2011). *The effects of multiple-channel technologies and learning styles on proceduralized instruction in a virtual environment.* Oklahoma State University.

Dray, B. J., Lowenthal, P. R., Miszkiewicz, M. J., Ruiz- Primo, M. A., and Marczynski, K. (2011). Developing an instrument to assess student readiness for online learning: A validation study. *Distance Education,* 32(1), 29-47.

Druin, A. (2002). The role of children in the design of new technology. *Behaviour and Information Technology*, 21(1), 1-25.

Dubois, M. (2015). Ideology, sociology of. In Wright, J.D. (Ed.). *International encyclopedia of the social and behavioral sciences*, (2nd ed.) (pp. 573-587) Amsterdam: Elsevier.

'Dunne, C. (2011). The place of the literature review in grounded theory research. *International Journal of Social Research Methodology,* 14(2), 111-124.

Durrington, V. A., Berryhill, A., and Swafford, J. (2006). Strategies for enhancing student interactivity in an online environment. *College Teaching*, 54(1), 190–193.

Dweck, C. (2009). Who will the 21st-century learners be? *Knowledge Quest,* 38(2), 8-10.

Dweck, C. S. (2016). *Mindset: The new psychology of success*. Penguin Random House.

Dwyer, S. C., and Buckle, J. L. (2009). The space between: On being an insider-outsider in qualitative research. *International Journal of Qualitative Methods,* 8(1), 54-63.

Dykman, C. A., and Davis, C. K. (2008). Online education forum: Part two—Teaching online versus teaching conventionally. *Journal of Information Systems Education,* 19(2), 157- 164.

Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., and Sicilia, N. (2018). Blended learning: the new normal and emerging technologies. *International Journal of Educational Technology in Higher Education,* 15(1), 1-16.

Dziuban, C., Moskal, P., Thompson, J., Kramer, L., DeCantis, G., and Hermsdorfer, A. (2015). Student Satisfaction with Online Learning: Is It a Psychological Contract? *Online Learning*, 19(2).

EADSNE (2003). *Special needs education in Europe: Thematic publication.* European Agency for Development in Special Needs Education: Middlefart.

Easton, S. S. (2003). Clarifying the instructor's role in online distance learning. *Communication Education,* 52(2), 87-105.

Edström, K. (2008). Doing course evaluation as if learning matters most. *Higher Education Research and Development,* 27(2), 95 – 106.

Edwards, S. (2016). Bringing together the "threads of care" in possible miscarriage for women, their partners and nurses in non-metropolitan emergency departments (Doctoral dissertation, James Cook University, Townsville).

Edwards, C., Gandini, L. and Forman, G. (Eds.). (2012). *The hundred languages of children.* Santa Barbara, CA: Praeger.

Edwards, S., Henderson, M., Gronn, D., Scott, A., and Mirkhil, M. (2017). Digital disconnect or digital difference? A socio-ecological perspective on young children's technology use in the home and the early childhood centre. *Technology, Pedagogy and Education*, 26(1), 1–17.

Egan, T. (2002). *Advances in developing human resources.* New York, NY: Sage.

Ehlers, U. D. (2004). Quality in e-learning from a learner's perspective. *European Journal of Open, Distance and E-Learning,* 7(1).

Elbaum, B., McIntyre, C., and Smith, A. (2002). *Essential elements: Prepare, design, and teach your online course.* Madison, WI: Atwood Publishing.

Ellis, R. A. and Goodyear, P. (2009). Thinking ecologically about e-learning. In R. A. Ellis and P. Goodyear (Eds.), *Students' experiences of e-learning in higher education: The ecology of sustainable innovation* (pp. 16-38). London: Routledge.

Ellis, R., and Goodyear, P. (2013). *Students' experiences of e-learning in higher education: the ecology of sustainable innovation.* Routledge.

Elliott, N., and Lazenbatt, A. (2005). How to recognize a "quality" grounded theory research study. *Australian Journal of Advanced Nursing,* 22(3), 48–52.

Elkind, D. (1998). Computers for infants and young children. *Child Care Information Exchange,* 9, 44-46.

Elkind, D. (2007). *The power of play: How spontaneous, imaginative activities lead to happier, healthier children.* Da Capo Lifelong Books.

El-Sabagh, H. A. (2021). Adaptive e-learning environment based on learning styles and its impact on development students' engagement. *International Journal of Educational Technology in Higher Education,* 18(1), 1-24.

Ehlers, U. D. (2004). Quality in e-learning from a learner's perspective. *European Journal of Open, Distance and E-learning,* 7(1).

Elshami, W., Taha, M. H., Abuzaid, M., Saravanan, C., Al Kawas, S., and Abdalla, M. E. (2021). Satisfaction with online learning in the new normal: perspective of students and faculty at medical and health sciences colleges. *Medical Education Online,* 26(1), 1920090.

Emanuel, R. C., and Potter, W. J. (1992). Do students' style preferences differ by grade level, orientation toward college, and academic major? *Research in Higher Education*, 33(3), 395–414.

Engel, S. (2011). Children's need to know: Curiosity in schools. *Harvard Educational Review,* 81(4), 625-645.

Eom, S. B. (2012). Effects of LMS, self-efficacy, and self-regulated learning on LMS effectiveness in business education*. Journal of International Education in Business,* 5(2),129-144.

Eom, S. B., and Ashill, N. (2016). The determinants of students' perceived learning outcomes and satisfaction in university online education: An update. *Decision Sciences Journal of Innovative Education,* 14(2), 185–215.

Eom, S. B., and Ashill, N. J. (2018). A system's view of e-learning success model. *Decision Sciences Journal of Innovative Education,* 16(1), 42-76.

Eom, S., Ashill, N. J., Arbaugh, J. B., and Stapleton, J. L. (2012). The role of information technology in e-learning systems success. *Human Systems Management,* 31(3–4),147–163.

Epstein, J. L., Sanders, M. G., Sheldon, S. B., Simon, B. S., Salinas, K. C., Jansorn, N. R., ... and Williams, K. J. (2018). *School, family, and community partnerships: Your handbook for action*. Corwin Press.

Erickson, J., and Siau, K. (2003). E-ducation. *Communications of the ACM,* 46(9), 134-140.

European Commission. (2016). e-Schools project to increase ICT use in Croatia's education system. https://ec.europa.eu/regional_policy/en/projects/europe/e-schools-project-to-increase-ict-use-in-croatia-s-education-system

European Commission. (2021a). *Proposal for a COUNCIL RECOMMENDATION on blended learning for high quality and inclusive primary and secondary education.* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0455andfrom=EN

European Commission. (2021b). *Digital Education Action Plan (2021-2027).* https://education.ec.europa.eu/focus-topics/digital/education-action-plan

European Communities. (2006). *Key Competences for Lifelong Learning—A European Framework*. https//eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32006H0962andfrom=EN

Eyles, A., Gibbons, S., and Montebruno, P. (2020). Covid-19 school shutdowns: What will they do to our children's education? A CEP Covid-19 analysis Briefing note No. 001. http://cep.lse.ac.uk/pubs/download/cepcovid-19-001.pdf

FAO. (2021). *E-learning methodologies and good practices: A guide for designing and delivering e-learning solutions from the FAO e-learning Academy*. (2nd ed.). Rome. https://doi.org/10.4060/i2516e https://www.fao.org/3/i2516e/i2516e.pdf

Farid, A. (2014). Student online readiness assessment tools: a systematic review approach. *Electronic Journal of e-Learning,* 12(4), 375–382.

Farmer, R. (1994). The limits of learner independence in Hong Kong. *Directions in self-access language learning,* 13-27.

Fassinger, R. E. (2005). Paradigms, praxis, problems, and promise: Grounded theory in counselling psychology research. *Journal of Counselling Psychology,* 52(2), 156.

Fawaz, M., Al Nakhal, M., and Itani, M. (2021). COVID-19 quarantine stressors and management among Lebanese students: A qualitative study*. Current Psychology,* 1–8.

Ferdig, R. E. and Kennedy, K. (2014). *Handbook of research on K-12 online and blended learning.* ETC Press.

Fink, L. D. (2003). *What is significant learning.* University of Oklahoma Significant Learning Website, Program for Instructional Innovation at the University of Oklahoma.

Fischer, K. W., and Bidell, T. R. (2006). Dynamic development of action, thought, and emotion. In W. Damon andR.M. Learner (Eds.), *Theoretical*

models of human development, Handbook of child psychology (6th ed.). Vol 1, (pp. 319–399). New York: Wiley.

Flair, I. (2019). Zone of proximal development (ZPD)*. Salem press encyclopedia.* EBSCO.

Flavell, J. (1979). Metacognition and cognitive monitoring. A new area of cognitive-developmental inquiry. *American Psychologist,* 34(10), 906-911.

Flavell, J. (1979). Metacognition and cognitive monitoring. A new area of cognitive-developmental inquiry. *American Psychologist,* 34(10), 906-911.

Fleer, M. (2017). Digital pedagogy: How teachers support digital play in the early years. In L. Arnott (Ed.), *Digital technologies and learning in the early years* (pp. 114–126). London, UK: SAGE.

Fleer, M. (2018). Digital animation: New conditions for children's development in play-based setting. *British Journal of Educational Technology,* 49(5), 943–958.

Fleming, J. (2018). Recognizing and Resolving the Challenges of Being an Insider Researcher in Work-Integrated Learning. *International Journal of Work-Integrated Learning*, 19(3), 311-320.

Flewitt, R., Messer, D., and Kucirkova, N. (2015). New directions for early literacy in a digital age: The iPad. *Journal of Early Childhood Literacy,* 15(3), 289–310.

Flick, U. (2009). *An introduction to qualitative research* (4th ed.). London: Sage.

Foley, G., and Timonen, V. (2015). Using grounded theory method to capture and analyze health care experiences. *Health Services Research,* 50, 1195–1210.

Fraillon, J., Ainley, J., Schulz, W., Friedman, T., and Gebhardt, E. (2014). Preparing for life in a digital age: The *IEA International Computer and*

Information Literacy Study international report (p. 308). Springer Nature. https://www.iea.nl/studies/iea/icils/2013

Fraillon, J., Ainley, J., Schulz, W., Friedman, T., and Duckworth, D. (2019). Preparing for life in a digital world: the *IEA International Computer and Information Literacy Study 2018 International Report*. International Association for the Evaluation of Educational Achievement (IEA). https://research.acer.edu.au/ict_literacy/23

Frand, J. (2000). The information mindset: Changes in students and implications for higher education. *EDUCAUSE Review*, 35(2), 15-24.

France, A. (2000). *Involving young people in research projects. Findings D30.* York: Joseph Rowntree Foundation.

Fredricks, J. A., Blumenfeld, P. C., and Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research,* 74(1), 59–109.

Freedman, G., Darrow, R., Watson, J., and Lorenzo, G. (2002). *The California virtual school report: A national survey of virtual education practice and policy with recommendations for the state of California*. Santa Cruz, CA: University of California College Preparatory Initiative.

Freeman, R. E. (2010). *Strategic management: A Stakeholder approach.* Cambridge, UK: Cambridge University Press.

Freire, P. (1970). *The Pedagogy of the Oppressed.* New York, NY: Continuum.

Fresen, J., (2007). A taxonomy of factors to promote quality web-supported learning. *International Journal on ELearning,* 6(3), p.351.

Friedman, R. B. (1996). Top ten reasons the World Wide Web may fail to change medical education. *Academic Medicine: Journal of the Association of American Medical Colleges*, 71(9), 979-981.

Frielick, S. (2004). Beyond constructivism: An ecological approach to e-learning. In R. Atkinson, C. McBeath, D. Jonas-Dwyer, and R. Phillips (Eds.), *Proceedings of the 21st ASCILITE Conference* (pp. 328-332), Perth, Australia: ASCILITE. http://www.ascilite.org.au/conferences/perth04/procs/frielick.html

Frykholm, C-U. and Nitzler, R. (1993). Working Life as a Pedagogical Discourse: empirical studies of vocational and career education based on theories of Bourdieu and Bernstein*. Journal of Curriculum Studies,* 25, 433-444.

Fulton, C. (2020). Collaborating in online teaching: inviting e-guests to facilitate learning in the digital environment. *Information and Learning Sciences,* 121(7/8), 579-585.

Gamage, D., Femando, S., and Perera, I. (2015, April). Effectiveness of e-learning: Grounded theory approach. In *2015 Moratuwa Engineering Research Conference (MERCon)* (pp. 336-341). IEEE.

Ganimian, A. J., Hess, F. M., and Vegas, E. (2020). *Realizing the promise: How can education technology improve learning for all.* Brookings Institution. September 2020. https://www.brookings.edu/essay/realizing-the-promise-how-can-education-technology-improve-learning-for-all/

Gao, H., Ou, Y., Zhang, Z., Ni, M., Zhou, X., and Liao, L. (2021). The relationship between family support and e-learning engagement in college students: the mediating role of e-learning normative consciousness and behaviors and self-efficacy. *Frontiers in psychology,* 12, 573779.

García, E., and Weiss, E. (2016). *Making Whole-Child Education the Norm: How Research and Policy Initiatives Can Make Social and Emotional Skills a Focal Point of Children's Education.* Economic Policy Institute. https://www.epi.org/publication/making-whole-child-education-the-norm/

Gardner, H. (2004). A multiplicity of intelligences: In tribute to professor Luigi Vignolo. https://howardgardner01.files.wordpress.com/2012/06/a-multiplicity-of-intelligences1.pdf

Gardner, H. (2006). *Multiple intelligences.* New York, NY: Basic Books.

Garrison, D. R. (2003). Cognitive presence for effective asynchronous online learning: The role of reflective inquiry, self-direction and metacognition. *Elements of Quality Online Education: Practice and Direction*, 4(1), 47-58.

Garrison D.R. (2008). Online Community of Inquiry Review: Social, cognitive, and teaching presence issues. *Journal of Asynchronous Learning Networks,* 11(1), 61–72.

Garrison D.R. (2009). Communities of Inquiry in Online Learning, in Rogers P.L. (Ed.) *Encyclopedia of Distance Learning* (2nd Ed.), (pp. 352–355). Hershey, PA: IGI Global.

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice.* Taylor and Francis.

Garrison D. R. and Arbaugh, J.B. (2007). Researching the community of inquiry framework: Review, issues, and future directions. *The Internet and Higher Education,* 10(3), 157-172.

Garrison, D. R., Anderson, T., and Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105.

Garrison, D.R. and Shale, D. (1990). *Education at a distance: From issues to practice*. Malabar: FL: Robert E. Krieger.

Gedik, N., and Goktas, Y. (2011). Online learning for Turkish public education (Ages 5-18). In M. K. Barbour, L. Hasler Waters, and J. Hunt (Eds.), *Online and blended learning: Case studies from K-12 schools around the world* (pp. 81-96). Vienna, VA: International Association for K-12 Online Learning.

Gedik, N., Kiraz, E, and Ozden, M.Y. (2013). Design of a blended learning environment: Considerations and implementation issues. *Australasian Journal of Educational Technology*, 29 (1).

Gee, J. P. (2003). What video games have to teach us about learning and literacy. *Computers in Entertainment (CIE),* 1(1), 20-20.

Gellman-Danley, B. and Fetzner, M.J., (1998). Asking the really tough questions: Policy issues for distance learning. *Online Journal of Distance Learning Administration,* 1(1), p.2.

Georgouli, K., Skalkidis, I., and Guerreiro, P. (2008). A framework for adopting LMS to introduce e-learning in a traditional course. *Journal of Educational Technology and Society,* 11(2), 227-240.

Ghirardini, B. (2011). *E-learning methodologies. A guide for designing and developing e-learning courses.* Food and Agriculture Organization of the United Nations. https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf

Ghosh, R. (1996). *Redefining multicultural education.* Toronto: Harcourt Brace and Company.

Gilbert, B. (2015). Online learning revealing the benefits and challenges. *Education Masters.* Paper 303.

Gilbert, J., Morton, S., and Rowley, J. (2007). e-Learning: The student experience. *British Journal of Educational Technology,* 38(4), 560-573.

Gillen, J., and Kucirkova, N. (2018). Percolating spaces: creative ways of using digital technologies to connect young children's school and home lives. British *Journal of Educational Technology,* 49(5), 834–846.

Gingrasso, S. (2020). Practical resources for dance educators! Choreographing our way through COVID-19. *Dance Education in Practice,* 6(3), 27-31.

Girlando, A., and Eduljee, N. B. (2016). Efficacy of using digital technology in the classroom. *Asian Journal of Multidisciplinary Studies,* 4(5), 177-186.

Glaser, B. G. (1978). *Theoretical Sensitivity.* Mill Valley, CA: The Sociology Press.

Glaser, B. G. (1998). *Doing Grounded Theory: Issues and Discussions.* Mill Valley, CA: Sociological Press.

Glaser B. G. (2005). *The grounded theory perspective III: Theoretical coding.* Mill Valley, CA: Sociology Press.

Glaser, B.G., and Holton, J. (2004). Remodelling grounded theory. *Forum: Qualitative Social Research*, 5(2), Article 4. http://www.qualitative-research.net/fqs-texte/2-04/2-04glaser-e.htm

Glaser, B. G., and Strauss, A. L. (1967). *The discovery of grounded theory.* Chicago: Aldine.

Gleason, P. (1983). Identifying identity: A semantic history. *The Journal of American History*, 69(4), 910-931.

Glesne, C. (2016). *Becoming qualitative researchers: An introduction*. Pearson. One Lake Street, Upper Saddle River, New Jersey 07458.

Goldkuhl, G., and Cronholm, S. (2010). Adding theoretical grounding to grounded theory: Toward multi-grounded theory. *International Journal of Qualitative Methods,* 9(2), 187-205.

Goldkuhl, G., and Lind, M. (2010, June). A multi-grounded design research process. In *International Conference on Design Science Research in Information Systems* (pp. 45-60). Springer, Berlin, Heidelberg.

Gonzalez, T., De La Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., and Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PLoS One,* 15(10), e0239490.

Goodyear, P., Jones, C., Asensio, M., Hodgson, V., and Steeples, C. (2001). *Effective networked learning in higher education: notes and guidelines.*

Networked Learning in Higher Education Project (JCALT). http://csalt.lancs.ac.uk/jisc/docs/ guidelines_final.doc

Goodyear, P., Jones, C., Asensio, M., Hodgson, V., and Steeples, C. (2005). Networked learning in higher education: Students' expectations and experiences. *Higher Education,* 50(3), 473-508.

