

Thesis Title -

**Power Dynamics and Collaborative Knowledge Construction in
Single-Gender Online Learning Forums**

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This thesis is submitted for the degree of Doctor of Philosophy

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Declaration

I declare that this thesis is entirely my own work and has not been previously published or submitted for any other degree or qualification.

Signature.....

Abstract

Situated within the context of online education, my thesis explores the impact of power dynamics on collaborative knowledge construction in single-gender online learning forums.

I employed an explanatory case study methodology, which involved a detailed examination of discussions in online forums within a diploma course at a Saudi institution. This methodology allowed me to explore causal relationships and gain deeper insights into how power structures influence collaborative knowledge construction among learners. I collected the research data through three methods: online discussion forums, unstructured online interviews, and unstructured online observations. I analysed research data using a qualitative content analysis tool and thematic analysis strategy. The analysis was guided by the Interaction Analysis Model (IAM) by Gunawardena et al. (1997) and the Power Relations Techniques Framework by Gore (1995).

My overall results indicated that learners employ power techniques over each other, demonstrating the presence of multiple power dynamics within the online learning environment. These findings reveal that power relations exert both positive and negative effects on collaborative knowledge construction in online discussion forums.

More specifically, my key findings indicate that peer observation, checking others' posts, and peer corrective feedback are clear manifestations of surveillance in online learning environments, and they facilitate knowledge construction among female learners. Additionally, I uncovered the role of social norms and cultural factors,

particularly within the Saudi educational context, on the dynamics of online discussions. This was evident in the tendency of learners to promote social harmony, avoid confrontations, and adhere to educational norms, which in turn affects the dynamics of collaborative knowledge construction. Moreover, my results showed that emotional sensitivity and trust within collectivist societies can restrict open discussions and the collaborative construction of knowledge. Finally, I demonstrated that regulations and educational standards govern the quality of online educational discussions, thereby enhancing the process of collaborative knowledge construction. Overall, my research provides new insights into the complex interplay between power structures and collaborative knowledge construction in online learning environments. It offers valuable pedagogical insights for instructional designers and educators in developing equitable and inclusive online forums.

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Publications Derived from Work on Doctoral Programmes

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Chapter One: Introduction and Background

1.1 Opening Remark: Background and Context

Research Background. Over the past two decades, the higher education sector has undergone a significant transformation due to the widespread adoption of online learning technologies. This shift has been especially noticeable in Saudi Arabia, where government initiatives such as the National Plan for Communications and Information Technology, and the establishment of the National Centre for E-Learning and Distance Learning in 2007 have played a pivotal role in transforming Saudi Universities (Aljaber, 2018; Unnisa, 2014). The COVID-19 epidemic also highlighted the need for an instant transition to online applications for teaching, learning, and administration in order to ensure sustained education. This transition from traditional educational methods has been especially beneficial for female students.

E-learning has proven to be a powerful tool for women, offering them the flexibility to study at their convenience without the constraints imposed by family or employment commitments (Kibelloh and Bao, 2014). In regions with societal or cultural restrictions, it provides a safe and regulated environment, eliminating the need for travel, thereby enabling women to pursue education in traditional or highly restrictive contexts (Al-Shaya and Oyaid, 2021). Online platforms also promote lifelong learning, helping women keep their skills updated in a rapidly changing job market (Aditya and Permadi, 2019).

In Saudi universities, the majority of classes are single-gender, and many online courses are exclusively composed of female learners. Despite this, studies focusing

solely on female participants in online learning are limited. This is particularly important in the context of online discussion forums, where all interactions occur. These forums are vital for sharing, debating, and constructing knowledge and are a key component of the collaborative learning process. In collaborative learning, knowledge is not transmitted to learners but arises from discourse and negotiation (Camarero, Rodríguez, and San Jose, 2012).

Historically, online communities were perceived as free societies, particularly in discussion forums where the open nature was believed to foster democracy and enrich collaborative knowledge construction (Rabbany et al., 2014). However, research suggests that these digital spaces, like their physical counterparts, are influenced by power dynamics that affect how knowledge is shared and constructed.

The dynamics of communication and power in online forums designed for female learners are distinct. These forums act as "safe spaces", possibly allowing female participants to express themselves more freely and resist typical gender dynamics found in mixed-gender settings (Aikman and Unterhalter, 2005). This raises a critical question: Are these spaces truly free from power imbalance, or do they maintain existing power structures that are usually clear in mixed-gender classes? Or, in another way of asking this question, if gender is not a factor, do power dynamics still exist?

Engaging with this question invites a critical examination of whether these forums are transformative spaces that promote equity and empowerment or if they indirectly uphold traditional power dynamics. Drawing from Foucault (1982, 2002, 2020),

whose work on power relations reveals how even spaces that appear equal can still include power relations, the examination of power relations should extend to the dynamics between learners themselves. Foucault's theories offer a valuable framework for understanding how indirect hierarchies, based on socioeconomic background, linguistic proficiency, and cultural resources, might arise among peers (Foucault, 1982). These peer-based power dynamics play a critical role in shaping interactions within online forums, influencing who feels empowered to speak, whose contributions are more valued, and how learners negotiate their identities and authority among each other. A thorough analysis must also consider how societal norms, the roles of instructors, and the structure of forums may mirror broader power relations.

The complex relationship between knowledge construction and power relations in online forums presents a compelling study of how educational environments can both challenge and support inherent power. In these forums, knowledge is not simply transferred but actively constructed within specific power structures. When female learners participate in these discussions, the existing power dynamics can significantly affect whose knowledge is recognized and valued.

Thus, while a technology like online learning forums offers new avenues for negotiating knowledge, it is also part of a broader framework that requires critical examination (Clark, 1994). This understanding is crucial for developing educational practices that address the complex web of power relations that influence knowledge construction in such unique online settings that include only female learners.

Personal Background and Motive. My interest in online discussions began during my master's studies when open discussion forums were prevalent on the Internet. These forums were independent of any government or commercial entities, so I joined one that was dedicated to e-learning, which included academics from various Arab countries. As it was an open forum, disclosing names was optional, leading most members to prefer anonymity. The environment was highly interactive; we shared files and discussed our research and teaching practices. A learning community began to grow there, and I personally developed relationships that continue to this day. Despite mostly unknown identities, behaviours such as courtesy, exclusion, and inclusion were evident.

Later, I enrolled in an online course on creative writing in English. Although I had taken several face-to-face courses on this subject, the online course had a profoundly different impact, significantly enhancing my English skills. This was partly because most of my peers were native speakers. Online discussions were a core activity in this course, with each student required to respond to a main question on the forum weekly and interact with at least two peers. Since the course was entirely online, these discussions were my only means of getting to know other students. I entered this environment with mixed feelings of fear, anxiety, and sometimes enthusiasm. Initially, I was very sensitive to any criticism of my posts. However, I began to form certain judgments about other students over time, choosing some to avoid and others to engage with. It seemed as though a sort of partisanship had formed within this environment. This experience not only enhanced my language skills—through reading other students' posts, I learned new vocabulary and sentence

structures—but also helped me overcome my fear of interacting with native speakers.

After completing this course, I aimed to integrate this experience into my teaching. Although online classes were not yet supported at my university, many collaborative online tools were freely available, such as Google Documents. Despite traditionally conducting face-to-face classes, I incorporated online discussions using Google Documents as a core activity. The class was divided into groups of five, each sharing a document to answer the main question and discuss each other's posts. Through this experiment, I observed varied student reception to the concept of online discussion and their differing attitudes towards it. However, it was apparent that the students often learned more from each other than from the lectures themselves.

Through these experiences, I observed the dynamics of how knowledge was shared, evaluated, and, at times, celebrated among certain members over others. I also witnessed how some ideas were suppressed before they could fully develop due to ignorance or hostility from other members, while other ideas flourished and grew through constructive member input.

The first two experiences involved mixed-gender groups, while the last involved exclusively female groups. In the first experience, most identities were concealed, whereas in the last two, identities were declared. Although the first experience was the most interactive, the influence of members' identities and power relations was consistently evident across all three environments.

These experiences have shown me that while online learning environments might seem varied, they tend to follow a certain pattern in terms of how individuals engage and interact. This pattern seems to represent a particular "educational regime", which is a collection of regulations that specify what is and is not taught, perhaps restricting even the most creative ways of instruction.

This convinced me that further research on these patterns is necessary. By examining the underlying power and knowledge relationships in online education discourse, we can better understand how they may reinforce or restrict different educational approaches.

Research Context. This research is situated in the field of educational technology, focusing on the role of online learning environments as potential transformative spaces for female learners within higher education in Saudi Arabia. The study was conducted within an E-Learning Diploma Program at a women's university in Saudi Arabia, established in 2017 under the College of Education's Department of Educational Technology. This postgraduate program—blending online and hybrid classes—offers eight courses totalling 24 credit hours, aimed at enhancing professional development in eLearning for those with a Bachelor's degree. Courses range from technology in eLearning to project management, with a focus on integrating academic knowledge with digital technology skills. The program targets developing capabilities in designing and implementing interactive educational projects using digital tools while addressing industry challenges.

The study focuses on the discussion forums of the course 'E-Learning Projects Management' (Tech 736), within the diploma program, which played a pivotal role in

fostering an interactive learning environment. Over four months, the course offered an extensive range of materials and activities, structured into weekly modules that covered all project phases from initiation to closure, within a single-gender setting. The forums in this course, centered around eight key topics, were vital for enhancing student engagement and applying theoretical knowledge. Participants contributed a total of 420 messages throughout the course, making these forums a rich source for analysing how students construct and articulate their knowledge.