Goulding, C. (2005). Grounded theory, ethnography and phenomenology: A comparative analysis of three qualitative strategies for marketing research. *European Journal of Marketing,* 39 (3/4): 294–308.

Goulding, C. (2017). Navigating the complexities of grounded theory research in advertising. *Journal of Advertising,* 46(1), 61-70.

Gourlay, L., Rodríguez-Illera, J. L., Barberà, E., Bali, M., Gachago, D., Pallitt, N., ... and Knox, J. (2021). Networked learning in 2021: a community definition. *Postdigital Science and Education,* 3(2), 326-369.

Gouldner, A., W. (1955). *Wildcat strike: A study in worker-management relationships.* London: Routledge.

Govindasamy, T. (2001). Successful implementation of e-learning: Pedagogical considerations. *The Internet and Higher Education,* 4(3-4), 287-299.

Grandzol, J. R., and Grandzol, C. J. (2006). Best practices for online business education. *International Review of Research in Open and Distributed Learning,* 7(1), 1-18.

Grant, M. and Thornton, H. (2007). Best practices in undergraduate adult-centered online learning: Mechanisms for course design and delivery. *Journal of Online Learning and Teaching,* 4(3), 346 - 356.

Gratsiouni, D., Koutsouba, M., Venetsanou, F., and Tyrovola, V. (2016). Learning and digital environment of dance–the case of Greek traditional dance in YouTube. *European Journal of Open, Distance and E-learning,* 19(2), 80-95.

Grayson, L., and Gomersall, A. (2003). *A Difficult Business: finding the evidence for social science reviews, Working Paper 19.* London: ESRC UK Centre for Evidence Based Policy and Practice.

Graziano, P. A., Reavis, R. D., Keane, S. P., and Calkins, S. D. (2007). The role of emotion regulation in children's early academic success. *Journal of School Psychology,* 45(1), 3-19.

Grazzani, I., Ornaghi, V., Conte, E., Pepe, A., and Caprin, C. (2018). The relation between emotion understanding and theory of mind in children aged 3 to 8: The key role of language. *Frontiers in Psychology*, 9(724), 1–10.

Greene, M. (1969). Introduction. In Polanyi, M. Knowing and being. (Green, M. Ed.). Chicago: The University of Chicago Press.

Greener, S.L. (2007). Exploring Readiness for Online Learning. (Thesis EdD, University of Brighton).

Greenhalgh, T., and Peacock, R. (2005). Effectiveness and efficiency of search methods in systematic reviews of complex evidence: audit of primary sources. *Bmj,* 331(7524), 1064-1065.

Greenhow, C., and Askari, E. (2017). Learning and teaching with social network sites: A decade of research in K-12 related education. *Education and Information Technologies,* 22, 623-645.

Greig, A. D., Taylor, M. J., and MacKay, T. (2007). *Doing research with children.* Sage.

Grieshaber, S., and Cannella, G. S. (Eds.). (2001). *Embracing identities in early childhood education: Diversity and possibilities.* Teachers College Press.

Gross, J. (2002). *Special educational needs in the primary school: A practical guide.* Open University Press.

Grigorovici, D., Nam, S., and Russill, C. (2003). The effects of online syllabus interactivity on students' perception of the course and instructor. *Internet and Higher Education,* 6(2), 41-52.

Gros, B., and García-Peñalvo, F.J. (2016). Future trends in the design strategies and technological affordances of E-learning. *Learning, Design, and Technology: An International Compendium of Theory, Research, Practice, and Policy*. https://doi.org/10.1007/978-3-319-17727-4_67-1

Guba, E. G. and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In Denzin, N.K. and Lincoln, Y.S., *Handbook of qualitative research* (3rd ed.) California: Sage, (105 – 117).

Guba, E. G., and Lincoln, Y. S. (1989). *Fourth Generation Evaluation.* Newbury Park, CA, USA: Sage.

Guba, E., and Lincoln, Y. (2005). Controversies, contradictions, confluences. In N. Denzin and Y. Lincoln. *The Sage Handbook of Qualitative Research* (3rd ed.). (pp.191 -215). London, United Kingdom: Sage Publications.

Gulick, W. (1986). Michael Polanyi's Theory of Meaning and Reality. Prolegomenon to Exploiting Polanyi's Resources on Ultimate Reality and Meaning. *Ultimate Reality and Meaning,* 9(4), 262-275.

Guralnik, D. B. (1984). *Websters new world dictionary of the American language.* New York: Simon and Schuster, B.

Guy-Evans, O. (2020, November 09). Bronfenbrenner's ecological systems theory. *Simply Psychology.* https://www.simplypsychology.org/Bronfenbrenner.html

Hager, P. (2005). Philosophical accounts of learning. *Educational Philosophy and Theory,* 37(5), 649-666.

Hager, P., and Hodkinson, P. (2009). Moving beyond the metaphor of transfer of learning. *British Educational Research Journal,* 35(4), 619-638.

Haggbloom, S. J., Warnick, R., Warnick, J. E., Jones, V. K., Yarbrough, G. L., Russell, T. M., ... & Monte, E. (2002). The 100 most eminent psychologists of the 20th century. *Review of General Psychology*, *6*(2), 139-152.

Hallberg, L. R. (2006). The “core category” of grounded theory: Making constant comparisons. *International Journal of Qualitative Studies on Health and Well-being,* 1(3), 141-148.

Hall, B. (1997). *The web-based training cookbook with CD-ROM.* John Wiley and Sons, Inc.

Hall, S. (1989). Ethnicity: Identity and difference. *Radical America,* 23(4), 9-20.

Hall, B. W., and Hewitt-Gervais, C. M. (2000). The application of student portfolios in primary-intermediate and self-contained-multiage team classroom environments: Implications for instruction, learning, and assessment. *Applied Measurement in Education,* 13(2), 209–228.

Hannafin, M. J. (1992). Emerging technologies, ISD, and learning environments: Critical perspectives. *Educational Technology Research and Development,* 40(1), 49-63.

Hand, H. (2003). The mentor’s tale: a reflexive account of semi-structured interviews. *Nurse Researcher*, 10(3), 15.

Harker, R. (2002). *Including children in social research. Highlight No 193.* London: National Children’s Bureau.

Harper, D. (2002, March). *Generation www. Y* White Paper 2. Olympia, WA: Generation Y Organization.

Harrell, I. L., and Bower, B. L. (2011). Student characteristics that predict persistence in community college online courses. *American Journal of Distance Education,* 25(3), 178-191.

Harrell, S., and Bynum, Y. (2018). Factors affecting technology integration in the classroom. *Alabama Journal of Educational Leadership,* 5, 12-18.

Harris, J., Mishra, P., and Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology Integration Reframed. *Journal of Research on Technology in Education,* 41(4), 393–416.

Harris, N. B. (2018). *The deepest well: Healing the long-term effects of childhood adversity.* New York, NY: Houghton Mifflin Harcourt.

Harrison, E., and McTavish, M. (2018). 'i'Babies: Infants' and toddlers' emergent language and literacy in a digital culture of iDevices. *Journal of Early Childhood Literacy,* 18(2), 163–188.

Hart, C. M., Berger, D., Jacob, B., Loeb, S., and Hill, M. (2019). Online learning, offline outcomes: Online course taking and high school student performance. *Aera Open,* 5(1), 2332858419832852.

Hartley, K., and Bendixen, L. D. (2001). Educational research in the Internet age: examining the role of individual characteristics. *Educational Researcher,* 30(9), 22–26.

Hartman, G. (1997). *The fateful question of culture.* New York: Columbia University Press.

Harvey, D., Greer, D., Basham, J., and Hu, B. (2014). From the student perspective: Experiences of middle and high school students in online learning. *American Journal of Distance Education,* 28(1), 14–26.

Hassanzadeh, A., Kanaani, F., and Elahi, S. (2012). A model for measuring e-learning systems success in universities. *Expert systems with Applications,* 39(12), 10959-10966.

Hatzigianni, M., Gregoriadis, A., Karagiorgou, I., and Chatzigeorgiadou, S. (2018). Using tablets in free play. The implementation of the digital play

framework in Greece. *British Journal of Educational Technology,* 49(5), 929–942.

Hawkins, A., Barbour, M. K., and Graham, C. R. (2011). Strictly business: Teacher perceptions of interaction in virtual schooling. In *Society for Information Technology and Teacher Education International Conference* (pp. 1520-1523). Association for the Advancement of Computing in Education (AACE).

Hayes, M., and Whitebread, D. (2006). *ICT in the Early Years.* Maidenhead: Open university press.

Hayes, N., O'Toole, L., and Halpenny, A. M. (2017). *Introducing Bronfenbrenner: A guide for practitioners and students in early years education*. Taylor and Francis.

Haythornthwaite, C., and Andrews, R. (2011). *E-learning theory and practice.* Sage Publications.

Haythornwaite, C., Kazmer, M., Robins, J., and Shoemaker, S. (2000). Community development among distance learners: Temporal and technological dimensions. *Journal of Computer-Mediated Communication,* 6.

Haythornthwaite, C., Andrews, R., Fransman, J., and Meyers, E. M. (Eds.). (2016). *The Sage handbook of e-learning research.* (2nd Ed). Sage.

Heath, H. and Cowley, S. (2004). Developing a grounded theory approach: a comparison of Glaser and Strauss. *International Journal of Nursing Studies,* 41, 141–150.

Heatly, MC and Votruba-Drzal, E. (2018). Developmental precursors of engagement and motivation in fifth grade: Linkages with parent- and teacher-child relationships. *Journal of Applied Developmental Psychology,* 60, 144–156.

Heilporn, G., Lakhal, S., and Bélisle, M. (2021). An examination of teachers' strategies to foster student engagement in blended learning in higher

education. *International Journal of Educational Technology in Higher Education,* 18(1).

Hellawell, D. (2006). Inside-out: Analysis of the insider-outsider concept as a heuristic device to develop reflexivity in students doing qualitative research. *Teaching in Higher Education,* 11(4), 483-494.

Henderson, R. (2011). Classroom pedagogies, digital literacies and the home-school digital divide. *International Journal of Pedagogies and Learning*, 6(2), 152–161.

Henning, E., Van Rensburg, W. and Smit, B. (2004). *Finding Your Way in Qualitative Research.* Van Schaik Publishers, Pretoria.

Henwood, K., and Pidgeon, N. (2003). Grounded theory in psychological research. In P. M. Camic, J. E. Rhodes, and L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 131–155). Washington, DC: American Psychological Association.

Hernandez, C. A. (2009). Theoretical coding in grounded theory methodology. *Grounded Theory Review,* 8(3).

Herrington, A., Herrington, J., Oliver, R., Stoney, S., and Willis, J. (2001). Quality guidelines for online courses: The development of an instrument to audit online units. https://ro.ecu.edu.au/cgi/viewcontent.cgi?article=5814andcontext=ecuworks

Herrington, J. and Standen, P. (2000). Moving from an instructivist to a constructivist multimedia learning environment. *Journal of Educational Multimedia and Hypermedia,* 9(3), 195–205.

Herrmann, A. W. (1989). The participant observer as “insider”: Researching your own classroom. Paper presented at *Annual Meeting of the Conference on College Composition and Communication*, Seattle, WA.

Hew, K. F., Jia, C., Gonda, D. E., and Bai, S. (2020). Transitioning to the “new normal” of learning in unpredictable times: pedagogical practices and learning performance in fully online flipped classrooms. *International Journal of Educational Technology in Higher Education,* 17(1), 1-22.

Heymann, P., Bastiaens, E., Jansen, A., van Rosmalen, P., and Beausaert, S. (2022). A conceptual model of students’ reflective practice for the development of employability competences, supported by an online learning platform. *Education+ Training,* 64(3), 380-397.

Hiltz, S. R. (1994). *The virtual classroom: Learning without limits via computer networks.* Intellect Books.

Hill, J. R. (2002). Overcoming obstacles and creating connections: community building in web-based learning environments. *Journal of Computing in Higher Education,* 14(1), 67–86.

Hill, D., Ameenuddin, N., Chassiakos, Y. L. R., Cross, C., Radesky, J., Hutchinson, J., ... and Swanson, W. S. (2016). Media use in school-aged children and adolescents. *Pediatrics,* 138(5).

Hitchcock, C., Meyer, A., Rose, D., and Jackson, R. (2002). Providing new access to the general curriculum: Universal design for learning. *Teaching Exceptional Children,* 35(2), 8-17.

HITSA. (2020). *e-education-factsheet-aug2020.* https://e-estonia.com/wp-content/uploads/e-education-factsheet-aug2020.pdf

Hodgson, A. and Spours, K. (2009). Collaborative local learning ecologies: Reflections on the governance of lifelong learning in England (IFLL Sector Paper 6) Leicester: National Institute of Adult Continuing Education. http://www.niace.org.uk/lifelonglearninginquiry/docs/IFLL-Sector-Paper6.pdf

Hohlfeld, T. N., Ritzhaupt, A. D., and Barron, A. E. (2010). Connecting schools, community, and family with ICT: Four-year trends related to school level and SES of public schools in Florida. *Computers and Education,* 55(1), 391-405.

Holmberg, B. (1989). *Theory and practice of distance education.* London: Routledge.

Holton, J. A. (2007). The coding process and its challenges. In A. Bryant, and K. Charmaz (Eds.), *The Sage handbook of grounded theory, 3* (pp. 265-289). Thousand Oaks, CA: Sage.

Holton, J. A. (2010). The Coding Process and Its Challenges. *The Grounded Theory Review,* 9(1): 21- 40.

Horvath, D., Stirling, E., Bevacqua, J., Coldrey, M., Buultjens, P., Buultjens, M., and Larsen, A. (2019). Plan, prepare and connect: How investing in understanding and tracking the evolving needs of online students informs the development of targeted programs for transition and success. *Journal of University Teaching and Learning Practice,* 16(1), 1–14.

Hosie, P., Schibeci, R., and Backhaus, A. (2005). A framework and checklists for evaluating online learning in higher education. *Assessment and Evaluation in Higher Education,* 30(5), 539-553.

House, R. (2012). The inappropriateness of ICT in early childhood: Arguments from philosophy, pedagogy, and developmental research. In Suggate, S., & Reese, E. (Eds.), *Contemporary debates in childhood education and development,* (pp. 119-134). Routledge.

Howell, D. (2001). Elements of effective e-learning: Three design methods to minimize side effects of online courses. *College Teaching,* 49(3), 87-90.

Howes, C. (2011). Social play of children with adults and peers. In Pellegrini, A. D., and Nathan, P. E. (Eds.). *The Oxford handbook of the development of play.* Oxford library of psychology.

Hrastinski, S. (2008). Asynchronous and synchronous e-learning. A study of asynchronous and synchronous e-learning methods discovered that each supports different purposes. *Educause Quarterly,* 31(4), 51-55.

Huang, W., and Mille, A. (2006). ConKMeL: a contextual knowledge management framework to support multimedia e-Learning. *Multimedia Tools and Applications,* 30, 205-219.

Huddy, A. (2017). Digital technology in the tertiary dance technique studio: expanding student engagement through collaborative and co-creative experiences. *Research in Dance Education,* 18(2), 174-189.

Hugly, P., and Sayward, C. (1987). Relativism and Ontology. *The Philosophical Quarterly (1950-),* 37(148), 278–290.

Hung, W. (2013). Problem-based learning: A learning environment for enhancing learning transfer. *New Directions for Adult and Continuing Education,* 137, 27-38.

Hung, M. L., Chou, C., Chen, C. H., and Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers and Education,* 55(3), 1080-1090.

ICAO (International Civil Aviation Organization). (2019). *Guidelines for the development of online courses training. Development guide.* Competency-based training methodology. https://www.icao.int/NACC/Documents/Meetings/2019/CATCWG5/Guidelines%20for%20the%20Development%20of%20Online%20Courses_V1_Feb2019.pdf

Idemudia, E. C., Adeola, O., and Achebo, N. (2019). The online educational model and drivers for online learning. *International Journal of Business Information Systems,* 32(2), 219-237.

Igbaria, M., and Tan, M. (1997). The consequences of information technology acceptance on subsequent individual performance. *Information and Management*, 32(3), 113–121.

Iglesias-Pradas, S., Ruiz-de-Azcárate, C., and Agudo-Peregrina, Á. F. (2015). Assessing the suitability of student interactions from Moodle data logs as

predictors of cross-curricular competencies. *Computers in Human Behavior,* 47, 81-89.

Ilomäki, L., and Lakkala, M. (2020). Finnish upper secondary school students' experiences with online courses. *Education in the North,* 27(2), 73–91.

Imel, S. (2002). *E-learning—trends and issues alert. (Report No-40).* Washington, DC: Office of Educational Research and Improvement.

Immordino-Yang, M. H., McColl, A., Damasio, H., and Damasio, A. (2009). Neural correlates of admiration and compassion. *Proceedings of the National Academy of Sciences of the United States of America,* 106(19), 8021–8026.

iNACOL. International Association for K-12 Online Learning. (2011a). *National standards for quality online courses version 2.* Vienna, VA: Author. http://www.inacol.org/wpcontent/uploads/2015/02/national-standards-for-quality-online-courses-v2.pdf

iNACOL. (International Association for K-12 Online Learning. (2011b). *National standards for quality online teaching.* Vienna, VA: iNACOL.

Ives, B., Olson, M., and Baroudi, J. J. (1983). The measurement of user information satisfaction. *Communications of the ACM,* 26(10), 785–793.

Jaggars, S. S., and Xu, D. (2016). How do online course design features influence student performance? *Computers and Education,* 95, 270-284.

Jamshed, S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy,* 5(4), 87.

Janicki, T., and Liegle, J. O. (2001). Development and evaluation of a framework for creating Web-based learning modules: A pedagogical and systems approach. *Journal of Asynchronous Learning Networks,* 5(1).

Jarvis, P. (2012). *Paradoxes of learning: On becoming an individual in society.* Routledge.

Jézégou A. (2010). Community of Inquiry in e-Learning: A critical analysis of the Garrison and Anderson model. *Journal of Distance Education,* 24(3), 1-18.

Jiang, Y., and Monk, H. (2015). Young Chinese-Australian children's use of technology at home: Parents' and grandparents' views. *Asia-Pacific Journal of Research in Early Childhood Education,* 10(1), 87-106.