1.2 Gap in Current Literature

There are two significant gaps that the current research aims to address: the first pertains to the context of the study, specifically the Saudi context, and the second relates to the field of online and collaborative learning. This section will examine these gaps in depth, clarifying how addressing them might enhance knowledge and practice in these domains.

Initially, the majority of research on online discussion forums in the Saudi context, such as: (AlJeraisy et al. 2015; Alzahrani, 2017; Alghamdi, 2013), predominantly employed quantitative methodologies, relying on surveys and pre-post-test designs to test their outcomes. In fact, there is a strong inclination towards quantitative, positivist research methods in Saudi academic literature, with a recognized but lesser focus on qualitative and mixed methods (Alkraiiji and Eidaroos, 2016; Borg and Alshumaimeri, 2012). While such a research design may be valuable for determining cause-and-effect relationships, it falls short in observing the complexity of human experience (Patton, 2015, p 48).

The primary limitation of the pre-post-test approach is its inability to explain potential factors influencing positive and negative results among participants that are unrelated to the academic intervention (Patton, 2015, p. 48). Nor does it provide any information on learners' differences or how these differences might affect their outcomes (Bryman, 2012, p.178). Quantitative methodologies, in general, cannot capture notions such as freedom, choice, moral responsibility, and individuality (Cohen, Manion, and Morrison, 2011, pp. 14-15). Therefore, this type of methodology is limited in scope, especially if we want to study group work and collaborative learning.

The fundamental assumption of collaborative learning is that the ways learners negotiate and react to each other are essential to the learning processes and outcomes (Enyedy and Stevens, 2014, p.194). Hence, the approach of qualitative research tends to be more suitable as the objective of this research is to reveal the behaviour of a target audience and its connection with a certain subject, which here is: Collaborative Knowledge Construction.

This is particularly essential because collaboration is a social phenomenon in which hidden forces of participants' behaviours cannot be understood without interviewing and talking to each participant individually. Qualitative research, in this sense, will allow looking deeper into the issue, and thus will help produce in-depth descriptive data. This argument is consistent with the recommendations of Al-Ibrahim and Al-Khalifa (2014), who stressed that conducting more research using in-depth interviews is crucial to understanding online interactive spaces in Saudi universities. This becomes even more important, considering that online learning environments in

Saudi universities are single-gendered. Although single-gender environments are a common practice in Saudi culture, previous research on online learning within this context has often overlooked critical aspects such as gender, identity, and power relations. Given this oversight, there is a clear need for in-depth qualitative research that investigates these critical dimensions within the single-gender online learning environments in Saudi Arabia. This claim is also supported by what gender studies have concluded about the differences in the experiences obtained by the two sexes when they undergo the same situation. For example, the study of Chuang and Crowder (2019) called for more research on the effectiveness of single-sex classes in online learning environments, claiming that different research contexts might result in significant findings. Another example is the study conducted by Wu and Wang (2020) which concludes that different genders bring diverse learning experiences to discussion forums, suggesting that gender diversity enhances the richness of discussions. Chan et al. (2013) discovered that while female postgraduate engineering students are more engaged in online communications, male postgraduate engineering students tend to dominate the control of information flows. Additionally, they observed gender differences in how beliefs about social interactions improved, but they found no such differences in beliefs related to personal knowledge.

Given the limited understanding of this context and its distinct culture, it demands further investigation. This study focuses on online classes limited to female learners, aiming to explore how power dynamics within single-gender online forums influence the co-construction of knowledge.

Secondly, although the relationship between online discussion forums, collaborative learning, and knowledge construction is well-recognised in the literature (Gunawardena et al., 1997; D Wever, Schellens, Valcke, and Van Keer, 2006; Camarero, Rodríguez, and San Jose, 2012), gaps remain in understanding how these approaches interact and impact learning outcomes effectively. Findings from previous literature revealed that most of the online collaborative knowledge constructions observed were at lower levels, which is merely the sharing and comparing of information (Judy et al., 2018; Roselia and Umar, 2015; Moore and Marra, 2005). Previous studies documented many reasons that might contribute to these results such as: the way students respond, the size of the group, the topic being discussed, the overall context of the course, cultural norms, the skills and roles of teachers, and time constraints (Chai and Khine, 2006; Du, Zhang, Olinzock, and Adams, 2008). However, to date, little to no research has specifically examined power dynamics among same-gender learners in online settings. Therefore, more investigation is required to fill this gap. Oztok (2016) called for studying power relations in online interaction spaces. He claimed that investigating power relations in online shared writing spaces might reveal hidden forces in the dynamic of group work. In the following section, I discussed a range of countries and institutions where higher education is segregated by gender. An overview of this issue would help to reinforce the significance of the study.

1.3 Female-Only Universities and Colleges in Higher Education

Worldwide

Female-only Universities and Colleges in higher education are a distinctive educational setting observed in various countries and institutions worldwide. These settings are often influenced by cultural, religious, and social factors that shape the structure of educational systems (Sharif, 2022). Understanding the implications of female-only learning environments is crucial for highlighting the significance of this study and contextualising its relevance within a broader global framework. In this section, I will briefly present examples of women's universities and colleges from various countries around the world. It is important to note that this overview includes selected examples rather than an exhaustive list. According to Sharif (2022), there are approximately 70 to 80 higher education institutions worldwide dedicated exclusively to women. However, this section highlights only the most prominent ones, around 13 institutions in total.

In many parts of *the Middle East*, such as Saudi Arabia, Bahrain, Kuwait, the United Arab Emirates, Oman, and Iraq, higher education institutions offer female-only programs or entire universities dedicated exclusively to women. For example:

1. Princess Nourah bint Abdulrahman University (Saudi Arabia)

Princess Nourah bint Abdulrahman University (PNU) is a public women's university located in Riyadh, Saudi Arabia (Sharif, 2022). Recognized as the world's largest women's university, PNU was founded in 1970 during the reign of King Faisal bin Abdulaziz (Almansour, 2015). In 2008, King Abdullah bin Abdulaziz granted it university status and renamed it in honor of Noura bint Abdul Rahman, the elder sister and adviser of King Abdulaziz bin Saud. PNU offers a wide range of academic

programs, including diplomas, bachelor's degrees, and postgraduate studies. The university comprises 18 colleges, offering 114 academic programs across various fields such as Medicine, Dentistry, Nursing, Pharmacy, Health and Rehabilitation Sciences, Business Administration, Computer and Information Sciences, Art and Design, Social Work, Languages and Translation, and Education. PNU is home to over 36,900 students, with a faculty and administrative staff exceeding 5,000 members (Princess Nourah bint Abdulrahman University, 2024).

2. Royal University for Women (Bahrain)

The Royal University for Women (RUW) is the first private, purpose-built international university in Bahrain dedicated exclusively to women's education (Shomotova & Karabchuk, 2022). Located in West Riffa, RUW was established in 2005, with academic programs initially developed in collaboration with McGill University (Canada) and Middlesex University (UK). The university offers a diverse range of undergraduate and postgraduate programs across various disciplines, including Arts & Design, Architecture & Engineering, Law & Business, Human Resources, International Business, and Marketing. It also offers Master's programs in Design Management, Fine Arts, Drawing & Painting, and Business Administration (MBA) (Royal University for Women, n.d.)

3. Al-Zahra College for Women (Sultanate of Oman)

Al Zahra College for Girls was established in 1999 by the Ministry of Higher Education, Scientific Research and Innovation to provide higher education opportunities for women in the Sultanate of Oman (Al-Zahra College for Women,

n.d.). The college delivers most of its academic programs in English, including Accounting, Business Administration, Finance and Banking, Computer Science, Software Engineering, English Language and Literature, and Translation, while programs in Graphic Design and Interior Design are offered in Arabic (Al-Zahra College for Women, n.d.).

Building on this approach, most Gulf countries implement a gender-separated education system, where women often have separate campuses, even within co-educational universities (Diab-Bahman, 2023; Sánchez-Mesas, 2025; AlJuhani, 2023; Hennessey, 2018; Tubaishat, Bhatti, El-Qawasmeh, 2006). This is particularly evident in Saudi Arabia, where institutions like King Saud University, King Abdulaziz University, King Faisal University, Dar Al-Hekma University, and King Khalid University have dedicated campuses for female students (Renn, 2017; AlMunajjed, 1997). A similar approach is seen in the United Arab Emirates (UAE), where universities such as Zayed University maintain gender-segregated campuses (Hennessey, 2018; Tubaishat, Bhatti, El-Qawasmeh, 2006). In Kuwait, Kuwait University follows a comparable model, offering separate facilities for male and female students (Diab-Bahman, 2023). Likewise, Qatar University ensures distinct sections for each gender (Sánchez-Mesas, 2025).

Beyond the Middle East, female-only educational institutions also exist in *South Asia*, particularly in Pakistan and India, where women-only universities and colleges are established to promote higher education among women while adhering to conservative societal expectations. In Pakistan, there are about 17 universities and colleges dedicated exclusively to women (Sharif, 2022). For example:

4. The Jinnah University for Women (Pakistan)

Jinnah University for Women (JUW) was established in 1998 under the Anjuman-e-Islamia Trust, founded by Al-Haj Moulvi Reyazuddin Ahmed (T.I), and is recognised as the first private research university exclusively for women in Pakistan (Sharif, 2022). The university offers undergraduate, postgraduate, and doctoral programs across four main faculties: Science, Arts and Social Sciences; Business Administration, Commerce & Economics; and Pharmacy. Each faculty encompasses various disciplines; for example, the Faculty of Science offers programs in Mathematics, Computer Science, Biotechnology, and Food Science and Technology, while the Faculty of Arts and Social Sciences includes departments such as Education, Islamic Learning, Political Science, and Media Studies (Jinnah University for Women, n.d.). The university has an enrollment of over 7,000 students and employs more than 300 academic staff members (Jinnah University for Women, n.d.).