Johansson, B., Marton, F. and Svensson, L. (1985). An approach to describing learning as change between qualitatively different conceptions. In West, L. and Pines, L. (Eds.) *Cognitive structure and conceptual change.* Academic Press, Orlando.

Johnson, B. E. (2011). The speed and accuracy of voice recognition software-assisted transcription versus the listen-and-type method: a research note. *Qualitative Research,* 11(1), 91-97.

Johnson, C. M. (2001). A survey of current research on online communities of practice. *The Internet and Higher Education,* 4(1), 45-60.

Johnson, L., Becker, S. A., Estrada, V., and Freeman, A. (2015). *NMC horizon report: 2015 K-12 Edition.* The New Media Consortium. https://files.eric.ed.gov/fulltext/ED593612.pdf

Johnson, D. W., and Johnson, R. T. (2002). Learning together and alone: Overview and meta-analysis. *Asia Pacific Journal of Education*, 22(1), 95-105.

Johnson, C. C., Walton, J. B., Strickler, L., and Elliott, J. B. (2023). Online teaching in K-12 education in the United States: A systematic review. *Review of Educational Research,* 93(3), 353-411.

Joint Committee on Standards for Educational Evaluation. (1981). *Standards for evaluations of educational programs, projects and materials.* N.Y.: McGraw-Hill.

Jonassen, D. (1996). *Computers in the classroom: Mindtools for critical thinking.* Englewood Cliffs, NJ: Prentice-Hall.

Jones, B. D. (2010). An examination of motivation model components in face-to-face and online instruction. *Electronic Journal of Research in Educational Psychology,* 8(3), 915–944.

Jones, M., and Alony, I. (2011). Guiding the use of Grounded Theory in Doctoral studies–an example from the Australian film industry. *International Journal of Doctoral Studies,* 6, 94–114.

Joyes, G., Gray, L., Hartnell-Young, E., (2010). Effective practice with e-portfolios: how can the UK experience inform implementation? *Australasian Journal of Educational Technology,* 26 (1), 15–27.

Justice, C., Rice, J., Warry, W., Inglis, S., Miller, S., and Sammon, S. (2007). Inquiry in higher education: Reflections and directions on course design and teaching methods. *Innovative Higher Education,* 31, 201-214.

Juwah, C. (2003). Using peer assessment to develop skills and capabilities. *USDLA journal,* 17(1).

Kanuka, H., Liam Rourke, L., and Laflamme, E. (2007). The influence of instructional methods on the quality of online discussion. *British Journal of Educational Technology,* 38(2), 260271.

Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., ... and Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. *Children and youth services review,* 116, 105194.

Kaplan, A. (1964). *The conduct of inquiry.* San Francisco, CA, Chandler Publishing Co.

Kaptelinin, V., and Nardi, B. (2018). Activity theory as a framework for human-technology interaction research. *Mind, Culture, and Activity,* 25(1), 3–5.

Katzenstein, P. J. (Ed.). (1996). *The culture of national security: Norms and identity in world politics*. Columbia University Press.

Kauffman, H. (2015). A review of predictive factors of student success in and satisfaction with online learning. *Research in Learning Technology,* 23.

Keeler, C. G. (2003). Developing and using an instrument to describe instructional design elements of high school online courses. (Ph.D. thesis, University of Oregon).

Keeler, C. G., Richter, J., Anderson-Inman, L., Horney, M. A., Ditson, M. (2007). Exceptional Learners: Differentiated Instruction Online. In C. Cavanaugh and R. Blomeyer (Eds.) *What works in K-12 online learning* (pp. 125−178). Eugene, OR: International Society for Technology in Education.

Keegan, D. (1983). Six distance education theorists. Zentrales Institut fur Fernstudienforschung (ZIFF), Arbeitsbereich: Fernstudienentwicklung.

Kegan, R. (2018). What “form” transforms? A constructive-developmental approach to transformative learning. In Illeris, K., *Contemporary theories of learning: Learning Theorists … In Their Own Words* (2nd ed.). Routledge. London.

Kellogg, L., and Politoski, K. (2002). Virtual schools across America: Trends in K-12 online education. https://distance-educator.com/virtual-schools-across-america-trends-in-k-12-online-education-2002/

Kelly, K. (1994). *Out of control: The rise of neo-biological civilization.* Addison-Wesley Longman Publishing Co., Inc.

Kennedy, E. (2010). Improving literacy achievement in a high-poverty school: empowering classroom teachers through professional development. *Reading Research Quarterly,* 45(4), 384–387.

Kenney, L. (2011). Elementary education, there’s an app for that: communication technology in the elementary school classroom. *The Elon Journal of Undergraduate Research in Communications,* 2(1), 67-75.

Kenny, M., and Fourie, R. (2014). Tracing the history of grounded theory methodology: From formation to fragmentation. *The Qualitative Report,* 19(52), 1.

Kenny, M., and Fourie, R. (2015). Contrasting classic, Straussian, and constructivist grounded theory: Methodological and philosophical conflicts. *The Qualitative Report,* 20(8), 1270-1289.

Kentnor, H. E. (2015). Distance education and the evolution of online learning in the United States. *Curriculum and Teaching Dialogue,* 17(1), 21-34.

Kerka, S. (1996). *Distance learning, the Internet, and the worldwide web.* Columbus, OH: ERIC Clearinghouse.

Kerr, S. (2011). High school online: Pedagogy, preferences, and practices of three online teachers. *Journal of Educational Technology Systems,* 39(3), 221-244.

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., and Al-Wutayd, O. (2020). The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: A qualitative study exploring medical students' perspectives. *BMC Medical Education,* 20(1), 1–10.

Khalil, M. K., and Elkhider, I. A. (2016). Applying learning theories and instructional design models for effective instruction. *Advances in Physiology Education,* 40(2), 147-156.

Khan, B. H. (2005a). *E-learning quick checklist.* IGI Global.

Khan, B.H. (2005b). Learning features in an open, flexible, and distributed environment. *AACE Journal,* 13(2), 137-153.

Khurana, C. (2016). Exploring the role of multimedia in enhancing social presence in an asynchronous online course. (Doctoral Dissertation, The State

University of New Jersey, Rutgers, U.S). https://search-proquest-com.simsrad.net.ocs.mq.edu.au/docview/1844392065?pq-origsite=primo.

Kidd, C., and Hayden, B. Y. (2015). The psychology and neuroscience of curiosity. *Neuron,* 88(3), 449-460.

Kim, C. (2012). The role of affective and motivational factors in designing personalized learning environments. *Educational Technology Research and Development,* 60(4), 563-584.

Kimmons, R., and Caskurlu, S. (2020). *The Students' Guide to Learning Design and Research.* BYU Instructional Psychology and Technology Department.

Kirschner, P. A. (2002). Cognitive load theory: Implications of cognitive load theory on the design of learning. *Learning and instruction,* 12(1), 1-10.

Kivunja, C., and Kuyini, A. B. (2017). Understanding and Applying Research Paradigms in Educational Contexts. *International Journal of Higher Education,* 6(5), 26-41.

'Klobas, J. E., and McGill, T. J. (2010). The role of involvement in learning management system success. *Journal of Computing in Higher Education,* 22(2), 114–134.

Ko, S., and Rossen, S. (2017). *Teaching online: A practical guide.* Taylor and Francis.

Kochhar-Bryant, C. A., and Heishman, A. (Eds.). (2010). Effective collaboration for educating the whole child. Corwin Press.

Kock, N. (2005). Media richness or media naturalness? The evolution of our biological communication apparatus and its influence on our behavior toward e-communication tools. *IEEE Transactions on Professional Communication*, 48(2), 117-130.

Kori, K., Pedaste, M., Leijen, Ä., and Mäeots, M. (2014). Supporting reflection in technology-enhanced learning. *Educational Research Review,* 11, 45-55.

Koro-Ljungberg, M., Yendol-Hoppey, D., Smith, J. J., and Hayes, S. B. (2009). (E)pistemological awareness, instantiation of methods, and uninformed methodological ambiguity in qualitative research projects. *Educational Researcher,* 38(9), 687-699.

ʼKruger-Ross, M. J., and Waters, R. D. (2013). Predicting online learning success: Applying the situational theory of publics to the virtual classroom. *Computers and Education,* 61, 176-184.

Kumar, A., Kumar, P., Palvia, S. C. J., and Verma, S. (2017). Online education worldwide: Current status and emerging trends. *Journal of Information Technology Case and Application Research,* 19(1), 3-9.

Kurt, G. (2016). *Technological pedagogical content knowledge (TPACK) development of preservice middle school mathematics teachers in statistics teaching: A microteaching lesson study.* https://educationaltechnology.net/technological-pedagogical-content-knowledge-tpack-framework/

Kwon, K., and Lease, A. M. (2014). Perceived influence of close friends, well-liked peers, and popular peers: Reputational or personal influence? *Journal of Social and Personal Relationships,* 31(8), 1116-1133.

Latour, B. (1999). *Pandora's Hope: essays on the reality of social science.* Cambridge: Harvard University Press.

Lau, J., Yang, B., and Dasgupta, R. (2020). Will the coronavirus make online education go viral. *Times Higher Education*, 12.

Lave, J., and Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Lebrun, M. (2007). Quality towards an expected harmony: Pedagogy and technology speaking together about innovation. *Association for the Advancement of Computing in Education Journal,* 15(2), 115-130.

Lee, M. C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers and Education*, 54(2), 506-516.

Lee, H. Y., Chung, C. Y., and Wei, G. (2022). Research on technological pedagogical and Content Knowledge: A Bibliometric Analysis from 2011 to 2020. *Frontiers in Education,* 7, 765233.

Lee, R., and Dashew, B. (2011). Designed learner interactions in blended course delivery. *Journal of Asynchronous Learning Networks,* 15(1), 72-80.

Legris, P., Ingham, J., and Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information and Management,* 40(3), 191–204.

Lei, J. (2010). Quantity versus quality: A new approach to examine the relationship between technology use and student outcomes. *British Journal of Educational Technology,* 41(3), 455-472.

Leotti, L. A., Iyengar, S. S., and Ochsner, K. N. (2010). Born to choose: The origins and value of the need for control. *Trends in Cognitive Sciences,* 14(10), 457-463.

Levers, M. (2013). Philosophical paradigms, grounded theory on emergence. *Sage Open,* 3(4).

Levi, I., I. Chahine, L. Garrett, and H. Wang. (2016). Technology, Active Learning, and Retention in General Education Mathematics. *Journal of Computers in Mathematics and Science Teaching,* 35(1), 81–105.

Levy, S., (2003). Six Factors to Consider when Planning Online Distance Learning Programs in Higher Education. *Online Journal of Distance Learning Administration,* 2(1).

Li, Z. (2020). Teaching introduction to dance studies online under COVID-19 restrictions. *Dance Education in Practice,* 6(4), 9-15.

Li, L. C., Grimshaw, J. M., Nielsen, C., Judd, M., Coyte, P. C., and Graham, I. D. (2009). Evolution of Wenger's concept of community of practice. *Implementation Science,* 4, 1-8.

Li, N., Marsh, V., and Rienties, B. (2016). Modelling and managing learner satisfaction: Use of learner feedback to enhance blended and online learning experience. *Decision Sciences Journal of Innovative Education,* 14(2), 216-242.

Li, X., Du, J., and Long, H. (2019). Green development behavior and performance of industrial enterprises based on grounded theory study: evidence from China. *Sustainability,* 11(15), 4133.

Lim, C. P. (2004). Engaging learners in online learning environments. *TechTrends*, 48(4), 16.

Lim, H., Lee, S. G., and Nam, K. (2007). Validating E-learning factors affecting training effectiveness. *International Journal of Information Management,* 27(1), 22-35.

Limayem, M., and Cheung, C. M. (2008). Understanding information systems continuance: The case of Internet-based learning technologies. *Information Management,* 45(4),227–232.

Lin, H. (2007). The ethics of instructional technology: Issues and coping strategies experienced by professional technologists in design and training situations in higher education. *Educational Technology Research and Development,* 55(5), 411–437.

Lincoln, Y.S. and Guba, E.G. (1985). *Naturalistic Inquiry.* Sage Publication, Beverly Hills, CA.

Lindfors, M., and Pettersson, F. (2021). K–12 Students' Experiences of the Synchronous Remote Teaching and Learning Environment. *Journal of Online Learning Research,* 7(3), 249-263.

Lister, M. (2014). Design of e-learning and online courses: a literature analysis. *MERLOT Journal of Online Learning and Teaching,* 10(4).

Locke, K. (2001). *Grounded theory in management research.* Thousand Oaks CA.: Sage Publications.

Lockee, B., Moore, M., and Burton, J. (2001). Old concerns with new distance education research. *Educause Quarterly,* 24(2), 60-68.

Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin,* 116(1), 75.

Lombardi, M. M. (2007). Authentic learning for the 21st century: An overview. *Educause Learning Initiative,* 1(2007), 1-12.

Louviere, G. (2012). Ecosystems in the learning environment. *Educational Facility Planner,* 45(1/2), 10-13.

Lowenthal, P. R., and Davidson-Shivers, G. V. (2019). Strategies used to evaluate online education. In M. G. Moore and W. C. Diehl (Eds.), *Handbook of Distance Education* (4th ed.) pp. 415 –427). Routledge.

Lowenthal, P. R., Humphrey, M., Conley, Q., Dunlap, J. C., Greear, K., Lowenthal, A., and Giacumo, L. A. (2020). Creating accessible and inclusive online learning: Moving beyond compliance and broadening the discussion. *Quarterly Review of Distance Education,* 21(2).

Lowney, C. (2013). From epistemology to ontology to epistemontology. *Tradition and Discovery: The Polanyi Society Periodical,* 40(1), 16-29.

Lowry, P. B., Karuga, G. G., and Richardson, V. J. (2007). Assessing leading institutions, faculty, and articles in premier information systems research journals. *Communications of the Association for Information Systems,* 20(16), 142.

Luft, J., and Ingham, H. (1961). The johari window. *Human Relations Training News*, 5(1), 6-7.

Lupton, D., and Williamson, B. (2017). The datafied child: The dataveillance of children and implications for their rights. *New Media and Society,* 19(5), 780–794.

Luvmour, J. (2001). Education and the consciousness of the developing child. *ENCOUNTER: Education for Meaning and Social Justice,* 24(4), 15-23.

MacDonald, C. J., Stodel, E. J., Farres, L. G., Breithaupt, K., and Gabriel, M. A. (2001). The demand-driven learning model: A framework for web-based learning. *The Internet and Higher Education,* 4(1), 9–30.

MacDonald, C. J., and Thompson, T. L. (2005). Structure, content, delivery, service, and outcomes: Quality e-learning in higher education. *International Review of Research in Open and Distance Learning,* 6(2), 1–25.

MacIntyre, A. (1981). *After Virtue: A Study in Moral Theory.* London: Gerald Duckworth and Co.

Magnussen, L., Ishida, D., and Itano, J. (2000). The impact of the use of inquiry-based learning as a teaching methodology on the development of critical thinking. *Journal of Nursing Education,* 39(8), 360-364.

Mahanta, D., and Ahmed, M. (2012). E-Learning Objectives, Methodologies, Tools and its Limitation. *International Journal of Innovative Technology and Exploring Engineering,* 46-51.

Makarem, S. C. (2015). Using online video lectures to enrich traditional face-to-face courses. *International Journal of Instruction,* 8(2), 155-164.

Mansaray, A. A., Hollingworth, S., Allen, K., and Rose, A. (2011). Parents' Perspectives on Technology and Children's Learning in the Home: Social class and the Role of the Habitus. *Journal of Computer Assisted Learning,* 27(4).

Manson, C. (2000, July). Schools with a future – A model for IT investment effectiveness. In *ACEC 2000* conference. Melbourne, Australia.

Mariani, A. W., Terra, R. M., and Pêgo-Fernandes, P. M. (2012). E-Learning: from useful to indispensable tool. *Sao Paulo Medical Journal,* 130, 357-359.

Marsh, J., Plowman, L., Yamada-Rice, D., Bishop, J., Lahmar, J., and Scott, F. (2018). Play and creativity in young children's use of apps. *British Journal of Educational Technology,* 49(5), 870-882.

Martin, J. (2004). Self-regulated learning, social cognitive theory, and agency. *Educational Psychologist,* 39(2), 135-145.

Martin, F., and Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning,* 22(1), 205-222.

Martin, F., and Bolliger, D. U. (2022). Developing an online learner satisfaction framework in higher education through a systematic review of research. *International Journal of Educational Technology in Higher Education,* 19(1), 1-21.

MarylandOnline. (2013). *Quality matters overview.* Annapolis, MD: Authors. https://www.qualitymatters.org/applying-rubric15/download/QM_Overview_for%20Current%20Subscribers_AE2013.pdf

Mascheroni, G. (2020). Datafied childhoods: Contextualising datafication in everyday life. *Current Sociology,* 68(6), 798-813.

Mascheroni, G., and Holloway, D. (Eds.). (2019). *The Internet of toys: Practices, affordances and the political economy of children's smart play*. New York: Palgrave Macmillan.

Masrom, M., Zainon, O. and Rahiman, R. (2008). E-learning critical success factors: institutional and technological aspects. *E-Learning Issues in Malaysian Higher Education,* 49-63.

Mather, M. (2000). In-service to go: Professional development online. *Technology and Learning,* 20(6), 18–28.

Matulich, E., Papp, R., and Haytko, D. L. (2008). Continuous improvement through teaching innovations: A requirement for today's learners. *Marketing Education Review,* 18(1), 1-7.

Maxwell, A.J. (2005). *Qualitative Research Design: An Interactive Approach.* Sage Publication, London.

Maxwell, J. A. (2008). Designing a qualitative study. In Bickman, L., and Rog, D. J. (Eds.) *The SAGE handbook of applied social research methods*, 2, 214-253. Sage publications.

Mayer, R. E. (2020). Searching for the role of emotions in e-learning. *Learning and Instruction,* 70, 101213.

Mayer, R. E., and Chandler, P. (2001). When learning is just a click away: Does simple user interaction foster deeper understanding of multimedia messages? *Journal of Educational Psychology*, 93(2), 390.

Mayer, R. E., and Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist,* 38(1), 43-52.

Mayes, T. and De Freitas, S. (2004). *Review of e-learning theories, frameworks and models.* https://curve.coventry.ac.uk/open/file/8ff033fc-e97d-4cb8-aed3-29be7915e6b0/1/Review%20of%20e-learning%20theories.pdf

McDonald, J. (2002). Is" as good as face-to-face" as good as it gets. *Journal of Asynchronous Learning Networks,* 6(2), 10-23.

McCalla, G. (2004). The Ecological Approach to the Design of E-Learning Environments: Purpose-based Capture and Use of Information About Learners. *Journal of Interactive Media in Education.* (7), 1-23.

McCarthy, J. (2020). A single-site case study of elementary online teacher experiences using web-conferencing to differentiate instruction in a Pennsylvania cyber charter school (Doctoral dissertation). Widener University.

McCombs, B. L. (2001). The learner-centered framework on teaching and learning as a foundation for electronically networked communities and cultures. Paper prepared at the *PT3 Vision Quest on Assessment in e-Learning Cultures*. Denver, CO: University of Denver.

McCombs, B. L., and Vakili, D. (2005). A learner-centered framework for e-learning. *Teachers College Record,* 107(8), 1582-1600.

McGowan, I. S. (2016). Towards a Theory-Based Design Framework for an Effective E-Learning Computer Programming Course. In: Proceedings of the *13th International Conference on Cognition and Exploratory Learning in Digital Age.* Mannheim, Germany p. 10-16.

McGuire, J., Scott, S., and Shaw, S. (2006). Universal design and its applications in educational environments. *Remedial and Special Education,* 27, 166-175.

McKinnon, D., and Nolan, C. (1999). Distance education for the gifted and talented: An interactive design model. *Roeper Review,* 21(4), 320–325.

McLeod, S., Hughes, J. E., Brown, R., Choi, J., and Maeda, Y. (2005). *Algebra achievement in virtual and traditional schools.* Naperville, IL: Learning Point Associates.

McNaught, C., (2002). Quality assurance for online courses: Implementing policy at MIT. *The Technology Source.* [online] http://ts.mivu.org/default.asp?show=articleandid=940

McPhee, I., and Söderström, T. (2012). Distance, online and campus higher education: reflections on learning outcomes. *Campus-Wide Information Systems.*

Mehra, B. (2002). Bias in qualitative research: Voices from an online classroom. *The Qualitative Report,* 7(1), 1-19.

Means, B., Toyama, Y., Murphy, R., Bakia, M., and Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington, DC: U.S. Department of Education.

Means, B, Toyama, Y, Murphy, R, Bakia, M, Jones, K. (2010). *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies.* Washington, DC: U.S. Department of Education. http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

Melhuish, E. (2015). What Matters in the quality of ECCE? Answer: interactions drive development. In Organisation for Economic Development and Co-Operation Meeting (OECD), *Early Childhood Education and Care International Policy Event,* October 28th 2015, Chartered Accountants House, Pearse Street, Dublin 2: Pobal. https://www.youtube.com/watch?v=2U1zoC6EUbw

Meng, L., and Ma, Q. (2015). Live as we choose: the role of autonomy support in facilitating intrinsic motivation. *International Journal of Psychophysiology,* 98(3), 441-447.

Mercado, C. (2008). Readiness assessment tool for an e-learning environment implementation. *Special Issue of the International Journal of the Computer, the Internet and Management,* 16(11).

Merriam, S.B. (2009). *Qualitative Research: A Guide to Design and Implementation.* Jossey-Bass: San Francisco, CA, USA.

Merrill, M. D. (2002). First principles of instruction. *Educational technology Research and Development,* 50, 43-59.

Metelski, F. K., Santos, J. L. G. D., Cechinel-Peiter, C., Fabrizzio, G. C., Schmitt, M. D., and Heilemann, M. (2021). Constructivist Grounded Theory: characteristics and operational aspects for nursing research. *Revista da Escola de Enfermagem da USP,* 55.

Meyer, A., Rose, D. H., and Gordon, D. (2014). *Universal design for learning: Theory and practice.* CAST Professional Publishing.

Miles, M. B., and Huberman, A. M. (1994*). Qualitative data analysis: An expanded source-book* (2nd Ed.). Thousand Oaks, CA: Sage.

Miller, R. (1991). “Introduction” in Miller, R. (Ed), New Directions in Education, Brandon, VT. *Holistic Education Press,* 1–3.

Miller, J. P. (Ed.). (2005). *Holistic learning and spirituality in education: Breaking new ground.* Albany: State University of New York Press. New York Press.

Miller, J. P. (2007). *The Holistic Curriculum*. (2nd ed.). Toronto: OISE Press.

Miller, R. (2008). *The self-organizing revolution: Common principles of the educational alternatives movement.* Holistic Education Press.

Miller, J. and Glassner, B. (2011). The “Inside” and the “Outside”: Finding Realities in Interviews. In Silverman (Ed). *Qualitative Research: Issues of Theory, Method and Practice.* (3rd ed.). London: Sage

Miller, M. D. (2014). *Minds online: Teaching effectively with technology*. Harvard University Press.

Mills, J., Bonner, A., and Francis, K. (2006). The development of constructivist grounded theory. *International Journal of Qualitative Methods,* 5(1).

Minner, D. D., Levy, A. J., and Century, J. (2010). Inquiry-based science instruction — what is it and does it matter? Results from a research synthesis years 1984 to 2002. *Journal of Research in Science Teaching: The Official*

Journal of the National Association for Research in Science Teaching, 47(4), 474-496.

Miranda, P., Isaias, P., Costa, C. J., and Pifano, S. (2017). Validation of an e-learning 3.0 critical success factors framework: A qualitative research. *Journal of Information Technology Education: Research,* 16(16), 339-363.

Mishra, P., and Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record,* 108(6), 1017-1054.

Mödritscher, F., Garcia-Barrios, V. M., and Gütl, C. (2004). The Past, the Present and the Future of adaptive E-Learning. Proceedings of ICL 2004.

Mohammadi, H. (2015). Investigating users' perspectives on e-learning: An integration of TAM and IS success model. *Computers in Human Behavior*, 45, 359-374.

Montessori, M. (2019). The Montessori Method: Scientific Pedagogy as Applied to Child Education. In Montessori, M., *The Children's Houses* with Additions and Revisions by the Author. Good Press.

Moore, J. C. (2005). The Sloan Consortium quality framework and the five pillars. The Sloan Consortium, 1-9.

Moore, K. and Aspden, L. (2004). Coping adapting, evolving: the student experience of e-learning. *Update*, 3(4), 22–24.

Moore, M. (1989). Three types of interaction. *The American Journal of Distance Education*, 3(2) Editorial.

Moore, M. and Kearsley, G. (1996). Distance education: A systems view. New York: Wadsworth Publishing Company.

Moras, S. (2001). Computer-assisted language learning (CALL) and the Internet. Karen's Linguistic Issues.

https://www.researchgate.net/publication/332268584_Computer-Assisted_Language_Learning_CALL

Morgan, T. (2011). Online classroom or community-in-the-making? Instructor conceptualizations and teaching presence in international online contexts. *Journal of Distance Education,* 25(1).

Morris. M. M. (2008). Evaluating university teaching and learning in an outcome-based model: replanting Bloom. (Doctoral Dissertation, University of Wollongong).

Morris, S. (2002). *Teaching and learning online: A step-by-step guide for designing an online K12 school program.* Oxford, United Kingdom: Rowman and Littlefield.

Morrow, V., and Richards, M. (1996). The ethics of social research with children: An overview 1. *Children and Society,* 10(2), 90-105.

Morse, J. M. (Ed.). (1994). *Critical issues in qualitative research methods.* Sage.

Morse, J. M., Bowers, B. J., Charmaz, K., Corbin, J., Clarke, A. E., and Stern, P. N. (2016). *Developing grounded theory: The second generation.* (Vol. 3). Routledge.

MSES (Ministry of Science, Education and Sports). (2010). National Curriculum Framework for pre-school education, general compulsory and secondary education. Zagreb, July 2010. http://public.mzos.hr/fgs.axd?id=17504

MSES (Ministry of Science, Education and Sports). (2014). The Strategy for Education, Science and Technology. *Official Journal,* 124/2014, 24 October 2014. https://mzo.gov.hr/UserDocsImages//dokumenti/Obrazovanje//Strategy%20for%20Education,%20Science%20and%20Tehnology.pdf

Mudrák, J., Zábrodská, K., and Takács, L. (2020). Systemic approach to the development of reading literacy: family resources, school grades, and reading motivation in fourth-grade pupils. *Frontiers in Psychology,* 11, 37.

Muirhead, B. (2004). Encouraging interaction in online classes. *International Journal of Instructional Technology and Distance Learning,* 1(6), 45-50.

Mullings, B. (1999). Insider or outsider, both or neither: Some dilemmas of interviewing in a cross-cultural setting. *Geoforum,* 30, 337-350.

Murphy, K. L., DePasquale, R., and McNamara, E. (2003) Meaningful connections. Using technology in primary classrooms. *Young Children,* 58(6), 12-18.

Murphy, E. and Rodríguez-Manzanares, M. A. (2008). Contradictions between the virtual and physical high school classroom: a third-generation activity theory perspective. *British Journal of Educational Technology,* 39(6), 1061–1072.

Murphy, E. and Rodríguez-Manzanares, M. A. (2009). Teachers' perspectives on motivation in high school distance education. *Journal of Distance Education,* (23)3, 1–24.

Murphy, C. A., and Stewart, J. C. (2017). On-campus students taking online courses: Factors associated with unsuccessful course completion. *The Internet and Higher Education,* 34, 1-9.

Naidu, S. (2017). How flexible is flexible learning, who is to decide and what are its implications? *Distance Education,* 38(3), 269-272.

Nardi, B. A., and O'Day, V. (2000). *Information ecologies: Using technology with heart.* MIT Press.

National Academies of Sciences, Engineering, and Medicine. (2018). *How people learn II: Learners, contexts, and cultures.* National Academies Press. https://nap.nationalacademies.org/catalog/24783/how-people-learn-ii-learners-contexts-and-cultures

National Center for Educational Statistics. (2018). *Digest of Education Statistics 2018, NCES 2020-009.* National Center for Education Statistics. https://nces.ed.gov/pubs2020/2020009.pdf

Naveed, Q. N., Muhammad, A., Sanober, S., Qureshi, M. R. N., and Shah, A. (2017). A mixed method study for investigating critical success factors (CSFs) of e-learning in Saudi Arabian universities. *Methods,* 8(5), 171-178.

Nelson, C. (2016, October 17). Continued growth in accessibility of AACSB-accredited online degrees [Blog post]. AACSB International Blog. http://aacsbblogs.typepad.com/dataandresearch/2016/10/index.html

Neville, B. (1999). Towards Integrality: Gebserian reflections on education and consciousness. *Encounter: Education for Meaning and Social Justice,* 12 (2), 4-20.

Nevo, D. (2013). The conceptualization of educational evaluation: An analytical review of the literature. *New Directions in Educational Evaluation,* 15-29.

Ng, B. (2018). The neuroscience of growth mindset and intrinsic motivation. *Brain sciences,* 8(2), 20.

Nguyen, T. (2015). The effectiveness of online learning: Beyond no significant difference and future horizons. *MERLOT Journal of Online Learning and Teaching,* 11(2), 309-319.

NCIHE. (National Committee of Inquiry into Higher Education). (1997*). Higher Education in the Learning Society (The Dearing Report).* Norwich: HMSO.

North, W. (2007, September). Curriculum-Product or Process. Academic Senate for California https://www.asccc.org/content/curriculum-product-or-process

Norwich, B., and Lewis, A. (2001). Mapping a pedagogy for special educational needs. *British Educational Research Journal*, 27 (3), 313-329.

OBHE 2018. Whatever happened to the promise of online learning? The state of global online higher education. Richard Garrett. http://www.obhe.ac.uk/documents/view_details?id=1091

Oblinger, D. (2003). Boomers, gen-xers, and millennials: Understanding the "New Students". *EDUCAUSE Review,* 500(4), 37-47.

Ocak, G., and Ulu, M. (2009). The views of students, teachers and parents and the use of portfolio at the primary level. *Procedia Social and Behavioral Sciences,* 1, 28-36.

O'Doherty, D., Dromey, M., Lougheed, J., Hannigan, A., Last, J., and McGrath, D. (2018). Barriers and solutions to online learning in medical education–an integrative review. *BMC Medical Education,* 18(1), 1-11.

OECD (2019). *Providing Quality Early Childhood Education and Care: Results from the Starting Strong Survey 2018,* TALIS, OECD Publishing, Paris, https://dx.doi.org/10.1787/301005d1-en.

OECD (2020). *PISA 2018 results (Volume IV): Are students smart about money?* https://www.oecd.org/daf/pisa-2018-results-volume-iv-48ebd1ba-en.htm

Office of Sustainable Development. (2000, November). *Connected education.* Washington State University, Knowledge Exchange and Learning Partnership. http://cbdd.wsu.edu/networks/KelpWebSite/connected/ce-definition.html

O'Hara, M. (2004). *ICT in the early years*. London: Continuum.

O'Hara, M. (2006). In search of the next enlightenment? The challenge for education in uncertain times. *Journal of Transformative Education,* 4(2), 105-117.

Oliver, R. (2005). Quality assurance and e-learning: blue skies and pragmatism. *ALT-J,* 13(3), 173-187.

Oncu, S., and Cakir, H. (2011). Research in online learning environments: Priorities and methodologies. *Computers and Education,* 57(1), 1098-1108.

Online Learning Consortium. (2017). OLC OSCQR course design review. https://onlinelearningconsortium.org/consult/oscqr-course-design-review/

Oomen-Early, J., and Murphy, L. (2009). Self-actualization and e-learning: A qualitative investigation of university faculty's perceived barriers to effective online instruction. *International Journal on E-Learning,* 8(2), 223-240.

Oren, A., Mioduser, D., and Nachmias, R. (2002). The development of social climate in virtual learning discussion groups. *International Review of Research in Open and Distance Learning,* 3(1), 1–19.

Osborne, R. (2014). An ecological approach to educational technology: affordance as a design tool for aligning pedagogy and technology. (Doctoral thesis) University of Exeter https://ore.exeter.ac.uk/repository/handle/10871/16637?show=full

Ossiannilsson, E., and Landgren, L. (2012). Quality in e-learning–a conceptual framework based on experiences from three international benchmarking projects. *Journal of Computer Assisted Learning,* 28(1), 42-51.

'Oviatt, S., Coulston, R., and Lunsford, R. (2004). When do we interact multimodally? Cognitive load and multimodal communication patterns. In Proceedings of the *6th international conference on Multimodal interfaces* (pp. 129-136).

Ozkan, S., and Koseler, R. (2009). Multi-dimensional students' evaluation of e-learning systems in the higher education context: An empirical investigation. *Computers and Education,* 53(4), 1285-1296.

Öztok, M. (2019). *The hidden curriculum of online learning: Understanding social justice through critical pedagogy.* Routledge.

Pacheco, A. Q. (2005). Web-based learning (WBL): A challenge for foreign language teachers. *Revista Electrónica: Actualidades Investigativas en Educación,* 5(2), 1-25.

Packard, R. (2013). *Education transformation: How K-12 online learning is bringing the greatest change to education in 100 years.* Hillsboro, OR: Beyond Words.

Padgett, D. K. (2017). *Qualitative methods in social work research (Vol. 36).* Sage Publications.

Palmer, D. (2019). *Research methods in social science statistics.* Scientific e-Resources. EDTECH Press.

Palmer, S. (2012). Understanding the context of distance students: differences in on- and off-campus engagement with an online learning environment. *Journal of Open Flexible and Distance Learning,* 16(1), 70–82.

Palvia, S., Aeron, P., Gupta, P., Mahapatra, D., Parida, R., Rosner, R., and Sindhi, S. (2018). Online education: Worldwide status, challenges, trends, and implications. *Journal of Global Information Technology Management,* 21(4):1-9

Pannucci, C. J., and Wilkins, E. G. (2010). Identifying and avoiding bias in research. *Plastic and Reconstructive Surgery,* 126(2), 619.

Papaefstathiou, M., Rhind, D., and Brackenridge, C. (2013). Child protection in ballet: Experiences and views of teachers, administrators and ballet students. *Child Abuse Review*, *22*(2), 127-141.

Pappas, C. (2014). 6 tips to estimate your eLearning course length. http://elearningindustry.com/6-tips-estimate-elearning-course-length

Papp, R. (2010). Virtual worlds and social networking: Reaching the millennials. *Journal of Technology Research*, 2(1), p. 1-15.

Papert, S. A. (2020). *Mindstorms: Children, computers, and powerful ideas.* Basic books.

Passey, D. (2014). *Inclusive technology enhanced learning*. New York, NY: Routledge.

Passey, D. (2020). Theories, theoretical and conceptual frameworks, models and constructs: Limiting research outcomes through misconceptions and misunderstandings. *Studies in Technology Enhanced Learning,* 1(1), 95-114.

Passey, D. (2021a). Digital technologies — and teacher wellbeing? *Education Sciences*, 11(3), 117.

Passey, D. (2021b). Possibilities, benefits and limitations of embedding technology enhanced and remote teaching and learning in compulsory education – and not just because of Covid-19. *Malta Journal of Education,* 2(1), 6-20.

Patall, E. A., Cooper, H., and Robinson, J. C. (2008). The effects of choice on intrinsic motivation and related outcomes: A meta-analysis of research findings. *Psychological Bulletin,* 134(2), 270.

Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, California: Sage Publications, Inc.

Pearson, E. J., and Koppi, T. (2002). Inclusion and online learning opportunities: designing for accessibility. *ALT-J,* 10(2), 17-28.

Peck, C., Hewitt, K. K., Mullen, C. A., Lashley, C., Eldridge, J., and Douglas, T. R. M. (2015). Digital youth in brick-and-mortar schools: Examining the complex interplay of students, technology, education, and change. *Teachers College Record,* 117(5), 1-40.

Peña-López, I. (2015). Students, computers and learning. Making the connection. OECD. https://www.oecd-ilibrary.org/education/students-computers-and-learning_9789264239555-en

Pelz, M., Yung, A., and Kidd, C. (2015). Quantifying curiosity and exploratory play on touchscreen tablets. In Proceedings of the *IDC 2015 Workshop on Digital Assessment and Promotion of Children's Curiosity.*

Perera-Diltz, D. M., and Moe, J. L. (2014). Formative and summative assessment in online education. *Journal of Research in Innovative Teaching,* 7(1).