In India, there are 799 universities, 14 of which are dedicated exclusively to women (Sharif, 2022). For example,

5. Lady Shri Ram College for Women (India)

Lady Shri Ram College for Women (LSR) is a women-only institution affiliated with the University of Delhi (Lady Shri Ram College for Women, n.d.). Publicly funded by Delhi University and the Government of India, LSR offers a wide range of undergraduate programs in arts, humanities, commerce, science, and Journalism (Lady Shri Ram College for Women, n.d.). Although primarily focused on

undergraduate education, the college also participates in postgraduate admissions through Delhi University, offering programs like M.A. in Political Science and M.Sc. in Statistics. Currently, LSR enrolls approximately 5,000 students, supported by 150 faculty members and 80 administrative staff (Lady Shri Ram College for Women, n.d.).

As for *Far East Asia*, many factors have played a significant role in the establishment of women-only educational institutions, such as women's empowerment, culture, and religion (Renn, 2012). For instance, in addition to the co-education institutions located around the nation, 65 colleges in China are solely designated for women (Sharif, 2022). These speciality colleges employ around 2,000 professors and recruit 20,000 female students each year; they are mostly managed by women's federations at various levels (Sharif, 2022). Below are three examples of women-only universities in three countries in East Asia:

6. China Women's University (China)

China Women's University (CWU) is an independent public university affiliated with the All-China Women's Federation (China Women's University, n.d.). It was initially established as a vocational training school in 1949, focusing on the education of women and the development of women leaders. CWU participated in the Fourth World Conference on Women in 1995 and subsequent related events held in Beijing. In February 2002, the Ministry of Education approved its transition to a regular higher education institution authorised to offer bachelor's degrees. The university passed the Ministry of Education's accreditation process in 2005 (China Women's University,

n.d.). CWU conducts research and provides intellectual support to the Chinese government on issues related to women, with a particular focus on gender studies, gender equality, the protection of women's rights and interests, and women's leadership. The university offers undergraduate programs in fields such as accounting, computer science, English, fashion design, finance, law, management, marketing, preschool education, psychology, social work, sociology, tourism, and women's studies (China Women's University, n.d.). At the graduate level, it offers Master's programs in preschool education and social work. As of the latest data, CWU enrolls approximately 6,282 students and employs about 249 full-time faculty members (ISAC teach in China program, 2025)

7. Ewha Womans University (South Korea)

Ewha Womans University is a private, comprehensive women's research university located in Seoul, South Korea (Ewha Womans University, 2025; Sharif, 2022). Its educational objectives focus on modernising women's education in line with Christian principles, expanding access to higher education for women, and fostering leadership to support a more equitable society (Ewha Womans University, 2025). The university was founded in 1886 by Mary F. Scranton, an American missionary of the Methodist Episcopal Church. Ewha offers a broad range of undergraduate and graduate programs across disciplines, including the humanities, social sciences, natural sciences, engineering, medicine, and the arts (Ewha Womans University, 2025). It is also noted for its research activity, particularly in biology, medicine, and chemistry. The university enrolls approximately 22,815 students. Its faculty includes

around 980 members (Ewha Womans University, 2025). Graduates of Ewha have gone on to hold notable positions in government, academia, business, and the arts.

8. Tokyo Woman's Christian University (TWCU) (Japan)

Tokyo Women's Christian University (TWCU) is a private, non-profit university located in Tokyo's Suginami Ward (Tokyo Woman's Christian University, 2024).

Established in 1918 by North American Christian missionaries in cooperation with Japanese partners, the university's first president was Inazō Nitobe (Tokyo Woman's Christian University, 2024). TWCU was founded with the aim of delivering a liberal arts education grounded in Christian principles. The university offers undergraduate programs through its College of Arts and Sciences, which is organized into five divisions encompassing twelve departments. These include: the Department of International English; the Department of Humanities, the Department of International Society, the Department of Psychology and Communication, and the Department of Mathematical Sciences (Tokyo Woman's Christian University, 2024). Graduate education is available through the Graduate School of Humanities and the Graduate School of Science, offering master's and doctoral degrees in fields such as the arts and humanities, cultural studies, social sciences, and mathematics. As of 2024, the university has around 3,845 undergraduate students and 79 graduate students. Among them, 59 are international students, primarily from Korea, China, Taiwan, and Vietnam. The institution employs 116 full-time faculty members (Tokyo Woman's Christian University, 2024).

In some parts of *Africa*, cultural and religious considerations have led to the formation of separate educational institutions for men and women. For example:

9. Ahfad University for Women (Sudan)

Ahfad University for Women, a non-profit institution located in Omdurman, Sudan, was established in 1966 and gained recognition as an independent university in 1995 (Purcell, Helms, & Rombley, 2005). It comprises eight faculties and several specialized centres, including Administrative Studies, Health Sciences, Psychology and Preschool Education, Rural Extension, Education, and Development, Medicine, Pharmacy, and Languages (Ahfad University for Women, n. d.). The university offers postgraduate programs at the master's and doctoral levels and enrolls approximately 5,450 female students with a faculty of around 400 (uniRank, 2024).

In *Western* countries, female-only educational settings are less common but still present. For example, in the United States of America, the most prominent all-women's colleges in the United States are known as the Seven Sisters. This term refers to a group of seven prestigious liberal arts institutions located in the Northeastern U.S., which were originally established as women-only colleges (Sharif, 2022). They were founded to offer women the same level of academic opportunities that Ivy League schools provided exclusively to men at the time. Two prominent examples of these all-women colleges are:

10. Wellesley College (United States of America) – Hillary Clinton's alma mater

Wellesley College is a private liberal arts institution for women located in Wellesley, Massachusetts (Sharif, 2022). It was founded in 1870 by Henry and Pauline Durant as a women's seminary and is part of the Seven Sisters Colleges, a historical group of women's colleges in the northeastern United States (Wellesley College, 2025). The college offers undergraduate programs exclusively and does not have graduate-level offerings (CollegeData, 2025). Wellesley provides 60 administrative and interdepartmental majors within the liberal arts and supports more than 150 student clubs and organisations (Wellesley College, 2025). As of 2023, the undergraduate enrollment was 2,417 students. The college employs 309 full-time faculty members who teach at the undergraduate level (CollegeData, 2025).

11. Barnard College (United States of America) – Affiliated with Columbia University

Barnard College is a private women's liberal arts college in New York City, affiliated with Columbia University (Barnard College, n.d.). It was founded by Annie Nathan Meyer and named after Frederick A. P. Barnard, the tenth president of Columbia University (Barnard College, n.d.). Barnard offers around 50 undergraduate majors, including Africana Studies, American Studies, Anthropology, Architecture, Art History, Asian and Middle Eastern Cultures, Chemistry, Classics, Comparative Literature and Translation Studies, Computer Science (including interdisciplinary tracks), Dance, Economics, Education, English, European Studies, and Film Studies (Barnard college, n.d.). The college does not offer its own graduate programs, but students may pursue graduate study through Columbia University, with which Barnard shares academic resources (Barnard College, n.d.). Students can also

participate in joint programs with the Juilliard School and the Jewish Theological Seminary. As of Fall 2024, Barnard had 3,270 undergraduate students and 279 full-time faculty members (U.S. News, 2025). In the 2025 U.S. News and World Report rankings, Barnard was ranked 14th among national liberal arts colleges.

In Britain, all-women institutions played a crucial role in expanding educational access for women and fostering leadership skills in academic and professional spheres (Rowe, 2019). For example, the University of Cambridge has three women-only colleges (Rowe, 2019):

- Murray Edwards College (founded in 1954 as New Hall, renamed in 2008)
- Newnham College (founded in 1871)
- Lucy Cavendish College (founded in 1965)

Currently, only Murray Edwards and Newnham remain women-only, while Lucy Cavendish has transitioned to a mixed-gender college (Newnham College, 2025; Murray Edwards College, 2025). These colleges were originally established to provide women with access to higher education at a time when they were excluded from Cambridge's other colleges.

12. Murray Edwards College (United Kingdom)

Murray Edwards College is a women's college at the University of Cambridge (Murray Edwards College, 2025). Established in 1954 as New Hall, it was renamed to its current designation in 2008 (Murray Edwards College, 2025). The college is

dedicated to promoting women's education, leadership, diversity, and academic excellence. It offers a wide range of undergraduate disciplines in the arts, humanities, social sciences, and STEM fields, including medicine, law, engineering, mathematics, history, and modern languages (Murray Edwards College, 2025). The college has approximately 500 undergraduate and postgraduate students (Postgraduate study, 2025)

13. Newnham College (United Kingdom)

Newnham College is one of the few women-only colleges at Cambridge, providing a supportive environment for women to excel across a variety of disciplines (Newnham College, 2025). It offers a wide range of undergraduate and postgraduate programs, including: Anglo-Saxon, Norse, and Celtic Studies; Archaeology; Architecture; Asian and Middle Eastern Studies; Chemical Engineering and Biotechnology; Classical Studies; Computer Science; Design; Education; Engineering; Geography; History and Modern Languages; History and Politics; History; History of Art; Human, Social, and Political Sciences; Land Economy; Law; Linguistics; Mathematics; Medicine; Modern and Medieval Languages; Music; Natural Sciences; Philosophy; Psychological and Behavioural Sciences; Theology, Religion, and Philosophy of Religion; and Veterinary Medicine (Newnham College, 2025). Newnham College enrolled 431 undergraduate and 316 postgraduate students (Cambridge network, 2025). The college employs approximately 70 faculty members, including leading academics and researchers.