Petter, S., DeLone, W., and McLean, E. (2008). Measuring information systems success: Models, dimensions, measures, and interrelationships. *European Journal of Information Systems,* 17, 236–263

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., and Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education,* 16(1), 1-26.

Phipps, R., and Merisotis, J. (1999). What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education (Report No. HE 032019). Washington, DC: Institute for Higher Education Policy. (ERIC Document Reproduction Service No. ED429524).

Phipps, R. and Merisotis, J., (2000). *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education.* Washington, D.C.: Institute for Higher Education Policy.

Pianta, R. C., and Stuhlman, M. W. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review,* 33(3), 444-458.

Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. *Online Learning,* 21(3), 166-190.

Picciano, A. G., and Seaman, J. (2009). *K-12 Online Learning: A 2008 Follow-Up of the Survey of US School District Administrators.* Sloan Consortium. PO Box 1238, Newburyport, MA 01950.

Picciano, A. G., Seaman, J., and Allen, I. E. (2010). Educational transformation through online learning: To be or not to be. *Journal of Asynchronous Learning Networks,* 14(4), 17-35.

Pike, S., Neideck, J., and Kelly, K. (2020). 'I will teach you in a room, I will teach you now on Zoom…': a contemporary expression of zooming by three practitioner/academics in the creative arts, developed through the spirit of the surrealist's exquisite corpse. *International Journal of Performance Arts and Digital Media,* 16(3), 290-305.

Pillay, H., Irving, K., and Tones, M. (2007). Validation of the diagnostic tool for assessing tertiary students' readiness for online learning. *High Education Research and Development,* 26(2), 217-234.

Pinchot, J., and Paullet, K. (2014). Different keystrokes for different folks: addressing learning styles in online education. *Information Systems Education Journal,* 12(2), 29.

Plowman, L., McPake, J., and Stephen, C. (2012). Extending opportunities for learning: the role of digital media in early education. In *Contemporary debates in childhood education and development* (pp. 109-118). Routledge.

Polanyi, M. (1958). *Personal Knowledge: Towards a Post-Critical Philosophy.* University of Chicago Press, Chicago.

Polanyi, M. (1966). *The tacit dimension.* Chicago: The University of Chicago Press.

Polanyi, M. (1969). *Knowing and being.* (Marijorie Greene, ed.). Chicago: The University of Chicago Press.

Poole, D. M. (2000). Student participation in a discussion-oriented online course: a case study. *Journal of Research on Computing in Education,* 33(2), 162–177.

Popovich, C. J., and Neel, R. E. (2005). Characteristics of distance education programs at accredited business schools. *American Journal of Distance Education,* 19, 229–240.

Porras-Hernández, L. H., and Salinas-Amescua, B. (2013). Strengthening TPACK: A broader notion of context and the use of teacher's narratives to reveal knowledge construction. *Journal of Educational Computing Research,* 48(2), 223-244.

Powell, A. and Patrick, S. (2006). *An International Perspective of K-12 Online Learning: A Summary of the 2006 NACOL International E-Learning Survey.* North American Council for Online Learning.

Prakasam, A. R. (2013). Enhancing cloud-based E-learning using knowledge sharing system. *Elearning,* 84(9).

Preston, C., Younie, S., and Hramiak, A. (2021). Learning Alone or Learning Together? How Can Teachers Use Online Technologies to Innovate Pedagogy? In *Handbook for Online Learning Contexts: Digital, Mobile and Open: Policy and Practice* (pp. 257-273). Cham: Springer International Publishing.

Priya, K. R. (2013). Grounded theory methodology*. The Encyclopedia of Cross-Cultural Psychology,* 2, 626-631.

Pulham E., and Graham C. R. (2018). Comparing K-12 online and blended teaching competencies: A literature review. *Distance Education,* 39(3), 411–432.

Quality Matters. (2014). Quality matters (QM). https://www.qualitymatters.org

Quality Matters. (2019, March 10). Developing a Framework for Quality Online Course Videos: What Does the Research Say [Video]. YouTube. https://www.youtube.com/watch?v=es7vmyQl208

Quality Matters. (2019). The K-12 rubric. Course Design Rubric Standards. Annapolis, MD: MarylandOnline. https://www.qualitymatters.org/qa-resources/rubric-standards/k-12-secondary-rubric

Qureshi, I., Ilyas, K., Yasmin, R., and Whitty, M. (2012). Challenges of implementing e-learning in a Pakistani university. *Knowledge Management and E-Learning,* 310-324.

Qureshi, H. A., and Ünlü, Z. (2020). Beyond the paradigm conflicts: A four-step coding instrument for grounded theory. *International Journal of Qualitative Methods,* 19, 1609406920928188.

Ralston-Berg, P., Buckenmeyer, J., Barczyk, C., and Hixon, E. (2015). Students' perceptions of online course quality: How do they measure up to the research? *Journal of Online Learning Research and Practice,* 4(1).

Raymond, A., Jacob, E., Jacob, D., and Lyons, J. (2016). Peer learning a pedagogical approach to enhance online learning: A qualitative exploration. *Nurse Education Today,* 44, 165-169.

Rehn, N., Maor, D., and McConney, A. (2018). The specific skills required of teachers who deliver K–12 distance education courses by synchronous videoconference: Implications for training and professional development. *Technology, Pedagogy and Education,* 27(4), 417–429.

Reinharz, S., and Davidman, L. (1992). *Feminist methods in social research.* Oxford University Press.

Repetto, J., Cavanaugh, C., Wayer, N., and Liu, F. (2010). Virtual high schools: Improving outcomes for students with disabilities. *Quarterly Review of Distance Education*, 11(2), 91-104.

Reyna, J. (2013). The importance of visual design and aesthetics in e-learning. *Training and Development,* 40(5), 28-31.

Reynolds, K., Becker, K., and Fleming, J. (2013). Contemporary Challenges in E-learning. *Workforce Development,* 269-282.

Rice, K. L. (2006). A comprehensive look at distance education in the K-12 context. *Journal of Research on Technology in Education,* 38(4), 425-448.

Rice, K. (2012). *Making the move to K-12 online teaching.* Boston, MA: Pearson Education, Inc.

Richardson, J. C. (2001). *Examining social presence in online courses in relation to students' perceived learning and satisfaction.* State University of New York at Albany.

Richardson, J. C., and Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks,* 7(1), 68-88.

Ricoeur, P. (1970). *Freud and philosophy: an essay on interpretation.* New Haven, CT, Yale University Press.

Rieger, K. L. (2019). Discriminating among grounded theory approaches. *Nursing Inquiry,* 26(1), e12261.

Ring, E., O'Sullivan, L., Ryan, M., and Burke, P. (2018). A melange or a mosaic of theories? How theoretical perspectives on children's learning and development can inform a responsive pedagogy in a redeveloped primary school curriculum. https://dspace.mic.ul.ie/bitstream/handle/10395/2628/Ring,%20E.%20et%20al.%20(2018)%20A%20Melange%20or%20a....pdf?sequence=2

Risner, D. (2010). Dance Education Matters: Rebuilding Postsecondary Dance Education or Twenty-first Century Relevance and Resonance. *Journal of Dance Education,* 10 (4): 95–110.

Risner, D. (2014). Hold on to this! Strategies for teacher feedback in online dance courses. *Journal of Dance Education,* 14(2), 52-58.

Robb, C. A., and Sutton, J. (2014). The importance of social presence and motivation in distance learning. *The Journal of Technology, Management, and Applied Engineering,* 31(2), 2–10.

Roberge, G. D., and Gagnon, L. L. (2014). Impact of Technology Policy in the Higher Education Classroom: Emerging Trends. *eJEP: eJournal of Education Policy*, 1-6.

Robert, L. P., and Dennis, A. R. (2005). Paradox of richness: A cognitive model of media choice. *IEEE transactions on professional communication,* 48(1), 10-21.

Robertson, J., and Kipar, N. (2010). Learning together and alone in virtual worlds. *Virtual Worlds: Controversies at the Frontier of Education,* 67-84.

Robinson, E.T., (2000). Strategic Planning for Technological Change: The Human Component. *Syllabus: New Directions in Education Technology,* 14(4), pp 5-65.

Roca, J. C., and Gagné, M. (2008). Understanding e-learning continuance intention in the workplace: A self-determination theory perspective. *Computers in Human Behavior,* 24(4), 1585–1604.

Roddy, C., Amiet, D. L., Chung, J., Holt, C., Shaw, L., McKenzie, S., ... and Mundy, M. E. (2017, November). Applying best practice online learning, teaching, and support to intensive online environments: An integrative review. *Frontiers in Education,* 2, 59. Frontiers Media SA.

Roper, A. R. (2007). How students develop online learning skills. *Educause Quarterly,* 30(1), 62.

Rogers, C. R. (1995). *On becoming a person: A therapist's view of psychotherapy.* Houghton Mifflin Harcourt.

Rooney, P. (2005). Researching from the inside, does it compromise validity: A discussion. *Level 3,* 3(1), 4.

Rose, R., and Howley, M. (2007). *Special educational needs in inclusive primary classrooms.* London: Paul Chapman.

Rose, D. H., and Meyer, A. (2002). *Teaching every student in the digital age: Universal Design for Learning.* Alexandria, VA: Association for Supervision and Curriculum Development.

Rose, T., Rouhani, P., and Fischer, K. W. (2013). The science of the individual. *Mind, Brain, and Education,* 7(3), 152–158.

*'*Rotar, O. (2022). Online student support: A framework for embedding support interventions into the online learning cycle. *Research and Practice in Technology Enhanced Learning*, 17(1), 1-23.

Roth, W.-M. (2010). *Language, learning, context: Talking the talk.* New York: Routledge.

Rothschild, M. (2005). Guidelines for Selecting Quality K-12 Online Courses. Online Submission. https://files.eric.ed.gov/fulltext/ED490484.pdf

Rourke, L., Anderson, T., Garrison, D. R., and Archer, W. (1999). Assessing social presence in asynchronous text-based computer conferencing. *The Journal of Distance Education/Revue de l'ducation Distance,* 14(2), 50-71.

Rourke, L., and Kanuka, H. (2007). Barriers to online critical discourse. *International Journal of Computer-Supported Collaborative Learning*, 2(1), 105-126.

Rovai, A. P. (2003). A practical framework for evaluating online distance education programs. *The Internet and Higher Education*, 6(2), 109-124.

Russo, A. (2001). E-learning everywhere. *School Administrator*, 58(9), 6-13.

Russo, T. C., Campbell, S., Henry, M., and Kosinar, P. (1999). An online graduate class in communication technology: Outcomes and lessons learned. *Electronic Journal of Communication,* 9(1).

Rüütmann, T., and Kipper, H. (2011, September). Teaching strategies for direct and indirect instruction in teaching engineering. In *14th International Conference on Interactive Collaborative Learning* (pp. 107-114). IEEE.

Ryan, R. M., and Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian psychology/Psychologie Canadienne,* 49(3), 186.

Sabol, T. J., and Pianta, R. C. (2012). Recent trends in research on teacher–child relationships. *Attachment and Human Development,* 14(3), 213-231.

Sabri, D. (2011). What's Wrong with 'The Student Experience'? *Discourse: Studies in the Cultural Politics of Education,* 32(5), 657–667.

Sahin, I., and Shelley, M. (2008). Considering students' perceptions: The distance education student satisfaction model. *Educational Technology and Society,* 11(3), 216–223.

Saidin, K. (2017). Insider researchers: Challenges and opportunities. *Proceedings of the ICECRS*, 1(1).

Salazar, M. (2013). A humanizing pedagogy: Reinventing the principles and practice of education as a journey toward liberation. *Review of Research in Education,* 37(1), 121-148.

Saldaña, J. (2021). *The coding manual for qualitative researchers. The coding manual for qualitative researchers,* 1-440. London: Sage.

Sanders Lopez, E., and Nagelhout, E. (1995). Building a model for distance collaboration in the computer-assisted business communication classroom. *Business Communication Quarterly,* 58(2), 15-20.

Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing and Health,* 18(2), 179-183.

Sang, G., Valcke, M., Van Braak, J., and Tondeur, J. (2009). Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology. *Computers and Education,* 54(1), 103-112.

Sarantakos, S. (2005). *Social Research.* (3rd ed.) Basingstoke: Palgrave MacMillan.

Scalise, K. (2007). Differentiated e-learning: five approaches through instructional technology. *International Journal of Learning Technology,* 3(2), 169-182.

Scheffler, I. (1967) Philosophical models of teaching. In Peters, R., S. (Ed.) *The concept of education.* London: Routledge and Kegan Paul.

Shattuck, K. (2007). Quality matters: Collaborative program planning at a state level. *Online Journal of Distance Learning Administration*, 10(3).

Schleicher, A. (2019). *PISA 2018: Insights and Interpretations*. OECD Publishing.

Schmid, M., Brianza, E., and Petko, D. (2020). Developing a short assessment instrument for Technological Pedagogical Content Knowledge (TPACK. xs) and comparing the factor structure of an integrative and a transformative model. *Computers and Education,* 157, 103967.

Schön, D. A. (1987). *Educating the Reflective Practitioner. Toward a New Design for Teaching and Learning in the Professions.* San Francisco: The Jossey-Bass Higher Education Series.

Schrum, L., and Hong, S. (2002). From the Field: Characteristics of Successful Tertiary Online Students and Strategies of Experienced Online Educators. *Education and Information Technologies,* 5-16.

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research,* 8(3), 240–253.

Seddon, P. B., and Kiew, M. Y. (1994). A partial test and development of the DeLone and McLean model of IS success. *Australian Journal of Information Systems,* 4(1), 99–110.

Sedera, D., Gable, G., and Chan, T. (2004). A factor and structural equation analysis of the enterprise systems success measurement model. In Proceedings of the *10th Americas conference on information systems* (pp. 676-682). Association for Information Systems.

Sefton-Green, J., Marsh, J., Erstad, O., and Flewitt, R. (2016). *Establishing a research agenda for the digital literacy practices of young children.* A White Paper for COST Action IS1410.

Selim, H. M. (2003). An empirical investigation of student acceptance of course websites. *Computers and Education,* 40(4), 343-360.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers and Education*, 49(2), 396-413.

Selwyn, N. (2012). Making sense of young people, education and digital technology: The role of sociological theory. *Oxford Review of Education*, 38(1), 81-96.

Sharp, C., Nelson, J., Lucas, M., Julius, J., Mccrone, T., and Sims, D. (2020). The challenges facing schools and pupils in September 2020 [Internet]. https://www.nfer.ac.uk/media/4119/schools_responses_to_covid_19_the_challenges_facing_schools_and_pupils_in_september_2020.pdf

Shattuck, K. (2007). Quality matters: Collaborative program planning at a state level. *Online Journal of Distance Learning Administration,* 10(3).

Shaw, C., Brady, L. M., and Davey, C. (2011). *Guidelines for research with children and young people.* London: National Children's Bureau Research Centre.

Shea, P., Li, C. S., and Pickett, A. (2006). A study of teaching presence and student sense of learning community in fully online and web-enhanced college courses. *The Internet and Higher Education,* 9(3), 175-190.

Shen, D., Laffey, J., Lin, Y., and Huang, X. (2006). Social influence for perceived usefulness and ease-of-use of course delivery systems. *Journal of Interactive Online Learning, 5*(3), 270-282.

Shi, Y., Tong, M., and Long, T. (2021). Investigating relationships among blended synchronous learning environments, students' motivation, and cognitive engagement: A mixed methods study. *Computers and Education,* 168(4),104193.

Shih, M., Feng, J., and Tsai, C. (2008). Research and trends in the field of e-learning from 2001 to 2005: A content analysis of cognitive studies in selected journals. *Computers and Education,* 51(2), 955–967.

Shtulman, A., and Carey, S. (2007). Improbable or impossible? How children reason about the possibility of extraordinary events. *Child Development,* 78(3), 1015–1032.

Sikes, P., and Potts, A. (2008). What are we talking about? And why? In P. Sikes and A. Potts (Eds.), *Researching education from the inside* (pp. 3–11). New York, NY: Routledge.

Simpson, D. J. (2001). John Dewey's concept of the student. *Canadian Journal of Education/Revue Canadienne de L'éducation,* 183-200.

Singh, K., Srivastav, S., Bhardwaj, A., Dixit, A., and Misra, S. (2020). Medical education during the COVID-19 pandemic: a single institution experience. *Indian Pediatrics,* 57(7), 678–679.

Slade, S., and Griffith, D. (2013). A whole child approach to student success. *KEDI Journal of Educational Policy*, 10(3), 21-35.

Smart, K. L., and Cappel, J. J. (2006). Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education: Research,* 5(1), 201-219.

Smith, M. M. (2012). *The quality factors which influence online learning and impact on the student experience.* Open University (United Kingdom).

Smith, S. J., Burdette, P. J., Cheatham, G. A., and Harvey, S. P. (2016). Parental role and support for online learning of students with disabilities: A paradigm shift. *Journal of Special Education Leadership*, 29(2), 101-112.

Smith, R. (2007). An overview of research on student support: helping students to achieve or achieving institutional targets? Nurture or de-nature? *Teaching in Higher Education,* 12(5-6), 683-695.

Smyth, A., and Holian, R. (2008). Credibility Issues in Research from within Organisations. In P. Sikes and A. Potts (Eds.), *Researching education from the inside* (pp. 33–47). New York, NY: Taylor and Francis.

Snowden, M., Davitt Jones, S., and Arnold, C. (2017). Higher Education Academy (HEA). Flexible Learning Practice Guide. Higher Education Academy, York, UK. http://eprints.hud.ac.uk/id/eprint/31354/

Soler-Costa, R., Moreno-Guerrero, A. J., López-Belmonte, J., and Marín-Marín, J. A. (2021). Co-word analysis and academic performance of the term TPACK in web of science. *Sustainability,* 13(3), 1481.

Song, L., Singleton, E. S., Hill, J. R., and Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The Internet and Higher Education,* 7(1), 59-70.

Soo Ting, M. (2016). Determining the critical success factors for the Caribbean e-Learning student (Doctoral dissertation, University of Sheffield).

Spelke, E. S., Breinlinger, K., Macomber, J., and Jacobson, K. (1992). Origins of knowledge. *Psychological Review,* 99(4), 605–632.

Squire, K. (2006). From content to context: Videogames as designed experience. *Educational Researcher,* 35(8), 19-29.

Sridharan, B., Deng, H., and Corbitt, B. (2010). Critical success factors in e-learning ecosystems: a qualitative study. *Journal of Systems and Information Technology,* 12(4), 263-288.

Stangor, C., and Walinga, J. (2014). 11. Emotions and Motivations. In Cummings, J. A., and Sanders, *Introduction to psychology*. University of Saskatchewan Open Press.

Stansfield, M., McLellan, E., and Connolly, T. (2004). Enhancing student performance in online learning and traditional face-to-face class delivery. *Journal of Information Technology Education: Research,* 3(1), 173-188.

Steenberghs, N., Lavrijsen, J., Soenens, B., and Verschueren, K. (2021). Peer Effects on Engagement and Disengagement: Differential Contributions from Friends, Popular Peers, and the Entire Class. *Frontiers in Psychology,* 4260.

Stefanovic, D., Drapsin, M., Nikolic, J., Scepanovic, D., Radjo, I. and Drid, P. (2011). Empirical study of student satisfaction in e-learning system environment. *Technics Technologies Education Management,* 6(4), 1152-1164.

Steiner, R. (1995). *Waldorf education and anthroposophy 1: Nine public lectures, February 23, 1921-September 16, 1922 (Vol. 1).* Steiner Books.

Stern, P.N. (2007). On solid ground: Essential properties for growing grounded theory. In Bryant, A. and Charmaz, K. (Eds) *Handbook of grounded theory.* London: Sage.

Stevenson, O. (2008). Ubiquitous presence, partial use: The everyday interaction of children and their families with ICT. *Technology, Pedagogy and Education,* 17(2), 115-130.

Steward, I., Hong, E., and Strudler, N. (2004). Development and validation of an instrument for student evaluation of the quality of web-based instruction. *The American Journal of Distance Education,* 18(3), 131-150.

Stiggins, R. J. and Conklin, N. F. (1992). *In teachers' hands: Investigating the practices of classroom.* Albany, NY: State University of New York Press.

Stiles, W. B. (1993). Quality control in qualitative research*. Clinical Psychology Review,* 13(6), 593–618.

Stines, J. W. (1984). Vocation Recalled: Personal Knowledge and Cosmic Re-enchantment. *Tradition and Discovery: The Polanyi Society Periodical,* 12(1), 15-24.

Strauss, A., and Corbin J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA, USA: Sage.

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., and Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers and Education,* 50(4), 1183-1202.

Surendran, P. (2012). Technology acceptance model: A survey of literature. *International Journal of Business and Social Research,* 2(4), 175–178.

Suryaman, M., Cahyono, Y., Muliansyah, D., Bustani, O., Suryani, P., Fahlevi, M., and Munthe, A. P. (2020). COVID-19 pandemic and home online learning system: Does it affect the quality of pharmacy school learning? *Systematic Reviews in Pharmacy, 11*, 524–530.

Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance Education,* 22(2), 306-331.

Swan, K. (2002). Building learning communities in online courses: The importance of interaction. *Education, Communication and Information,* 2(1), 23-49.

Swan, K., Shea, P., Fredericksen, E., Pickett, A., Pelz, W., and Maher, G. (2000). Building knowledge building communities: Consistency, contact and communication in the virtual classroom. *Journal of Educational Computing Research,* 23(4), 359-383.

Taipjutorus, W., Hansen, S., and Brown, M. (2012). Investigating a relationship between learner control and self-efficacy in an online learning environment. *Journal of Open, Flexible and Distance Learning,* 16(1), 56-69.

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., and Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research,* 76(1), 93-135.

Tapscott, D. (1998). Growing up digital (Vol. 302). San Francisco: McGraw-Hill Companies.

Tariao, F. C., and Yang, J. M. J. (2021). Delivering Face-to-Face Dance Classes in Singapore during the COVID-19 Pandemic. *Journal of Dance Education*, 1-12.

Tedlock, B. (2000). Ethnography and ethnographic representation. In N. K. Denzin and Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 455-486). Thousand Oaks, CA: Sage.

Teo, T. (2010). Development and validation of the E-learning Acceptance Measure (ElAM). *The Internet and Higher Education,* 13(3), 148-152.

Tharp, R. G., Estrada, P., Dalton, S. S., and Yamauchi, L. A. (2000). *Teaching transformed: Achieving excellence, fairness, inclusion, and harmony.* Boulder, CO: Westview Press.

The Teaching Council (2011). *Policy on the continuum of teacher education.* Maynooth: The Teaching Council.

The Teaching Council (2017). Initial Teacher Education: Criteria and Guidelines for Programmes Providers. Maynooth: The Teaching Council.

Theodosiadou, D., and Konstantinidis, A. (2015). Introducing e-portfolio use to primary school pupils: Response, benefits and challenges. *Journal of Information Technology Education. Innovations in Practice,* 14, 17-38.

Thomas, D., and Brown, J. S. (2007). The play of imagination: Extending the literary mind. *Games and Culture,* 2(2), 149–172.

Thomas, E., Rosewell, J., Kear, K., and Donelan, H. (2014). Learning and peer feedback in shared online spaces. Paper presented at the *Ninth International Conference on Networked Learning*, Edinburgh: UK.

Thomas, G. (1997). What's the use of theory? *Harvard Educational Review,* 67, 75–105.

Thomas, G., and James, D. (2006). Reinventing grounded theory: some questions about theory, ground and discovery*. British Educational Research Journal,* 32(6), 767-795.

Thomas, W. (2008). Do online courses work for middle grades and high school students? Online students have their say. SREB's Educational Technology. Atlanta, GA. publications.sreb.org/2008/08T05_Onl_Student_Survey.pdf#page=1andzoom=150

Thomas, W. (2009). *Overcoming doubts about online learning. SREB's Educational Technology*. Atlanta, GA. http://www.sreb.org/page/1295/publications.html.

Thomson D. L. (2010). Beyond the classroom walls: Teachers' and students' perspectives on how online learning can meet the needs of gifted students. *Journal of Advanced Academics,* 21(4), 662–712.

Thomson, S. B. (2010). Sample size and grounded theory. *Journal of Administration and Governance*, 5(1), 45-52.

Thong, J. Y., and Yap, C. S. (1996). Information systems effectiveness: A user satisfaction approach. Information Processing and Management, 32(5), 601–610.

Thorsen, C. (1998). *Teaching with presentation software: Thinking in 3-D. Technology-based models for classroom teachers (Vol. 3).* Boise, ID: Author.

Timonen, V., Foley, G., and Conlon, C. (2018). Challenges when using grounded theory: A pragmatic introduction to doing GT research. *International Journal of Qualitative Methods,* 17(1), 1609406918758086.

Timonen, V, Foley, G. and Conlon, C. (2018) Challenges When Using Grounded Theory: A Pragmatic Introduction to Doing GT Research. *International Journal of Qualitative Methods* 17,1- 10.

Tippens, D. (2012). Technology has its place: Behind a caring teacher. *Chronicle of Higher Education.* http://chronicle.com/article/technology-has-itsplace-133328/

Toppin, I. N. and Toppin, S. M. (2015). Virtual schools: The changing landscape of K-12 education in the U.S. *Education and Information Technologies,* 21, 1571–1581.

Trevitt, C. (1995). Interactive multimedia in university teaching and learning: some pointers to help promote discussion of design criteria. In session on package development at the *Computers in University Biological Education, Virtual conference,* CITI Liverpool, England, United Kingdom.

Tria, J. Z. (2020). The COVID-19 pandemic through the lens of education in the Philippines: The new normal. *International Journal of Pedagogical Development and Lifelong Learning,* 1(1), 2-4.

'Tsai, C. C., and Lin, C. C. (2004). Taiwanese adolescents' perceptions and attitudes regarding the Internet: Exploring gender differences. *Adolescence,* 39(156), 725-734.

Tunjera, N., and Chigona, A. (2020). Teacher Educators' appropriation of TPACK-SAMR models for 21st century pre-service teacher preparation. *International Journal of Information and Communication Technology Education (IJICTE),* 16(3), 126-140.

Turkle, S. (1995). Life on the Screen: Identity in the Age of the Internet. New York: Simon and Schuster.

Turugare, M., and Rudhumbu, N. (2020). Integrating technology in teaching and learning in universities in Lesotho: opportunities and challenges. *Education and Information Technologies,* 25(5), 3593-3612.

Tüysüz, M., Yıldıran, D., and Demirci, N. (2010). What is the motivation difference between university students and high school students? *Procedia-Social and Behavioral Sciences,* 2(2), 1543–1548.

Uden, L., Wangsa, I. T., and Damiani, E. (2007, February). The future of E-learning: E-learning ecosystem. In *2007 Inaugural IEEE-IES Digital EcoSystems and Technologies Conference* (pp. 113-117). IEEE.

UN (United Nations). (2020). Education During COVID-19 and Beyond. (UN Policy Briefs, 2020) https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

UN. Online Learning Framework and Toolkit. https://hr.un.org/page/online-learning-framework-toolkit

UNESCO. (2002). *Information and Communication Technology in Education – A Curriculum for Schools and Programme for Teacher Development.* Paris: UNESCO.

UNESCO. (2004a). *Open and distance learning.* Paris: UNESCO. http://portal.unesco.org/education/en/ev.php-URL_ID=48440andURL_DO=DO_TOPICandURL_SECTION=201.html

UNESCO. (2004b). *Use of Technology.* ICT pedagogy, UNESCO office.

UNESCO. (2005). *Information and communication technologies in schools: A handbook for teachers.* Paris: UNESCO.

UNESCO. (2015). Education 2030: Incheon Declaration and Framework for action: Towards inclusive and equitable quality education and lifelong learning for all. In *World Education Forum (19-22).* https://icponline.org/wp-content/uploads/2019/08/b931e6_23f7da6c616041088b7f6fd3933855d8.pdf

UNESCO. (2020). *UNESCO rallies international organizations, civil society and private sector partners in a broad Coalition to ensure #LearningNeverStops.* Paris: UNESCO. https://en.unesco.org/news/unesco-rallies-international-organizations-civil-society-and-private-sector-partners-broad

Unluer, S. (2012). Being an insider researcher while conducting case study research. *Qualitative Report,* 17, 58.

Urbach, N., Smolnik, S., and Riempp, G. (2009). The state of research on information systems success. *Business and Information Systems Engineering,* 1(4), 315–325.

Urquhart, C. (2010). Putting the ‘theory’ back into grounded theory: Guidelines for grounded theory studies in information systems. *Information Systems Journal,* 20(4), 357–381.

Urquhart, C. (2014). *Grounded theory for qualitative research.* London: Sage.

U.S. Department of Education. (2001). *The Elementary and Secondary Education Act (The No Child Left Behind Act of 2001).* https://oese.ed.gov/offices/office-of-formula-grants/the-elementary-and-secondary-education-act-the-no-child-left-behind-act-of-2001/

U.S. Department of Education. Office of Innovation and Improvement. (2008). *Evaluating Online Learning: Challenges and Strategies for Success.* Washington, D.C. https://files.eric.ed.gov/fulltext/ED501849.pdf

U.S. Department of Education (2010). *Transforming American education: Learning powered by technology. National Education Technology Plan 2010.* Office of Educational Technology: Washington, D.C. https://www.ed.gov/sites/default/files/netp2010.pdf

U.S. Department of Education, Office of Educational Technology. (2017). *Reimagining the role of technology in education: 2017 National Education Technology Plan Update.* U.S. Department of Education. https://tech.ed.gov/files/2017/01/NETP17.pdf

Uzir, N. A. A., Gašević, D., Jovanović, J., Matcha, W., Lim, L. A., and Fudge, A. (2020, March). Analytics of time management and learning strategies for effective online learning in blended environments. In *Proceedings of the tenth international conference on learning analytics and knowledge* (pp. 392-401).

Vakili, D. (2001). *Applying the American Psychological Association's principles of learning to an online environment.* Boise, ID: Author

Vail, K. (2001). *Online learning grows up: No longer an experiment, virtual school is here to stay*. Electronic School. http://www.electronic-school.com/2001/09/0901f1.html

Valverde-Berrocoso, J., Garrido-Arroyo, M. D. C., Burgos-Videla, C., and Morales-Cevallos, M. B. (2020). Trends in educational research about e-learning: A systematic literature review (2009–2018). *Sustainability,* 12(12), 5153.

Van der Kleij F. M., Feskens R. C., and Eggen T. J. (2015). Effects of feedback in a computer-based learning environment on students' learning outcomes: A meta-analysis. *Review of Educational Research*, 85(4), 475–511.

VanPortfliet, P., and Anderson, M. (2013). Moving from online to hybrid course delivery: Increasing positive student outcomes. *Journal of Research in Innovative Teaching,* 6(1), 80-87.

Veggetti, M. S. (2018). Becoming a person through innovative inclusive education. *Educação,* 41(3), 393-400.

Vekiri, I. (2010). Socioeconomic differences in elementary students' ICT beliefs and out-of-school experiences. *Computers and Education,* 54(4), 941-950.

Velasquez, A., Graham, C. R. and Osguthorpe, R. D. (2013). Caring in a technology-mediated online high school context. *Distance Education,* 34(1), 97–118.

Venkatesh, V., and Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315.

Venkatesh, V., and Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science,* 46(2), 186–204.

Venkatesh, V., Thong, J. Y., and Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly,* 36(1), 157–178.

Veríssimo, M., Torres, N., Silva, F., Fernandes, C., Vaughn, B. E., and Santos, A. J. (2017). Children's representations of attachment and positive teacher–child relationships. *Frontiers in Psychology,* 8, 2270.

Viennet, R., and Pont, B. (2017). *Education policy implementation: A literature review and proposed framework.* Organisation for Economic Co-operation and Development (OECD), Education Working Paper No. 162. www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/WKP(2017)11anddocLanguage=En

Vlăsceanu, L., Grünberg, L., and Pârlea, D. (2004). *Quality assurance and accreditation: A glossary of basic terms and definitions.* UNESCO European Centre for Higher Education. Bucharest: Unesco-Cepes.

Volery, T., and Lord, D. (2000). Critical success factors in online education. *International Journal of Educational Management*, 14(5), 216-223.

Vollstedt, M., and Rezat, S. (2019). An introduction to grounded theory with a special focus on axial coding and the coding paradigm. In Kaiser, G., and Presmeg, N., *Compendium for early career researchers in mathematics education*, (pp. 81-100). Springer Nature.

Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *The Internet and Higher Education*, 6(1), 77-90.

Vonderwell, S., and Savery, J. (2004). Online learning: Student role and readiness. *Turkish Online Journal of Educational Technology-TOJET,* 3(3), 38-42.

Wall, K., Higgins, S., Miller, J., and Packard, N. (2006). Developing digital portfolios: Investigating how digital portfolios can facilitate pupil talk about learning. *Technology, Pedagogy and Education,* 15(3), 261-273.

Walters-Archie, A. (2018). Academic support for online students in the English-speaking Caribbean at the University of the West Indies Open Campus. *Journal of Further and Higher Education,* 42(6), 868-878.

Wands, M., and Le Blanc, A. (2001). *Critical Success Factors: eLearning Solutions.* The Official e-Newsletter of the Change and Learning Practice, Internet Time Group, Berkeley, California.

Wang, R. Y., and Strong, D. M. (1996). Beyond accuracy: What data quality means to data consumers. *Journal of Management Information Systems,* 12(4), 5-33.

Ward, R. and Grant, S. (2007). What is an ePortfolio? Centre for Recording Achievement. http://www.recordingachievement.org/eportfolios/keydocs.asp

Warschauer, M., and Xu, Y. (2018). Technology and Equity in Education. In Voogt, J., Knezek, G., Christensen, R., Lai, KW. (Eds) *Second Handbook of Information Technology in Primary and Secondary Education,* 1063–1079. Springer International Handbooks of Education. Springer, Cham.

Watkins, R., Leigh, D., and Triner, D. (2004). Assessing readiness for e-learning. *Performance Improvement Quarterly,* 17(4), 66-79.

Watson, J. F. (2007). *A National Primer on K-12 Online Learning.* North American Council for Online Learning. https://files.eric.ed.gov/fulltext/ED509633.pdf

Watson, J., Murin, A., Vashaw, L., Gemin, B., and Rapp, C. (2012). Keeping Pace with K-12 Online and Blended Learning. Evergreen Education Group. http://kpk12.com/cms/wp-content/uploads/KeepingPace2012.pdf

Watson, W. R., and Watson, S. L. (2007). What are learning management systems, what are they not, and what should they become? *TechTrends,* 51(2), 28-34.

Weber, A. M., and Trojan, J. (2018). The restorative value of the urban environment: A systematic review of the existing literature. *Environmental Health Insights,* 12, 1178630218812805.

Weber, R. (2020). Lockdown dancing is both a solo conversation and a mass grieving. The Activist History Review, October 2, 2020. https://activisthistory.com/2020/10/02/moving-embodied-dance-practices-online/

Weed, M. (2017). Capturing the essence of grounded theory: the importance of understanding commonalities and variants. *Qualitative Research in Sport, Exercise and Health,* 9(1), 149-156.

Weerasinghe, I. S., and Fernando, R. L. (2017). Students' satisfaction in higher education. *American Journal of Educational Research,* 5(5), 533-539.

Wei, H. C., and Chou, C. (2020). Online learning performance and satisfaction: do perceptions and readiness matter? *Distance Education*, 41(1), 48-69.

Weiner, C. (2003). Key ingredients to online learning: Adolescent students' study in cyberspace – the nature of the study. *International Journal on E-learning*, 2(3), 44-50.

Wenger, E. (1996). How we learn. Communities of practice. The social fabric of a learning organization. *Healthcare Forum Journal,* 39(4), 20-26.

Wenger, E. (1999). *Communities of practice: Learning, meaning, and identity.* Cambridge university press.

Wenger, E. and Lave, J. (1991). *Situated learning: Legitimate peripheral participation (Learning in doing: Social, cognitive and computational Perspectives.* Cambridge: Cambridge University Press.