A review of these universities reveals that gender segregation in education is not a local or culturally isolated phenomenon. In fact, documented evidence shows that women-only educational institutions exist in over than 12 countries, with more than 70 universities and colleges dedicated exclusively to women (Sharif, 2022). This geographical spread and cultural diversity challenge the notion that such institutions are marginal exceptions; instead, they are intentional, structured, and they function as complete and coherent systems of education shaped by educational policies, cultural identities, and the academic ambitions of women across the world.

This single- gender environment creates a unique academic space, distinct from coeducational settings not only in its composition but also in the nature of the social and cognitive relationships it fosters. Female students interact with one another without the traditional gender dynamics often present in mixed- gender environments, allowing for the emergence of alternative power structures, rooted in internal factors such as academic status, expressive ability, self-confidence, and social and cultural background. Thus, the women-only educational environment does not eliminate power relations but rather reshapes and redistributes them. This is clearly reflected in how knowledge is shared, who dominates discussions, and who is marginalised or excluded from them.

In online learning classes, interpersonal dynamics take on new forms, as interaction is intertwined with digital platforms that can either obscure or reinforce patterns of dominance and participation. Hence, it becomes vital to study these interactions as an influential phenomenon shaping the educational experiences of thousands of female students worldwide. Investigating power relations among students in these

settings not only deepens our understanding of collaborative knowledge construction but also informs broader theoretical frameworks related to education, empowerment, and the social forces that influence learning in closed, single- gender environments.

1.4 Research Problem

As the previous section indicated, despite the rapid expansion of online education, there remains a significant gap in focused research on the processes of knowledge construction within these digital platforms, particularly from the perspective of female students in Saudi Arabia. According to Al-Asmari and Khan (2014) and Al Lily (2011), existing studies have extensively explored administrative, technical, and faculty perspectives, but less attention has been given to the actual experiences of students—how they interact, engage, and learn within these digital confines.

To sum up, this research aims to bridge this gap by focusing on the dynamics of knowledge construction within online educational forums, with a particular emphasis on the power relations dynamics between female students. It critically examines how power relations, manifested through certain aspects—surveillance, normalisation, exclusion, regulations, and so on—affect the learning environment. By investigating these power dynamics, this study seeks to uncover how they shape the processes of collaborative knowledge construction and influence the learning experience for female students.

1.5 Research Design

This thesis adopts a qualitative research approach of inquiry. Specifically, it adopts an explanatory case study methodology. The goal of this methodology is to gain detailed, in-depth, and fully contextualized knowledge about the complex process of collaborative knowledge construction in female-only online discussion forums. The research data collection methods include participant observations, in-depth semi-structured interviews, and online forum discussions. The data analysis process includes thematic analysis methods and qualitative content analysis procedures. The research was carried out across three cycles, with each cycle corresponding to one semester and continuing for a duration of four months. During each cycle, a fresh cohort of learners was registered, but the course material and teachers remained the same during all three times. The selection of this structure was based on the fact that each cycle, owing to its relatively low enrollment numbers, did not provide enough data independently. There was a total of seven participants in the first round. The second round included four individuals, whereas the third cycle consisted of 10 people. There was a total of 21 participants. To reach data saturation, I conducted the data-gathering process three times, each time during a distinct enrollment.

Fifteen female students were purposefully selected for semi-structured interviews conducted during the 2020/2021/2022 academic year, representing three different cohorts from a course that enrolled a total of 21 students. This purposive sampling technique was utilized to obtain detailed insights from participants who were likely to provide rich, relevant data that was in line with the study's objectives.

The study followed a three-phase design: beginning with an analysis of forum messages to understand knowledge construction (Phase 1), followed by interviews

to explore underlying power relations (Phase 2), and culminating in an integrative analysis examining how and when power dynamics influenced knowledge construction outcomes (Phase 3).

The research aims to provide thorough insights into the complex nature of online learning. The focus will not only be on identifying the challenges faced by female students but also on highlighting the opportunities that online learning forums might offer for enhancing the process of collaborative knowledge construction.

1.6 Theoretical Framework

In this thesis, I utilised two key frameworks: the IAM Content Analysis Framework by Gunawardena et al. (1997) to examine interactions, and Gore's (1995) Techniques for Analysing Power Relations, which stem from Foucault's (1982, 2002, 2020) Theory of Power Relations.

The IAM Framework analyses the process of knowledge construction within interactions in online discussion platforms. It involves five phases: sharing and comparing information, discovering and exploring dissonance or inconsistency among ideas and concepts, negotiating meaning and co-constructing knowledge, testing and modifying a proposed synthesis of the co-construction, and agreeing on and applying newly constructed meaning. Each phase contains multiple operational indicators, with the initial stages focusing on

basic negotiation and knowledge-building abilities and the final stage showcasing advanced skills in these areas.

The Power Relations Techniques by Gore (1995) examines how power dynamics are manifested at the micro-interaction level in educational contexts. It encompasses eight strategies: surveillance, normalisation, exclusion, classification, distribution, individualisation, totalisation, and regulation. This research aims to investigate how these power relation techniques affect collaborative knowledge creation in online forums, a setting not previously studied, unlike face-to-face educational contexts.

This chapter has helped frame my research within established theories, define key concepts and variables, shape my research questions and hypotheses, and provide a structured approach for analysing and interpreting my findings.

1.7 Research Aims and Questions

The purpose of this research is to explore the influence of power relations techniques on knowledge construction among learners in single-gender online learning forums. It focuses on identifying and analysing power strategies employed by female learners and examines their impact on interactions within these forums. Additionally, the study investigates the collaborative processes of meaning, negotiation, and knowledge construction in these educational settings. In conclusion, this research provides valuable insights into the improvement of pedagogical

practices and environments in the online learning context. Specifically, the research aims to answer this main question:

How do power relations techniques influence collaborative knowledge construction in single-gender online learning forums?

From the question above, the study tried to answer the following sub-questions:

- *How do learners in online discussion forum negotiate meaning and construct knowledge collaboratively?*
- *What are the power relations techniques imposed by female learners over one another in single-gender online discussion forums?*

1.8 Layout of the Thesis

This thesis is divided into 7 chapters.

Chapter One: This is the introductory chapter. It presents an overview of the study, including the motivation behind it, its background, a concise overview of the research questions and objectives, the methodologies and methods employed, the contributions of the study, and the organization of the thesis.

Chapter Two: This chapter is the literature review chapter. It provides a comprehensive review of the existing research and scholarly literature related to the thesis topic, which includes online learning, knowledge building, and power dynamics. It contextualizes the research within the broader academic discourse, highlighting how the current study builds upon or diverges from previous work. The

literature review identifies gaps in existing knowledge and research, and it offers insights into the choice of the methodology, theoretical framework, and methods used. This chapter has been instrumental in establishing a rationale for the essential requirements of my research and in clarifying the specific contributions it aims to make.

Chapter Three: This chapter is the theoretical framework chapter. It is the chapter where I present the theories that guided the current study, which here is the IAM Model by Gunawardena et al. (1997) and the Power Relations Techniques by Gore (1995). This chapter is the backbone of the study as it serves several crucial purposes that are necessary to guide and justify the study's approach, methodology, and analysis. First, it provides the underlying theory or theories that inform the study. This includes key concepts and phenomena that the research aims to explore or explain. Second, it helps to shape the research questions. Third, it offers a lens through which the research problem is viewed, ensuring that the questions posed are meaningful within the context of the chosen theory. Fourth, it assessed the interpretation of findings from the research. It helps to identify what is significant within the data collected and helps make sense of the results in a systematic way. Fifth, it influences the choice of methodology, guiding the selection of research methods that are appropriate for addressing the research questions within the context of the theoretical foundations. Finally, it helps maintain a clear line of argument or inquiry throughout the research, ensuring that the study remains focused and relevant to the theoretical issues at hand.

Chapter Four: This chapter is dedicated to the methodology. It focuses on the study design and technique, providing a rationale for the choice of cases, methods, and participants while also including philosophical assumptions and ethical considerations.

Chapter Five: This chapter presents the first set of findings, focusing on the qualitative data derived from analysing the discussions in online forums. The findings are thoroughly discussed and connected to both the theoretical framework (IAM Model by Gunawardena et al., 1997) and the literature reviewed earlier.

Chapter Six: This chapter covers the second set of results, which specifically examines the qualitative data obtained from the semi-structured interviews. The results are comprehensively analysed and linked to both the theoretical framework (Power Relations Techniques by Gore, 1995) and the previously reviewed literature. Both chapters 5 and 6 serve to present the findings and place them within the wider academic discourse, demonstrating how they either confirm or challenge the existing theories and research.

Chapter Seven: This is the discussion and conclusion chapter. This chapter sums up the results from Chapters 5 and 6, connecting the two datasets to answer the primary study question and clarify the study's conclusions. It investigates how these connections contribute to the current body of knowledge and considers the larger implications of the results. Furthermore, this chapter highlights the study's contributions and makes suggestions for designing and developing online courses

that promote equality. It also identifies potential future research on the subject of online education, pointing out topics that should be explored further.

Chapter 2: The Literature Review

2.1 Introduction

This literature review covers the areas pertinent to the study and the research questions. As the current research aims to investigate the power relations in knowledge construction, it is essential to clarify and explain the relevant concepts, terms, and conditions in online learning, as well as how these aspects have been investigated in such environments. The first section is devoted to the concepts of online learning and online forums. The second section explores the notion of knowledge construction. The third section focuses on the concept of power relations in educational settings.

Before presenting the literature review, the following section offers a reflective account of how its focus and scope were refined over the course of the research project

2.2 A Reflective Shift in The Literature Review

The literature review for this research began with an initial focus on three central concepts in the field of online education: social presence, identity, and collaborative learning. These concepts were considered essential for understanding how learners interact and construct knowledge within online learning discussion forums environments. Social presence was seen as a key factor in fostering a sense of belonging and connectedness among participants, while identity provided a lens to explore how individuals enter these digital environments and the characteristics they

bring that shape their participation. Collaborative learning offered a framework for understanding how learners work together in virtual spaces.

As the project progressed—particularly during the refinement of the research design and early stages of data collection—it became clear that, although valuable, these concepts did not fully capture the complexity of the study’s specific context.

Conducted in women-only online classrooms, the research revealed deeper layers of interaction shaped by power dynamics, cultural norms, and social structures—elements that were not adequately addressed in the original literature focus.

This realization led to a significant shift in the literature review, aligning it more closely with the evolving research questions, which now centre on:

- How knowledge is collaboratively constructed within online educational discussion environments;
- How power relations influence these processes, with particular attention to women-specific educational contexts.

As a result, the literature review was restructured around three interrelated themes:

- Online education, with emphasis on gender-related factors;
- Collaborative knowledge construction in online classroom discussion platforms;
- Power dynamics and their impact on interaction and learning in these settings.

This reframing provided a theoretical foundation more aligned with the context of the study and allowed for a deeper, more context-sensitive analysis. It also positioned

the research to contribute to areas that have not yet received sufficient attention in the literature, particularly women's experiences in gender-segregated digital educational environments and how these experiences are shaped by prevailing cultural and institutional structures.

While the concepts of social presence, identity, and collaborative learning remain part of the study, they are now situated within a broader discourse that addresses cultural norms, digital space configurations, structural inclusion and exclusion, and power relations. This shift reflects the adaptive and iterative nature of qualitative research, ensuring that the literature review is both theoretically grounded and responsive to the realities of the study context.

2.3 Online Learning

Online learning and digital interaction are increasingly integral to academic teaching and learning across the globe (Alghamdi, 2013). A report shows that the number of students enrolled in complete distance education programs rose much more quickly during the last decade than in earlier years (Seaman, Allen, and Seaman, 2018). In the US, for example, students' higher education enrolment increased between 2002 and 2012 in both formal universities and online educational programs. Since 2012, however, students' demand for online education has continued to increase while enrolment in formal education programs has declined (Seaman, Allen, and Seaman, 2018). The report also indicates that between 2015 and 2016, the number of students enrolled in online education in the US increased by five percent, including

those pursuing complete distance learning degrees and those who are combining online and face-to-face courses (Seaman, Allen, and Seaman, 2018).

For many individuals, particularly those who cannot attend traditional face-to-face classes, this form of education is appealing (Mbuva, 2014; Kebritchi, Lipschuetz, and Santiago, 2017). Therefore, universities are eager to meet students' demand for online learning by offering either complete online educational programs or courses that are partially online, usually called blended learning (Delahunty, Verenikina, and Jones, 2013).

The outstanding features of online systems came to light when the COVID-19 pandemic pervaded the world, thus, most educational institutions switched to online work not only at the teaching level but also at the administration level. With this growth in implementing e-learning in higher education, studies have documented valid concerns regarding this form of education. Some of those issues are student's identity, feeling of isolation and lack of engagement (Phirangee and Malec, 2017; Kebritchi, Lipschuetz, and Santiago, 2017; Wang, 2015). Such a situation could lead to either poor educational outcomes or a higher dropout rate from the system.

In this section, I explore the integration of the online discussion forum as a pedagogical strategy designed to foster critical thinking and knowledge construction. Therefore, this section will entail six sub-sections: discussion and online forums, peer-to-peer learning in online learning, collaborative learning in online settings, observational learning in online settings, inclusivity and exclusivity in online learning, and online learning in Saudi Arabia.

2.3.1 Discussions and Online Forums (Participation and Engagement)

In this section, I will introduce an overview of online discussion forums, their purposes, and their advantages.

Overview. Online discussion forums are crucial tools for student-teacher communication, available in nearly all Learning Management Systems (LMS) (Wiklened and West, 2009). These forums promote dialogues that aid in knowledge exchange and construction, fostering meaningful learning (Sandoval-Cruz et al., 2020). LMS platforms like BlackBoard integrate such forums (Hew and Cheung, 2012), enabling asynchronous discussions that allow students to reflect and develop deeper learning responses before sharing (AlJeraisy et al., 2015).

Forums consist of threads, which are public, written exchanges between learners and instructors. Threads are initiated by instructors with a question or topic, prompting students to respond and interact with each other's posts (Hew and Cheung, 2012). This structure promotes engagement and feedback, as students can view peers' contributions and decide which to respond to. Typically, posts are displayed chronologically for ease of following discussions (Hew and Cheung, 2012). While some threads may quickly end, others can evolve and branch out (Hew and Cheung, 2012).

Advantages of Online Discussion Forums. Online forums offer both social and academic advantages. Unlike traditional classroom settings where discussions are teacher-led, online forums often shift the dynamic to a student-centered approach,

with instructors acting as facilitators (Alzahrani, 2017). This format empowers students to express themselves more freely, fostering creativity and minimizing power hierarchies (Kindall, 1998). It encourages diverse perspectives, contributing to enriched learning experiences (Brookfield and Preskill, 2005). Forums provide a venue for collaborative learning, enabling students to co-construct knowledge via interactions and exchanges. This method is particularly efficacious in higher education and graduate programs, where organised debates facilitate a more profound comprehension of complex subjects (Lai, 2015). Additionally, they mitigate common classroom issues like limited time, dominant voices, and rigid response patterns (Lim et al., 2020; Hew and Cheung, 2012). While forums have many advantages, they also face challenges such as inclusivity, idea ownership, and cultural barriers. Addressing these issues is vital for optimizing their use in diverse educational settings.

2.3.2 Peer-to-Peer Learning in Online Learning Settings

Peer-to-peer learning refers to students acquiring knowledge and skills via interaction and cooperation with their peers in both structured and unstructured contexts (Topping, 2005). Thus, peer review provides students with the chance to compose and obtain feedback in a manner that does not adhere to the conventional hierarchical framework, such as teacher assessment and feedback (Abram, 2018).

Research on peer-to-peer learning presents contradictory findings. Some studies emphasize the advantages and positive impacts of peer-to-peer learning, highlighting its potential to enhance collaboration and understanding. In contrast,

other studies point to its negative effects, such as poor quality of feedback or the reinforcement of misconceptions.

Examples of studies that highlighted the positive impacts of peer learning include a study conducted by Lim et al. (2020); the authors found that peer learning considerably improves students' self-regulation behaviours in the virtual learning environment. This entails developing closer bonds with classmates, improving problem-solving skills, and planning instruction to improve academic performance. The results indicate that peer interactions have a significant impact on students' use of Self-Regulated Learning techniques, leading them to adapt their learning behaviours to better suit the peer learning environment. Interestingly, the research discovered that there was no substantial correlation between Self-Regulated Learning (SRL) and academic success. The study conducted by Costley et al. (2023) investigated the impact of peer editing practices, such as comments and track changes, on the quality of student academic writing on the Google Docs platform. The findings indicated a positive connection between the removal of words by editors and the learners' writing proficiency in the introduction section. In addition, adding words by editors in the introduction section had a detrimental impact on students' writing. Remarkably, there was little correlation between comments and student writing, both at the individual and group level. Hernández-Sellés, Muñoz-Carril, and González-Sanmamed (2019), found that peer to peer learning is beneficial. The authors investigated the impact of interaction, intra-group emotional support, and the use of online collaborative tools on learning outcomes. The research utilized a post-project questionnaire analysed via the Partial Least Squares (PLS) technique. The

key results highlighted the critical role of teacher-student and student-student interactions and identified emotional support within groups as a vital component of effective collaborative learning.

On the other hand, studies that reported negative effects of peer learning include the research done by Ertmer et al. (2007). It was discovered that instructor feedback was consistently rated higher by students compared to that obtained from their peers. Students expressed a preference for receiving feedback from their instructors, noting worries about the quality, time required, and inherent biases that may be present in peer assessments. A prevailing opinion among students was the insufficiency of peer feedback in terms of its depth, with one student characterising it as 'superficial' in providing practical insights to attain higher levels of competency. Another example is conducted by Foo (2021), who explored the role and quality of peer feedback within Asynchronous Online Discussion (AOD) environments, particularly focusing on high school students' interactions. A major finding was the lack of constructive feedback in the online discussion forums. While students were generally positive about the feedback process, they did not consistently provide feedback that could significantly stimulate learning. In general, students perceived the peer feedback process as beneficial for their learning experience in a forum environment. However, there was room for improvement in encouraging deeper engagement and exchanging meaningful ideas. Hill, Abu-Ayyash, and Charles (2023) found that the sense of community between learners varied since some groups had difficulties establishing connections. Similarly, research conducted by Lee et al. (2021) examined university students' experiences with online learning

during the COVID-19 epidemic, emphasising their resilience in adjusting to distance education. The results indicate that students have coped better with the shift to online learning than commonly perceived. However, the research indicated that while teacher-student connections were beneficial during online learning necessitated by the epidemic, student-student relations deteriorated. While online platforms successfully supported individual learning, they were inadequate in promoting collaborative learning.