Wenger, E., McDermott, R., and Snyder, W. M. (2002). *Cultivating Communities of Practice: a guide to managing knowledge - Seven principles for cultivating communities of practice*. Harvard Business School Press,

West, R. E., and Williams, G. S. (2017). "I don't think that word means what you think it means": A proposed framework for defining learning communities. *Educational Technology Research and Development,* 65(6), 1569-1582.

White, C., and Morrison, B. (2011). Inside independent learning: Old and new perspectives. In B. Morrison, *Independent language learning: Building on experience, seeking new perspectives,* (pp.13-23). Hong Kong University Press.

Whitebread, D. (2013). Self-regulation in young children: Its characteristics and the role of communication and language in its early development. In Whitebread, D., Mercer, N., Howe, C., and Tolmie, A. Self-regulation and Dialogue in Primary Classrooms. *British Journal of Educational Psychology. Monograph Series II: Psychological Aspects of Education-Current Trends No. 10. British Psychological Society* (pp. 35-44). Leicester: BPS.

Wickersham, L. E., and McGee, P. (2008). Perceptions of satisfaction and deeper learning in an online course. *Quarterly Review of Distance Education*, 9(1), 73–83.

Willermark, S. (2018). Technological pedagogical and content knowledge: A review of empirical studies published from 2011 to 2016. *Journal of Educational Computing Research,* 56(3), 315-343.

Willig, C. (2001). *Introducing qualitative research in psychology: Adventures in theory and method.* Buckingham, UK: Open University Press.

Willig, C. (2013). *Introducing qualitative research in psychology.* McGraw-Hill education (UK).

Wilson, S. M., and Peterson, P. L. (2006). *Theories of Learning and Teaching: What Do They Mean for Educators? Working Paper.* National Education Association Research Department.

Wladis, C., Conway, K. M., and Hachey, A. C. (2016). Assessing readiness for online education - Research models for identifying students at risk. *Online Learning,* 20(3), 97-109.

Wong, R. S. M., Ho, F. K. W., Wong, W. H. S., Tung, K. T. S., Chow, C. B., Rao, N., ... and Ip, P. (2018). Parental involvement in primary school education: Its relationship with children's academic performance and psychosocial competence through engaging children with school. *Journal of Child and Family Studies,* 27(5), 1544-1555.

Wood, B. A. (2019). *Stronger together: Holistic learning through Education for Sustainability* (Doctoral dissertation, The University of Waikato).

Woodhead, M. (2013). *Becoming a person (Vol. 1).* Routledge.

Woods, P. (1992). Symbolic interactionism: theory and method, in: M. D. LeCompte, W. L. Millroy and J. Preissle (Eds) *The handbook of qualitative research in education.* New York, Academic Press, 336–404.

Wrenn, J., and Wrenn, B. (2009). Enhancing learning by integrating theory and practice. *International Journal of Teaching and Learning in Higher Education,* 21(2), 258-265.

Wu, J. H., Tennyson, R. D., and Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers and Education,* 55(1), 155-164.

Xie, X., Siau, K., and Nah, F. F. H. (2020). COVID-19 pandemic–online education in the new normal and the next normal. *Journal of Information Technology Case and Application Research,* 22(3), 175-187.

Xin, C. (2012). A critique of the community of inquiry framework. *The Journal of Distance Education,* 26(1), 1-7.

Yang, Y., and Durrington, V. (2010). Investigation of students' perceptions of online course quality. *International Journal on E-Learning,* 9(3), 341-361.

Yeh, Y. F., Hsu, Y. S., Wu, H. K., Hwang, F. K., and Lin, T. C. (2014). Developing and validating technological pedagogical content knowledge-practical (TPACK-practical) through the Delphi survey technique. *British Journal of Educational Technology,* 45(4), 707-722.

Yelland, N. (2006). New technologies and young children: Technology in early childhood education. *Teacher Learning Network,* 13(3), 10-13.

Yelland, N. J., and Gilbert, C., L. (2018). Transformative technologies and play in the early years: Using tablets for new learning. *Global Studies of Childhood,* 8(2), 152–161.

Yi, Z. (2018). Research on Dance Motion Simulation Based on Virtual Reality Technology. *4th World Conference on Control, Electronics and Computer Engineering (WCCECE 2018)*
https://webofproceedings.org/proceedings_series/ECS/WCCECE%202018/WCCECE051.pdf

Yin, J., Zhu, S., MacNaughton, P., Allen, J. G., and Spengler, J. D. (2018). Physiological and cognitive performance of exposure to biophilic indoor environment. *Building and Environment,* 132, 255-262.

Zagami, J., Bocconi, S., Starkey, L., Wilson, J. D., Gibson, D., Downie, J., ... and Elliott, S. (2018). Creating future-ready information technology policy for national education systems. *Technology, Knowledge and Learning,* 23(3), 495-506.

Zalaznick, M. (2019). Online service intends to expand pre-K access. (EQUITY). *District Administration,* 55(8), 12.

Zariski, A., and Styles, I. (2000, February). Enhancing student strategies for online learning. In Flexible futures in tertiary teaching. Proceedings of the *9th Annual Teaching Learning Forum* (pp. 2-4).

Zhang, X., Pomerantz, E. M., Qin, L., Logis, H., Ryan, A. M., and Wang, M. (2019). Early adolescent social status and academic engagement: Selection and influence processes in the United States and China. *Journal of Educational Psychology,* 111(7), 1300.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329–339.

Zucker, A. (2005). A study of student interaction and collaboration in the Virtual High School. In R. Smith, T. Clark, and R.L. Blomeyer (Eds.), *A Synthesis of Research on K-12 Online Learning.* Naperville, IL: Learning Point Associates.

Appendix One

Participant Information Sheet

Dear Students and Parents,

I am a PhD candidate at Lancaster University and a lecturer in dance studies in the UK higher education institution. I would like to invite you to take part in a pilot online course in History and Appreciation of Dance (HAD), before a school-wide implementation of online HAD course, and I would like to investigate your experience of online learning. Please take time to read the following information carefully before you decide whether or not you wish to take part in the study. I would appreciate if both student and one parent sign a consent form associated with this information sheet. Thank you.

What is the study about?

My research objective is to gain an understanding of primary students' views and experiences of OL characteristics and practices. This includes illuminating student-identified factors influencing how they learn online. My study thus proposes the development of a segment/section of the online HAD course in a ballet school which you attend, and my aim is to explore your, fourth-grade student's attitudes towards this learning model before a school-wide implementation of the online HAD course. My final objective is to create a holistic conceptual framework of online learning for primary education to serve as a guide to decision-making when creating, delivering and evaluating OL.

Why have I been invited?

I have approached you because you are in the fourth, final year of your primary ballet school, and the future online HAD course is planned to be delivered in the final year of the programme. Also, now is the time to learn about dance history, learn about and evaluate dance works from various stylistic periods, and raise your awareness of dance culture and dance events in a wider social community; that will amongst other things, help you acquire a more

comprehensive understanding of dance art and help you appreciate the importance of preserving dance heritage. Finally, you could help me understand OL, its advantages and disadvantages, and factors that enable and inhibit effective OL. I would be very grateful if you would agree to take part in this study.

What will I be asked to do if I take part?

If you decided to take part, this would involve the following:

1)You will be asked to complete a pre-course self-assessment of computer skills survey in the first meeting in September 2020. The purpose of this exercise is to determine the skills, knowledge and attitudes that will have to be covered in the pre-course-training for the participants and identify the gaps in knowledge that have to be addressed. The aim is to gather information about your prior experiences with ICT and different forms of TEL in a broad sense. Findings will be used in the development of pre-course-training content.

2)Pre-course training - Introduction to the course. You will be asked to take part in two 60 minutes long introductory sessions in September 2020 (prior to taking the pilot HAD course) that will cover the basic principles of online learning. These sessions will be delivered by myself and with a help of school's IT teacher. Two classes should provide a common grounding for all the participants, thus, making sure that you all have the necessary knowledge and skills to follow the online HAD course.

3)You will be required to take part in the pilot 6 week-long online HAD course that will start in November and requires maximum of one hour of study per week (60 minutes; that includes completing a lesson, checking appropriate online platform for information on course, submit all assignments, and offline activities such as reading, for example). Completing this course online will give you an opportunity for flexible study which means that you can vary how long it takes to complete a weekly Unit and its Study Tasks. It also means you can spend more or less time studying each week and that you can choose when to

study next to your other commitments. However, participating in the course should not take you more than one hour of study per week.

4)In the end of the course, I will ask you to attend a 45-to-60-minute interview with me, to explore how you feel about OL and its characteristics, to get a better understanding of your needs as online learners and understand the perceived benefits and challenges of this learning model. Interview will be via Skype/Facetime.

What are the possible benefits from taking part?

By taking part in this study, your insights will contribute to our understanding of OL for early learners, its benefits and challenges and what enables and/or inhibits effective OL. It is also hoped that including a study of dance history and critical analysis of the art form will add at present missing perspective on dance's past, present, and future, concurrently improving your learning outcomes. This will also provide you with the opportunities for acquiring a wider understanding of discipline-specific knowledge, as well as competences beyond subject content (such as digital skills, and time-management, for example), and learning that should be valuable to you both at this moment and in your future.

Do I have to take part?

No. It's completely up to you to decide whether or not you take part. Your participation is voluntary. If you decide not to take part in this study, this will not affect your studies and the way you are assessed on your ballet programme.

What if I change my mind?

If you change your mind, you are free to withdraw at any time before your participation in this study's data collection, prior to interview. The data that are contributed in the interview will be anonymous and will be kept. If you want to withdraw prior to the interview, please let me know, and I will extract any ideas or information you contributed to the study and destroy them. However, it is difficult and often impossible to take out data from one specific participant when

this has already been anonymised or pooled together with other people's data in analysis of findings. Therefore, you can only withdraw up to 5 weeks after taking part in the course and prior to taking part in the interview.

What are the possible disadvantages and risks of taking part?

While this project does not require a big-time investment on your part, it does need continued involvement over a 5-week period to allow for participation in the pilot online HAD course. I would be grateful if you can allow for this in your timetable. I envisage, however, that participation will mainly bring useful and positive experience and you will help the future of the course.

Will my data be identifiable?

After the interview, only I, the researcher conducting this study and my supervisor will have access to the information you share with me. We will keep all personal information about you (e.g., your name and other information about you that can identify you) confidential, that is, I will not share it with others. I will remove any personal or identifying information from the written record of your contribution, if there is any.

How will we use the information you have shared with us and what will happen to the results of the research study?

I will use the information you have shared with me only for research purposes only. This will include my PhD thesis and other publications- for example, journal articles. I may also present the results of my study at academic conferences. When writing up the findings from this study, I would like to reproduce some of the views and ideas you shared with me. I will only use anonymised quotes (e.g., from my interview with you), so that although I will use your exact words, you cannot be identified in publications.

How my data will be stored?

Your data will be stored in encrypted files (that is no-one other than me, the researcher will be able to access them) and on password-protected computers.

I will store hard copies of any data securely in locked cabinets in my office. I will keep data that can identify you separately from non-personal information (e.g., your views on a specific topic). In accordance with the University guidelines, I will keep the data securely for a minimum of ten years.

What if I have a question or concern?

If you have any queries or if you are unhappy with anything that happens concerning your participation in the study, please contact me at t.zubovic@lancaster.ac.uk or my supervisor Dr Natasa Lackovic, Educational Research, Director, CHERE (Center for Higher Education Research and Evaluation), Director, GNC ReOPeN (Graphic novels and comics network), Lancaster University, at n.lackovic@lancaster.ac.uk

If you have any concerns or complaints that you wish to discuss with a person who is not directly involved in the research, you can also contact:

Professor Paul Ashwin, Head of Department, Department of Educational Research, Lancaster University.

Email: paul.ashwin@lancaster.ac.uk

This study has been reviewed and approved by the Faculty of Arts and Social Sciences and Lancaster Management School’s Research Ethics Committee.

Thank you for considering your participation in this project.

Tina Zubovic

Appendix Two

Consent form

Project Title: Introducing Online Learning to Primary Students: Needs, Benefits and Challenges of Online Learning as Perceived by the Participants of the Online History and Appreciation of Dance Course

Name of Researcher: Tina Zubovic

Email: t.zubovic@lancaster.ac.uk

Please tick each box:

1. I confirm that I have read and understand the information sheet for the outlined study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time during my participation in this study and within 4 weeks after I took part in the study, without giving any reason. If I withdraw prior to having taken part in the pilot online History and Appreciation of Dance course, my data will be removed. If I took part in the interview and then withdraw, my data will remain part of the study.	☐
3. If I am participating in the interview, I understand that any information disclosed within the interview remains confidential to the researcher, and I will not discuss the interview with or in front of anyone who was not involved unless I have the relevant person's express permission.	☐
4. I understand that any information given by me may be used in future reports, academic articles, publications or presentations by the researcher/s, but my personal information will not be included and all reasonable steps will be taken to protect the anonymity of the participants involved in this project.	☐

5. I understand that my name will not appear in any reports, articles or presentation.	☐
6. I understand that interview will be audio-recorded and transcribed and that data will be protected on encrypted devices and kept secure.	☐
7. I understand that data will be kept according to University guidelines for a minimum of 10 years after the end of the study.	☐
8. I agree to take part in the study.	☐

_____ _____

Name of Participant Name of one parent

Date Signature

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent_____ Date _____

One copy of this form will be given to the participant and the original kept in the files of the researcher at Lancaster University

Appendix Three

Interview guide

General OL questions

• What general features do you think an ideal online course has to have?

• What is your definition of a successful online course?

Follow up: Using your definition, do you feel like HAD course was successful? Why/Why not?

• What else do I need to know to understand what you feel is essential to prepare learners for OL and support online learners?

• Tell me about what impacts your satisfaction when you learn online. Follow up: What can be done differently to improve your satisfaction with an online course?

• Tell me about what determines your success as online learner.

Follow up: When you learn online, what do you think impacts upon your learning outcomes and why?

• Talk to me about a time when you were highly engaged/not engaged in your HAD course.

• Tell me about what affects your ability to properly engage in an online course.

• Tell me about your opinions related to OL during the course and after the course. Please explain.

• Would you recommend this course to a fellow student? Why?

• Tell me were there any parts of the course that were challenging? What action were you able to take to rectify this? What actions can I take as a course designer and tutor?

• Overall, how do you see the physical and temporal separation of tutor and student, and between students themselves in OL?

• What are your perceptions on the synchronous aspects of the course and what are your perceptions of the asynchronous aspects of learning online?

• Talk to me about your learning in HAD course. What were your preferences? Why?

• What motivated you to learn about the topics during the course? Follow up: What helps you stay motivated to learn online?

• What key experiences have you had that you would like to see repeated in other online courses?

Follow up: What can be done differently to impact your experiences with OL positively?

• What changes, if any, would you recommend to improve this course? Why?

Factors/Inputs to OL

• What do you think are the important factors or inputs/ingredients impacting upon the OL experiences?

•What characteristics of the OL environment do you perceive as essential for you to join an online course?

Course atmosphere

• What are your perceptions of the course atmosphere? What it means to you?

Student

• What kind of characteristics a student needs to have to be successful in learning online? Why?

• What is your definition of a successful online learner? Follow up: From the experience, what did you learn about yourself as an online student? Follow up: Has becoming an online learner changed your learning? How? Why?

• What aspects of your role as a student are particularly effective in leading to better learning or successfully reaching learning outcomes?

• Tell me about your responsibility during the course? What do you think was expected of you in the course? Follow up: Did you do your part? Why?

• As a student, what could you do to improve your OL?

Support

• Talk to me about support you need to learn online effectively. Follow up: How do you get the support you need?

• Tell me about any aspects of learning online you think students may need assistance with?

• Can you identify where/when during the course you especially needed support? Can you give me an example of an experience that illustrates this?

Context

• Tell me about your home/immediate surrounding when you are learning online, i.e., learning space, physical environment, family.

• How does the broader context / surrounding / environment you live in and study in during an online course impacts your learning?

• Talk to me about learning context you need to learn online effectively.

Teacher

• Tell me about the teacher role in an online course.

• How do you describe the teacher's role in online learning?

• In what ways do you feel teachers can make a difference?

• Tell me about teacher-guided questions and teacher-moderating discussions. Follow up: What is your perception of these as a mechanism to learn?

• How does the interaction you have with the teacher in the course impacts your learning?

• What else do I need to know to understand what you feel is essential for a teacher to prepare learners for OL and support their learning during the course?

Communication / Interaction / Collaboration

• Tell me about your communication with other students.

• Tell me about peer-to-peer interactions during the course.

• How does the interaction you have with other students in the course impacts your learning?

• Tell me about your interaction with the teacher in the course? What interaction with the teacher means to you in OL?

• Talk to me about discussion forum on Loomen, please. What were the positives and what were the challenges? How did you meet them?

• Talk to me about Viber, please. What were the positives and what were the challenges? How did you meet them?

• Describe your collaboration with other students.

Course content, design and delivery

• Tell me about this course organisation.

• What did you like least about this course? What did you like most about this course?

• Tell me about the course content.

• Can you single out the most relevant experiences from HAD course related to Course content?

• Comment please on the language used in the course / its tone.

• What resources have you found to be valuable when you learn online?

• Please, tell me more about different class materials. Do you have any suggestions as to when and where these materials might have the most impact? Why is that?

• What makes it easier or more difficult for you to understand and remember the topic when learning online?

• Tell me about cross-curricular collaborations in OL. What they mean to you?

• Tell me about the guest teacher.

• Tell me about pair and group work.

• Please, tell me about the videos in OL to deliver the course content.

• Tell me about what motivates you to keep watching each video lecture until the end?

• Comment please on the length of the course videos.

• What resources have been of particular use to you? How and why?

• Please, tell me about the textual representation of the course content.

• Please, tell me about the audio resources.

• Were there any identifiable moments in the course where this course delivery methods meet your needs? Follow up: Could you give me an example of a particular experience that you felt to be especially memorable? Prompt: What do you feel it was about this experience that proved significant to you?

• In your opinion, what course design factors influence learning the most?

• Comment please on the appearance and design of the course on screen.

• Tell me about the online learning platform used: Loomen. Comment please on the graphics, layout, user-friendliness, navigation.

• Tell me about working with specific directions and deadlines vs, with flexibility in completing assignments.

• Can you single out the most relevant experiences from HAD course related to the course design and delivery?

• What could I have done differently as a designer on the course, relating to course content, what relating to design, and what relating to the course delivery?