Peer-to-peer learning is supported by many methodologies and theories, some of which are Collaborative Learning and Observational Learning.

2.3.3 Collaborative Learning in Online Settings

Research on Collaborative Learning has demonstrated that this approach enhances student engagement, cognitive development, and critical thinking skills across diverse educational settings, provided that specific conditions and factors are effectively implemented and ensured. For example, Ibrahim and Harun (2017) critically analysed the Argumentative Knowledge Construction Processes (AKCP) in Socially Collaborative Learning Environments (SCLE), emphasising their efficacy in improving students' learning outcomes. The research used content analysis of discussion scripts to identify the essential elements that impact problem-solving tasks. The results highlighted the significance of questions and stimulations in creating a collaborative learning environment. Wang, Fang, and Gu (2020) examined how various media formats influence online collaborative learning. They found that the selection of media has a substantial effect on cognitive load and learning results.

The research classified the impacts of interactive, video, and text-based media on student behaviour and stress levels. The findings indicated that interactive media produces the most effective learning outcomes while maintaining a reasonable level of cognitive stress. Herrera-Pavo (2021) investigated the incorporation of collaborative learning in virtual higher education. The study identified essential techniques that promote successful group dynamics and student involvement. The author indicated that effective collaborative learning in virtual settings depends on positive interdependence. Students consider their contributions to be directly influencing group performance, complemented by an adaptable task design that promotes autonomy and responsibility. In addition, the authors stressed educators' roles in directing interaction, aiding in planning, and offering feedback while progressively transferring authority to students, thus fostering democratic leadership and autonomy in role allocation and task management. In addition, tasks based on real-world scenarios and open-ended challenges foster deep engagement, critical thinking, and problem-solving skills. Finally, technological instruments such as wikis, blogs, and messaging applications facilitate collaboration and communication. Nevertheless, preliminary training is essential to overcome obstacles related to tool familiarity and optimise their efficacy. Alghasab, Hardman, and Handley (2019) examined the significance of teacher involvement in collaborative learning settings facilitated by wikis. Examination of the interactions between teachers and students during collaborative writing activities demonstrated that the use of dialogic teaching methods promotes more efficient collaboration and the construction of knowledge. Moffitt and Bligh's (2024) study examined the enhancement of adult learners' agency in Technical and Vocational Education and Training (TVET) via collaborative task co-

design in online workshops. Through the engagement in deep discussions as well as using the double-stimulation method, students are prompted to reevaluate their challenges and navigate conflicting circumstances. The findings show that when conflict and dilemmas were utilised as a starting point, learners were given autonomy to reconfigure assignments, enabling debate to arise; thus, promoting both criticism and collaboration in the mediating artefacts. These conditions encouraged students to participate actively; therefore, they helped them solve practical problems and change their methods of approach.

Overall, the abovementioned research showed that when students work together, using the right tools and techniques, they learn more and develop analytical and problem-solving abilities. However, certain conditions and factors influence the successful implementation of collaborative learning in online settings. These factors can be summarized as follows: engaging learners through questions and stimulations, selecting appropriate media for communication, fostering positive interdependence among group members, defining educators' roles in directing interaction, aiding in planning, providing feedback, creating tasks based on real-world scenarios and open-ended challenges, and employing effective technological instruments.

2.3.4 Observational Learning in Online Settings

An educational strategy that can be effectively incorporated into peer-to-peer learning settings is observational learning, also known as modelling, which involves acquiring knowledge, skills, or behaviours by observing others (Roelle et al., 2017).

Observational learning has been widely examined in face-to-face educational settings, particularly within the context of teacher development. Sundset and Sandvoll (2022) demonstrated that peer observation fosters meaningful dialogue around teaching and learning strategies, thereby enriching pedagogical discourse at both individual and group levels. This impact was largely attributed to the constructive feedback participants received from their peers. The researchers noted that the act of being observed and evaluated often felt akin to exposing a personal domain, highlighting the vulnerability involved in the process. In response to peer comments, some participants reported modifying their instructional approaches. Furthermore, the experience of peer observation, combined with reflective discussions, contributed to an increased sense of self-awareness regarding their teaching practices. Another relevant study is that of Sandt (2012), who reported initial findings from an action research project examining the potential impact of peer observation on fostering collaboration and enhancing professional development among teachers at The University High School. The findings indicated that, although peer observation holds significant promise for promoting trust, support and collaborative learning, its effectiveness was hindered by established power dynamics within the school. For peer observation to successfully support staff cooperation and professional growth, the study emphasized the need for school leadership to implement strategies aimed at mitigating hierarchical structures. Hammersley-Fletcher and Orsmond (2005) also explored the role of peer observation in fostering reflective teaching practices and supporting professional development. Their findings indicated that, while peer observation provides valuable opportunities for growth, its effectiveness is highly contingent on the quality of peer relationships and the

provision of clear, constructive feedback. The authors argued that peer observation should be embedded within a broader institutional strategy that promotes continuous improvement in teaching and learning, such as through regular academic discussions and structured presentations that systematically identify and address key pedagogical challenges each year.

In the realm of online learning, the concept of learning by observation has also been widely explored. For example, Jones, M. H., and Gallen, A. M. (2015) assessed the effectiveness of peer observation as a mechanism for staff development in online synchronous instruction, highlighting its function in fostering meaningful development rather than just advocating for peer observation. The results demonstrate that peer observation may enhance staff proficiency in using synchronous teaching technologies; however, its effectiveness is considerably affected by the medium's maturity and the participants' familiarity with it. The research indicates that peer observation fosters self-reflection and improves teaching methodologies despite the difficulties in efficiently executing these programs among geographically scattered personnel. Walker (2015) investigated the ways in which an institutional peer observation program helps online distance learning teachers working in a higher education setting to advance professionally. The results underscored the importance of creating relationships at the beginning of the observation process. Furthermore, it emphasised the importance of trust as a crucial element in fostering collaboration that has the potential to exceed expectations and the designated period of observation. Andrew, Wallace, and Sambell (2021) explored the challenges and strategies faced by instructors involved in shifting to online teaching with a focus on

enhancing student engagement in Synchronous Virtual Classrooms (SVCs). The study underscored the value of peer observation and reflection in enhancing teaching methodologies. The collaborative nature of the observation process enabled instructors to identify effective strategies and areas for improvement, particularly in fostering student engagement and adapting to the challenges of online learning.

The primary focus of the above discussion was on the conditions that foster the success of peer observation and its benefits for teacher development. It is important to note that this area of research is predominantly limited to teacher development programs, with only a few studies exploring its application at the student level. This limitation represents a significant gap that requires further investigation, especially considering the potential of technological tools to enhance the application of peer observation at the student level.

2.3.5 Inclusivity and Exclusivity in Online Learning

Exclusion in online forums may manifest itself in several ways, such as administrative procedures that limit certain users or the visibility of certain ideas (Edwards, 2013), as well as community practices where members refuse, disregard, or criticise opposing viewpoints (Hansen, 2023). The exclusion of opposing viewpoints in online communities contributes to marginalising or eliminating some voices. Inclusion promotes equity by assuring the inclusion and consideration of diverse opinions (Gomez, Gomez, and Worsley, 2021).

Many proponents of technology-mediated communication viewed this structure of online learning as a democratic and equal mode of participation, as everyone's voices can be heard and are given equal standing. However, this claim has been questioned by several studies, including Lee (2021), who challenges the common belief that online higher education (HE) is genuinely open to a wide range of students, especially those who have been underserved by traditional, campus-based institutions. Although there is little empirical evidence to support these claims of openness, and growing doubt about the ability of current online HE practices to promote equality, the idea of openness remains widespread in the sector. Lee argues that this narrative is strongly influenced by the optimistic promises of Internet technologies, often summed up in the phrase "anyone, anytime, anywhere", which makes it difficult to critically assess or reject.

This tension between the promise of openness and the reality of exclusion is also evident in online discussion communities. There is a limited body of research exploring exclusion in these spaces, but one example is Edwards (2013), who examined the dynamics of online political forums, focusing on the processes that lead to homogenisation and polarisation. The study investigated Climategate.nl, a forum initially intended to foster polite and inclusive dialogue. Over time, however, it evolved into an echo chamber, where users increasingly interacted with like-minded individuals while avoiding engagement with those holding opposing views. This led to the reinforcement of preexisting beliefs and the gradual marginalisation, or self-exclusion, of dissenting voices, even though the forum never became formally divided. Fauske and Wade (2003) also explored how exclusion can occur in digital

spaces that appear open. They examined participation patterns in online discussions and found that conversations were often dominated by a small number of users, most often men, and occasionally included abusive interactions. Nevertheless, participants of both genders generally employed a variety of discourse strategies, demonstrating inclusivity, personalisation, and openness to alternative perspectives. Many also showed a willingness to engage critically with others' assumptions and viewpoints. Yet, despite these inclusive tendencies, the study found that both male and female participants occasionally mocked or marginalised those who failed to align with the group's established norms, highlighting the subtle but persistent ways exclusion can manifest even in open online communities

These studies highlight the existing issues of exclusion in online discussion communities, indicating a need for further investigation to make these environments inclusive for all voices, as the dynamics and challenges faced outside online learning classes might also occur within them.

2.3.6 Online Learning in Saudi Arabia

Online learning adaptation in Saudi universities started as a reflection of the universal advocacy of online learning worldwide. Many universities have shifted their practices from traditional face-to-face educational systems to the online learning system (Aljaber, 2018; Al-Asmari, and Rabb Khan, 2014). Saudi universities are eager to facilitate learning through online technologies. This is because online learning has practically helped solve a major problem of higher education in Saudi

Arabia, which is the increased number of students compared to the lack of faculty members (Alebaikan, and Troudi, 2010).

The official, governmental attention in Saudi Arabia to online learning started in 2007, when the Ministry of Education developed the National Plan for Communications and Information Technology, and the National Centre for E-Learning and Distance Learning with the Open University in Malaysia (Aljaber, 2018 Unnisa, 2014). The NCED aims to support e-learning practices in higher education. Since then, Saudi universities have been in continuous efforts to achieve the National Plan for Communications and Information Technology objectives to integrate technology into education (Al-Asmari and Khan, 2014). Consequently, Saudi universities have adopted various Learning Management Systems (LMS), such as Blackboard, to manage online learning efficiently. Within these systems, online learning practices at Saudi universities ranged between blended learning, fully online classes, and complete distance learning paths. However, full adaptation of online systems came to light when the Covid-19 pandemic pervaded the world, where entire educational institutions in Saudi Arabia switched to online work not only at the teaching level but also at the administrative level.

The growth in implementing e-learning in higher education in Saudi Arabia requires further attention and examination, particularly as the country strives to enhance its practices across all sectors in alignment with Vision 2030 (Allmnakrah and Evers, 2020). Al-Asmari and Khan (2014) recommended that, in order to maximise the benefits of e-learning, concerted efforts need to be made in pedagogical practices, including the implementation of educational theory, instructional design, and

collaborative learning. According to Al Lily (2011), much of the academic research examining the introduction of online learning into higher education in Saudi Arabia is conducted at the level of administrators, technicians, and teaching staff, with little consideration given to students. Therefore, conducting more research in what he described as “the bottom-up approach” is crucial. In addition, much of the research in educational technology in Saudi Arabia focused on the affordances of technology with little attention to theory, pedagogy, and the cultural and social setting (Alkrajji and Eidaaroos, 2016).

Nevertheless, few studies have investigated online discussion forums as a strategy to support both teaching and learning in online settings. For example, AlJeraisy et al. (2018) examined how online discussion boards affect students' academic performance and satisfaction. No name was given to the study design. However, the procedures demonstrated that the study design was a quasi-experimental, post-test-only, non-equivalent groups design with extra measures. Post-exams and surveys evaluated performance and satisfaction. The two groups' exam results and satisfaction were compared using a t-test. The findings showed that discussion board users performed substantially higher on exams than non-users. Additionally, there was a significant grade difference found at ($t = -2.84$, $p = 0.0063$). Discussion boards improved satisfaction across all seven benchmarks, including course recommendation, content satisfaction, and peer and teacher engagement. The number of clicks (engagement) correlated strongly with satisfaction and performance. In addition, managing discussions and meaningful engagement were noted as time-consuming procedures. Another example is the study of Alzahrani

(2017), who examined the effects of using Online Discussion Forums (ODFs) on students' learning outcomes, especially their academic achievement. The researcher conducted a quasi-experimental design for one semester at a top Saudi Arabian university. The analysis includes pre-post-tests to evaluate learning outcomes. Statistical analysis, including independent sample t-tests and regression models, was applied to determine relationships between participation and achievement. The results indicated that utilising online discussion forums may improve student success. In addition, statistical analysis showed strong and favourable connections between student involvement in the online discussions and final course grades, but not their GPA average. The study stressed the importance of considering contextual aspects for the best outcomes. Alghamdi (2013) examined how discussion forums impact students' academic achievement and attitudes in a blended learning environment. The study used a quasi-experimental design with two experimental groups and one control group. Pre-post-tests were used to assess academic performance. In addition, a post-treatment questionnaire gathered qualitative data on attitudes toward online discussion forums. The experimental groups showed significantly higher post-test scores compared to the control group. Positive attitudes toward online discussions were observed; students found them engaging and beneficial for learning. Active participation in online discussions correlated with better academic outcomes, although the frequency of posts did not strongly influence the scores within the experimental group. Al-Ibrahim and Al-Khalifa (2014) explored the use of a private educational social network, the Hive, to facilitate online discussions among 165 female undergraduate students in a web applications course at King Saud University. Using qualitative content analysis and observation supported by the

Nvivo software, the researchers analysed students' interactions and messages over a semester. While students were highly active on the platform, their contributions lacked depth, often limited to courtesies or agreements, reflecting cultural barriers and passive learning tendencies. Although the study claimed to utilize qualitative methodology, the analysis and results mostly rely on numerical data, thus lacking in-depth interpretation.

As noted above, most researchers (AlJeraisy et al. 2018; Alzahrani, 2017; Alghamdi, 2013) utilized a quasi-experimental design with surveys and pre/post-tests as primary tools for evaluating the outcomes. Quantitative methods rely on numerical data, reducing the influence of researchers' bias and increasing the objectivity of the results (Bryman, 2012, p.169). They often are repeatable, thus ensuring consistent results across different contexts or populations (Bryman, 2012, p.37). Therefore, they are valuable for identifying relationships and differences. However, there are certain limitations to this approach to research. One of which is that they fail to provide detailed contextual information about social phenomena, including cultural aspects, individuals' differences, and power dynamics that may influence learners' outcomes. Consequently, this approach is limited in scope, particularly when examining group work and collaborative learning. Given that many online classes in Saudi universities are single-gendered, it becomes essential to undertake qualitative studies that account for the cultural aspects that are specific to this context. Qualitative research offers a powerful means of gaining a deep, nuanced, and context-rich understanding of complex social issues (Creswell, 2013, p. 44). It focuses on understanding experiences and meanings through detailed narrative data

(Bryman, 2012, p.380). It allows researchers to explore multiple perspectives, uncover the various factors that shape a given phenomenon, and construct a holistic picture of the issue under study (Creswell, 2013, p. 45). Furthermore, qualitative research provides insight into the ways interpersonal relationships, identity, and broader systems of power influence both the research process and the phenomena being studied (Ravitch & Carl, 2016). It is particularly well-suited for exploring the contexts and environments in which lived experiences are shaped by factors such as race, gender, socioeconomic status, and cultural background (Creswell, 2013, pp. 45–46). When quantitative measures are unable to capture the richness and uniqueness of individual experiences, qualitative approaches offer a more sensitive and inclusive lens through which to understand human complexity. As noted above, cultural norms strongly influence how students communicate. Hutchison (2006) pointed out that cultural expectations, such as avoiding conflict, can lead to a calm online environment but may also limit critical thinking. Similarly, Singh and Khin (2006) suggested that these supportive and non-confrontational norms in educational settings may discourage critical engagement and restrict constructive criticism. Notably, while the studies conducted by Al-Ghamdi (2013) and Al-Ibrahim and Al-Khalifa (2014) focused solely on female learners, they did not address any specific cultural or social dynamics of these settings. Therefore, exploring this educational context in Saudi Arabia, especially with the lack of detailed research, is very important.

2.4 Knowledge Construction

The view of what knowledge is has evolved historically, which has affected the perception of learning, as scholars have always focused on the relationship between learning and knowledge (Oztok, 2016). Learning theories have also developed according to the evolution of our understanding of what knowledge is. This is because learning theories illustrate how knowledge is obtained and processed throughout a learning process (Aliakbari et al., 2015). For instance, within behaviourism, behaviourists observe that knowledge is external and separate from the learner; thus, it can be taught through the concept that “a certain stimulus will trigger a specific response” (Stahl, 2005). Learning, as such, is a set of automatic reactions to external cues (Fosnot, 2013). This perspective aligns with the positivist understanding of knowledge as existing outside the human mind, independent of individual beliefs (Oztok, 2019; Phoenix et al., 2013). Accordingly, knowledge is defined as an objective and reliable collection of facts that remain consistent over time.

In comparison, constructivists see that knowledge is fundamentally subjective, constructed from our experiences and agreed upon by a particular community (Fosnot, 2013). Knowledge, accordingly, is internal, and individuals learn better when they construct their own knowledge (Hutchison, 2006). Constructivism, as such, is concerned with what scientists believe and agree on at a certain point in time, meaning that knowledge is tentative and dynamic (Brooks and Brooks, 1999, McNamee, and Moscheta, 2015). Therefore, the understanding of notions or theories evolves and develops over time (Oztok, 2016). This view of knowledge aligns with the interpretivist view of knowledge as being multiple and changeable; reality and

meaning are dependent upon the social context, which in turn may be constructed, comprehended, and inferred differently (Doolan, 2011).

Since learning is viewed as a situated social process involving interaction between students and others, the constructivist approach is well-suited to explain how learning occurs (Oztok, 2016). Specifically, with regards to the Social Constructivist Approach, as it emphasizes the interdependence of social and individual processes in the co-construction of knowledge (Palincsar, 1998). Collaborative online spaces such as discussion forums, wikis, shared documents, and blogs are widely recognized for their ability to support the co-construction of knowledge as they align with the principles of the Social Constructivism Theory (Bates, 2019).

In the following sections, I explain the definition of knowledge construction, theories of knowledge construction, knowledge construction in online settings, and gender and co-construction of knowledge.