Assessment

• Tell me about assessment experiences through the studied HAD online course.

• How do you perceive different assessment strategies in OL?

• Tell me about self- and peer-assessment.

• Tell me about choices in tasks and assessments.

• Tell me about rubrics.

• Tell me about the quizzes. What they mean to you?

• Tell me about essays, presentations, mind-maps and podcasts as methods to assess your knowledge, skills and understanding of concepts and topics covered in the course.

Technology

• Overall, how do you see the role of technology and the Internet in learning? Follow up: What kind of learning is facilitated by the use of technology and the Internet in the process of learning?

• What are your preferences for specific ICT tools/media in OL?

Planning

• If you were an education planner, which actions do you think should be taken and what should be accounted for before the course begins?

• If you were an education planner, which actions do you think should be taken and what should be accounted for during the course, and what you think should be done after the course?

• Which conditions would need to be created so that you would participate in a course online rather than face-to-face format?

Closing questions

• Is there anything more you would like to add that would help me better understand your OL experiences at your upper primary school?

• Is there anything more you would like to add that would help me better understand what influences your OL at your upper primary school?

• Is there anything more you would like to add?

Appendix Four

Key Dimensions and sub-dimensions of factors critical to students' positive OL experiences as per empirical study findings

Key Factors	**Sub-Dimensions**	**Properties**
Course content, design and delivery	*Content*	• content is well-organised, understandable, concise, interesting, and interactive • useful, diverse and relevant content • course includes an *Introduction to the course* session
	Design	• well-structured course, organised into units • logical, understandable course navigation • clearly outlined expectations, clear learning goals, assessment modes and criteria • courses to follow a consistent structure • rubrics for assignments are provided • content presentation: - enjoyably presented content - multiple technologies and media are utilised for content provision and presentation - the main method of content presentation are self-done teacher's videos that combine visual, audio and text, supplemented with external links and podcasts - supplementary video-related text is available - written guidelines for collaboration and communication are provided - scope-and-sequence handouts communicate what learners need to do and when they need to do it

	Delivery	• clear timelines and deadlines • direct and indirect instruction - guest teachers and peer-to-peer learning • course has diverse communication inputs and a range of effective communication channels
Flexibility, variety, choice, and control in resources, tasks and assessments	- Flexibility in time, place and pace of learning; flexibility in tasks and assessments; flexible scheduling - Variety in instructional methods, resources, tasks, and assessments - Having a choice - Having control of learning	
Support	Initial and ongoing timely teacher support; Peer, family, and academic support; IT support and training; Continuing individual and group support	
Student	Motivation and willingness to do what is necessary; focus; curiosity; technology competence; time management; self-study skills, self-teaching skills, commitment, self-regulation; initiative and persistence; self-discipline; active participation in own learning; engagement and effort	
Technology	*Prior experience and confidence with technology*	
	Internet speed and quality	
	Device	Device used to learn online is functional, reliable, and with good connectivity
	Delivery medium (LMS)	LMS is easy to use, appealing, reliable, easy to navigate, user-friendly, and customised
Pedagogy	- Cross-curricular collaboration and knowledge transfer - E-portfolio activity (facilitating communication, reflection) - Personalisation and Differentiation - Dialogue and Discussions - Game-based learning - Flexible, frequent, varied and feedback-rich assessments - Inquiry-based learning	

Socio-Affective considerations	- positive relationships - effective communication - emotional support - students feel valued and respected - sense of community and belonging - praise - supportive and inclusive atmosphere - conflict resolution - reflective practice
Teacher	*1.Teacher's human qualities* - Desirable personal traits (kind, polite, respectful, available, supportive, approachable, flexible, empathetic, nurturing, caring teacher). - Teacher creates a child-friendly, value-based environment by: inspiring students; encouraging appropriate human interactions; through use of humour; sense of curiosity; and teacher tact (reflected in the level of comfort students feel with the teacher).
	2.Teacher presence - Reflected in teacher's responsiveness, response, teacher-student interaction, and active participation during the course
	3.Teacher responsiveness - Involvement and availability through different communication channels (email, Viber text chat; telephone, forum responses; face-to-face tutorials), and continuing support
	4.Teacher communication - Teacher models a communication style that demonstrates a positive tone, enthusiasm for the subject, and respect and care for each student
	5.Teacher role - Course and learning facilitation; facilitation of active involvement and interactions between the students themselves

	and teacher-students; monitoring individual and group activities; creating spaces for collaboration and dialogue; - ICT, content knowledge; quality of instruction; detailed and clear explanations; - Creating a satisfying learning climate; - Enthusiasm for the subject and engagement - Teacher as expert and guide (dual role of ‘sage on the stage’ and ‘guide on the side’); - Timely, regular, clear, constructive, and detailed feedback;
Contextual factors **and conditions**	- Immediate surrounding: availability of designated learning space, physical environment, indoor environmental quality, weather conditions; - Family and peer relationships and support, and teacher-student relationship - Academic setting

Appendix Five

OLY framework sub-dimensions resulting from the comparison of sub-dimensions in the Provisional and Subjective framework

Mosaic of Theories on Learning	
OLY framework	1. Behaviourism, cognitivism, and constructivism; 2. *How people learn* (National Academies of Sciences, Engineering and Medicine, 2018) report considerations; 3. Motivation; 4. Bioecological perspectives; 5. Metacognition and Self-Regulation; 6. Affect; 7. Growth mindset, Agency, and Choice; 8. Multiple Intelligences and Learning Styles perspective; 9. Fink's Taxonomy of Significant Learning (2003); 10. Developmental Stages; 11. Universal Design for Learning; 12. Online Learning Theory
Technology	
Subjective framework	1. Prior experience and confidence with technology 2. Device used to learn online is functional, reliable, and with good connectivity 3. Delivery medium (LMS) is easy to use, appealing, reliable, easy to navigate, user-friendly, and customised; 4. Internet speed and quality
Provisional framework	1. Infrastructure; 2. Consistency and effectiveness of IT; 3. Reliability; 4. Accessibility; 5. Appropriateness of technology to the pedagogical content 6. Upgrades and Maintenance 7. Ease of use
OLY framework	1. Infrastructure; 2. Internet/broadband speed and quality 3. Consistency and effectiveness of IT: Device used to learn online is functional, reliable, and with good connectivity; Delivery medium (LMS) is easy to use, appealing, reliable, easy to navigate, user-friendly, and customised; 4. Prior experience and level of confidence with technology 5. Upgrades and Maintenance 6. Ease of use 8. Appropriateness of technology to the pedagogical content 9. Accessibility
Flexibility, variety, choice, and control in resources, tasks and assessments	
OLY framework	1. Flexibility in time, place and pace of learning; flexibility in tasks and assessments; flexible scheduling; 2. Variety in instructional methods, resources, tasks, and assessments; 3. Having a choice; 4. Having control of learning
Course Content	

Subjective framework	1. Content is well-organised, understandable, concise, interesting, interactive; 2. Useful, diverse and relevant content 3. Course includes an *Introduction to the course* session
Provisional framework	1. Accessible and inclusive; 2. Relevant and challenging; 3. Well-organised, 4. Understandable; 5. Concise, On-time content 6. Available in manageable segments; 7. Useful; 8. Up-to-date and Comprehensive; 9. Displayed in multiple ways, using purposeful multiple media; 10. Updated and linked to existing and new information on the subject matter and related knowledge.
OLY framework	1. Accessible and inclusive; 2. Relevant and challenging; 3. Well-organised and Comprehensive; 4. Understandable; 5. Concise, 6. Useful and diverse; 7. Up-to-date; 8. Displayed in multiple ways, using purposeful multiple media; 9. Updated and linked to existing and new information on the subject matter and related knowledge.10. Interesting and interactive; 11. On-time content; 12. Available in manageable segments; 13. Course includes an *Introduction to the course* session
Course Design	
Subjective framework	1. Well-structured course organised into units; 2. logical, understandable course navigation, 3. clearly outlined expectations, learning objectives, assessment modes and criteria 4. courses to follow a consistent structure 5. content presentation: enjoyably presented content; multiple technologies and media are utilised for content provision and presentation; the main method of content presentation are self-done teacher's videos that combine visual, audio and text, supplemented with external links and podcasts; supplementary video-related text to be made available to students; written guidelines for collaboration and communication; scope-and-sequence handouts that communicate what learners need to do and when they need to do it
Provisional framework	1. Learner-centred, responsive interface design 2. Intuitive Navigation 3. Objectives are available; 4. Expectations regarding behaviour, communication and participation are provided; 5. Communication and activities are used to build community; 6. Rubrics for assignments; 7. Technology is used to promote learner engagement/facilitate learning; 8. Instructor contact information is stated; 9. Links to institutional services; 10. Assessments align with objectives. 11. Student-to-student interaction is supported 12. Appealing course appearance

OLY framework	1. Learner-centred, responsive interface design 2. Well-structured course, organised into units; 3. Logical, intuitive, understandable course navigation 4. Courses to follow a consistent structure 5. Clearly outlined expectations, learning objectives, assessment modes and criteria 6. Rubrics for assignments are provided; 7. Scope-and-sequence handouts communicate what learners need to do and when they need to do it 8. Assessments align with objectives 9. Written guidelines for collaboration and communication are provided; 10. The main method of content presentation are self-done teacher's videos that combine visual, audio and text, supplemented with external links and podcasts; 11. Supplementary video-related text is available; 12. Expectations regarding behaviour, communication and participation are provided; 13. Student-to-student interaction is supported; 14. Links to institutional services are provided 15. Teacher contact information is stated; 16. Multiple technologies and media are utilised for content provision and presentation, to promote learner engagement and facilitate learning; 17. Appealing course and course content appearance 18. Communication and activities are used to build community.
Course Delivery	
Subjective framework	1.Clear timelines and deadlines; 2. Direct as well as indirect instruction: guest teachers and student-student teaching 3. Course has diverse communication inputs and a range of effective communication channels
Provisional framework	1.Reliable and robust interface 2. Clear goals, directions and learning plans 3. Accurate and error free materials; 4. Clear Unit information and expectation of student roles; 5. Synchronous and asynchronous activities 6. Communication *is encouraged* (the unit provides opportunities and encourages student-student and teacher-students dialogue 7. Appropriate institutional style for Units and web sites
OLY framework	1.Reliable and robust interface; 2. Clear goals, directions and learning plans ; 3. Unit information and expectation of student roles are clear; 4. Accurate and error free materials; 5. Appropriate institutional style for Units and websites to ensure a benchmark quality of presentation; 6. Communication: course has diverse communication inputs and a range of effective communication channels, and encourages student-student and teacher-students dialogue; 7. Clear timelines and deadlines; 8. Direct as well as indirect instruction - guest teachers and student-student teaching.

Pedagogy	
Subjective framework	1. Cross-curricular collaborations and knowledge transfer; 2. Criteria informed, multimodal, timely, frequent and feedback-rich assessment 3. E-portfolio; 4. Personalisation and Differentiation; 5. Dialogue and Discussions; 6. Game-based learning 7. Inquiry-based learning 8. Variety of instructional strategies
Provisional framework	1. Variety of instructional strategies, 2. Diversity in assessment, 3. Independent study and Collaboration, 4. Interaction and dialogue (student-teacher and student-student), 5. Reflection 6. Game-based learning 7. Personalisation 8. Inquiry-based learning
OLY framework	1. Variety of instructional strategies, 2. Cross-curricular collaborations and knowledge transfer; 3. Reflection 4. Personalisation and Differentiation; 5. Dialogue and Discussions (student-teacher and student-student); 6. Game-based learning; 7. Criteria informed, multimodal, timely, frequent and feedback-rich assessment 8. Inquiry-based learning, 9. E-portfolio; 10. Interaction (student-teacher and student-student).
Context	
Subjective framework	1.Immediate surrounding (availability of designated learning space, physical environment, indoor environmental quality, weather conditions) 2. Family and peer relationships and support, teacher-student relationship 3. Academic setting
Provisional framework	1. Social and political influence; 2. Socioeconomic conditions; 3. Geographical location; 4. Suppliers (Technology Providers, Educational Institutions, Content Providers, Other Teachers, Accreditation Bodies); 5. School committee (board) and Education Ministry 6. Special Interest Groups (e.g., Students' Commissions, Teachers' Association)
OLY framework	1.Immediate surrounding (e.g., availability of designated learning space, physical environment, indoor environmental quality, weather conditions); 2. Relationships (e.g., family and peer relationships and support, teacher-student relationship) 3. Academic setting, School committee (board), and Education Ministry 4. Social and political influences 5. Socioeconomic conditions; 6. Geographical location; 7. Suppliers (Technology Providers, Educational Institutions, Content Providers, Other Teachers, Accreditation Bodies); 8. Special Interest Groups (e.g., Students' Commissions, Teachers' Association)
Student	

Subjective framework	1. Motivation and willingness to do what is necessary; 2. active participation in own learning 3. technology competence; 4. self-study skills and self-teaching skills, 5. commitment, 6. self-regulation; 7. Initiative, focus, and persistence; 8. time management 9. curiosity 10. self-discipline 11. engagement and effort
Provisional framework	1.Engagement and effort, 2. Self-regulation, 3. Self-efficacy, 4. Motivation, 5. Learning styles, 6. Attitude toward ICT and OL, 7. Prior knowledge of OL and ICT skills 8. Internet self-efficacy
OLY framework	1. Engagement and effort 2. Active participation in own learning 3. Willingness to do what is necessary; 4. Curiosity, 5. Initiative, focus and persistence; 7. Learning styles, 8. Self-discipline; 9. Self-regulation, 10. Self-study skills and self-teaching skills; 11. Motivation; 12. Prior knowledge of OL and ICT skills 13. Self-efficacy 14. Internet self-efficacy 15. Commitment 16. Time management.
Support	
Subjective framework	1. Initial and ongoing, timely teacher support; 2. Peer and family support; 3. Academic support; 4. IT support and training 5. Continuing individual and group support
Provisional framework	1. Academic and Administrative support 2. Peer and Family support, 3. IT support and training (for teachers and students); 4. Teacher support
OLY framework	1.IT support and training for teachers and students; *2.* Academic and administrative support; 3. Initial and ongoing, timely teacher support; 4. Continuing individual and group support 5. Peer and family support 6. Teacher support.
Teacher	
Subjective framework	1.Teacher's human qualities - Desirable personal traits (kind, polite, respectful, available, supportive, approachable, flexible, empathetic, nurturing, caring teacher). - Teacher creates a child-friendly, value-based environment by: inspiring students; encouraging appropriate human interactions; through use of humour; sense of curiosity; and teacher tact (reflected in the level of comfort students feel with the teacher). 2.Teacher presence

	- Reflected in teacher's responsiveness, response, teacher-student interaction, and active participation during the course 3.Teacher responsiveness - Involvement and availability through different communication channels (email, Viber text chat; telephone, forum responses; face-to-face tutorials), and continuing support 4.Teacher communication - Teacher models a communication style that demonstrates a positive tone, enthusiasm for the subject, and respect and care for each student 5.Teacher role - Course and learning facilitation; monitoring individual and group activities; facilitation of active involvement and interactions between the students themselves and teacher-students; creating spaces for collaboration and dialogue - ICT, content knowledge; quality of instruction; detailed and clear explanations - Creating a satisfying learning climate - Enthusiasm for the subject and engagement - Teacher as expert and guide (dual role of 'sage on the stage' and 'guide on the side') - Timely, regular, clear, constructive, and detailed feedback
Provisional framework	1. Attitude toward ICT and OL, 2. Commitment, 3. Engagement, 4. Creating a satisfying learning climate, 5. Timely and relevant feedback, 6. Enthusiasm, 7. Prompt responsiveness, 8. TPACK
OLY framework	1. TPACK 2. Teacher's human qualities; 3. Teacher presence; 4. Teacher responsiveness, 5. Teacher communication; 6. Course and learning facilitation; 7. Creating spaces for collaboration and dialogue 8. Creating a satisfying learning climate, 9. Timely, regular, clear, relevant, constructive, and detailed feedback 10. Teacher as expert and guide 11. Commitment, engagement, enthusiasm 12. Monitoring individual and group activities; 13. Facilitation of active involvement and interactions between the

	students themselves and teacher-students; 14. Attitude toward ICT and OL.
Accessibility and Inclusiveness	
OLY framework	1. Universal Design for Learning principles; 2. Technology accessibility; 3. Modified curricula; 4. Presenting information/content in various formats; 5. Clear and concise instructions, guidelines, and expectations; 6. Promoting respectful and inclusive communication, collaboration and interaction; 7. Assessments consider diverse ways of demonstrating knowledge and understanding; 8. Support for students with unique needs and challenges; 9. Ongoing evaluation, adaptation and improvement in promoting accessibility and inclusiveness.
Socio-affective considerations	
Subjective framework	1. Supportive and inclusive atmosphere 2. Positive relationships 3. Effective communication 4. Emotional support 5. Students feel valued and respected 6. Sense of community and belonging 7. Praise; 8. Conflict resolution 9. Reflective practice.
Provisional framework	1. Positive relationships; 2. Effective communication; 3. Emotional support; 4. Cultural sensitivity; 5. Praise; 6. Conflict resolution; 7. Wellness and mental health; and 8. Reflective practice.
OLY framework	1. Supportive and inclusive atmosphere; 2. Positive relationships; 3. Effective communication; 4. Cultural sensitivity 5. Students feel valued and respected 6. Sense of community and belonging 7. Praise; 8. Conflict resolution 9. Emotional support 10. Wellness and mental health; 11. Reflective practice.
Planning and Ongoing course/programme evaluation, adaptation and improvement	
OLY framework	Ongoing course/programme evaluation, adaptation and improvement: 1.Identifying areas for improvement and implementing new pedagogical approaches and instructional methods; 2. Aligning course outcomes and performance with established benchmarks; 3. Evaluating the alignment between course content, activities, and assessments with the intended learning objectives; 4. Effectiveness and appropriateness of the technology used; 5. Accessibility of course materials to all learners; 6. Keeping course content and resources up-to-date

	and relevant 7. Adapting the course in response to changing student needs, emerging trends, and/or external factors.
	Planning: 1. Examination of the existing context of OL in the institution 2. Vision, clarity of purpose and measurable goals 3. Innovation in teaching 4. Setting priorities 5. Teacher Training and Support 6. Mandates for supporting OL and 7. Teaching and learning considerations.