2.4.1 Knowledge Construction Definition

Three terms are commonly used interchangeably to describe the process of knowledge creation in technology-based environments: "knowledge building", "knowledge construction", and "knowledge creation". Despite their frequent appearance in research studies, Scardamalia and Bereiter (1993) argued that these terms are often used inconsistently without clear definitions. While Scardamalia and

Bereiter (2010) generally avoided using "knowledge construction", preferring "knowledge building," they later examined the epistemological distinctions between "knowledge building" and "knowledge creation." However, they ultimately concluded that these concepts were identical (Scardamalia and Bereiter, 2014).

Bereiter and Scardamali (2003) characterized knowledge building as an innovative effort marked by two distinctive features: intentionality and community. Intentionality involves individuals engaging in knowledge-building with a deliberate focus on enhancing knowledge and acting with clear purpose. The concept of a knowledge community indicates that the learning process benefits the entire community under this approach.

Pea (1993) described knowledge construction as the integration of diverse perspectives through a social, dialogical process. This involves exchanging ideas and then transforming these ideas to forge new knowledge. This process affects not only the cognition of the individuals involved but also the distributed cognitions within the group, as noted by Solomon (1993, cited in Pena-Shaff and Nicholls, 2004).

Aalst (2009) described knowledge construction as a situated process where learners engage in a dialogue to develop an understanding of theories, concepts, or phenomena.

In summary, "knowledge construction" encompasses more than just the acquisition of new information; it involves a dynamic, dialogical process where diverse perspectives are integrated through social interaction. This definition emphasises

how learning is naturally collaborative, showing that knowledge is not just gained but also actively built in group settings.

2.4.2 Vygotsky Sociocultural Theory

Based on the aforementioned, the concept of knowledge construction serves as a cornerstone for the constructivist theory. Constructivism is grounded in two influential theoretical frameworks. The first is Piaget's (1962) theory of cognitive development, which posits that knowledge construction is intrinsically linked to an individual's prior experiences and interactions with their environment, emphasizing the cognitive processes that underpin development (Skardamalia and Bereiter, 2010). The second is Vygotsky's sociocultural theory (1978), which frames learning as a dynamic process shaped by social interactions, wherein knowledge is co-constructed through collaborative engagement (Lu and Jing, 2006). This study draws upon Vygotsky's perspective, focusing on the collaborative dimensions of knowledge construction in online discussion forums.

Vygotsky's (1978) Sociocultural Theory (SCT) claims that learners construct their own knowledge through dynamic engagement and interactions with others. Learning, therefore, is a shared, collective activity instead of an individual pursuit. Reality, based on this view, is multifaceted because meaning is dependent upon the social context, which may be constructed, comprehended, and inferred differently (Doolan, 2011). Vygotsky (1978) claimed that culture and language mediate a learner's social environment, and as a result, the group environment in which the individual exists needs to be taken into account. In addition, Vygotsky gives value to collaborative

learning and supports its role in constructing knowledge. Vygotsky claimed that collaboration with the external world influences an individual's ability to think, reason, and solve problems (Wertsch and Rupert, 1993). Hence, cognitive development in an individual is linked to group learning and social interaction.

Further, Vygotsky's theory (1978) implies that collaborative learning serves as the basis for all learning (Stahl and Hakkarainen, 2021). He opposes testing students individually outside of group situations (Stahl and Hakkarainen, 2021). Subsequently, many scholars later undertook the notion of learning as a social collaborative activity, as presented by Vygotsky (1978), into the online learning environment. Some examples are Lave and Wenger (1991) in their theory of situated learning and communities of practice, as well as Scardamalia and Bereiter (1996) in their theory of knowledge building. The following sections discuss a Critical Theory in brief, as well as the theory of collaborative learning, as they all contribute to the process of conceptualising the framework that is used in this research to assess collaborative knowledge construction in online discussion forums.

2.4.3 Co-Construction of Knowledge in Online Settings

As online learning environments support collaborative learning and knowledge construction, they have attracted significant attention from researchers to test their potential and explore how best to use them. By employing tools such as interactive forums, virtual group projects, and social networks, this environment has become a rich area of study. A significant contribution to discussion forums and knowledge

construction comes from the work of Scardamalia and Bereiter (1996) as well as the Community of Computer-Supported Collaborative Learning (CSCL).

2.4.3.1 Knowledge Building by Scardamalia and Bereiter (1996)

Scardamalia and Bereiter (2010) have undertaken extensive research efforts in the subject of knowledge building through computer-based learning environments. In fact, the authors claimed that they are the first to utilise the concept of “knowledge building” in an educational context (Scardamalia and Bereiter, 2010). The authors created a computer-based knowledge-building learning environment that promotes progressive discourse through group discussions. They also described this environment as a collaborative environment in which learners view themselves as active contributors to knowledge and not passive receivers (Scardamalia and Bereiter, 1993). Moreover, the authors introduced twelve principles of knowledge building to assess learners’ discourses in the environment they create. They claimed that those principles, together, present a wide perspective of the theory of knowledge building as they introduced it. They argued that those principles were developed to work as a source to assess educators’ practices, as well as a guide for educational methods. Those principles are as follows:

1. Real Ideas and Authentic Problems: Knowledge arises from efforts to understand the world, making all constructed ideas real and authentic.
2. Improvable Ideas: Learners share initial ideas and collaborate to refine them, utilizing available tools and resources.
3. Idea Diversity: Diverse ideas foster knowledge growth through comparison, synthesis, and alignment with similar or contrasting notions.

4. Rise Above: High-level cognitive skills enable learners to transform simple ideas into comprehensive concepts by working with complexity and generating new meanings.
5. Epistemic Agency: Individuals and groups share responsibility for knowledge building, independently presenting ideas and collaboratively improving them.
6. Community Knowledge: Knowledge is created for the benefit of the community, distinguishing it from individual learning.
7. Democratizing Knowledge: All members contribute equally to advancing shared goals, with pluralism enriching the collective knowledge.
8. Symmetric Knowledge Advancement: Knowledge circulates among all members, with equal contributions rather than top-down transfer.
9. Pervasive Knowledge Building: Creative ideas work underpins all tasks, making every activity contribute to knowledge creation.
10. Constructive Use of Authoritative Sources: Understanding involves engaging with credible resources, honoring their insights while critically evaluating them.
11. Knowledge Building Discourse: Discussions go beyond sharing to actively negotiating and improving ideas within the community.
12. Concurrent, Embedded, and Transformative Assessment: Groups self-assess their ideas and progress continuously, enhancing outcomes beyond external evaluations.

These principles were further investigated by Aalst (2009). The author analysed the asynchronous computer-mediated discourse necessary for knowledge-creation models as proposed by Scardamalia and Bereiter (1996). Aalst (2009) distinguished between three discourse modes—knowledge sharing, knowledge construction, and knowledge creation—and applied these distinctions to understand the online interactions of secondary school students during a collaborative inquiry on SARS and related topics. The findings showed that knowledge creation as a mode of learning discourse requires intentional facilitation of community, conceptual engagement, and reflective inquiry. Group A's success illustrates that when these elements are present, students can achieve substantial collective knowledge advancements. Yang, Aalst, and Chan (2020) were also inspired by Scardamalia

and Bereiter (1993) framework. They examined how reflective assessment and knowledge-building (KB) pedagogy can support academically low-achieving ninth-grade students in developing higher-order competencies like metacognition, collaboration, and epistemic inquiry. Conducted in a Hong Kong Band-3 school, the design integrates Scardamalia and Bereiter's (1996) principles of epistemic agency, community knowledge, improvable ideas, and embedded assessment through the use of Knowledge Forum (KF) for collaborative discourse and the Knowledge Connections Analyser (KCA) for reflective analytics. Over three phases, students engaged in inquiry-based tasks, online and offline discussions, and reflective practices, transitioning from posing questions on a KB Wall to deeper inquiry and synthesis on KF. The findings showed that with the support of reflective assessment, students demonstrated significant growth in metacognition, collaboration, and epistemic dispositions, successfully engaging in productive discourse and improving their understanding. By adapting Scardamalia and Bereiter's (1996) principles and tools to low-achieving students, this study highlighted how KB can be a transformative approach for fostering equitable and higher-order learning in diverse contexts.

Scardamalia and Bereiter's (1996) principles were originally developed for application in K-12 education. Consequently, most studies that have applied these principles have focused on elementary school settings, leaving their potential applicability to higher education largely unexplored and uncertain.

2.4.3.2 Computer-Supported Collaborative Learning (CSCL)

Computer Supported Collaborative Learning (CSCL) designs and research evolved in response to previous attempts to use technology within education and follow earlier approaches to understand collaborative phenomena through traditional practices in learning sciences (Stahl, Koschmann, and Suthers, 2006). Over the past few decades, the learning sciences have developed from focusing primarily on individual learning to incorporating both individual and group learning; CSCL has specifically followed this trend (Stahl, Koschmann, and Suthers, 2006).

CSCL refers to learning that occurs amongst several people who use computers and other connected devices (Stahl, Koschmann, and Suthers, 2006). Dillenbourg (1991, p.1) defined CSCL as a “situation in which two or more people learn or attempt to learn something together”. By using the term “or more”, Dillenbourg leaves the number of participants open to interpretation. According to Doyle, Sammon, and Neville (2015), there are six characteristics of CSCL: active learning, group participation, the instructor as a facilitator, learner diversity, learner relationships, and social interaction. Moreover, Dillenbourg (1999) described the CSCL environment to be where students are able to exchange ideas, discuss, negotiate, and be responsible for constructing their own knowledge. Synchronous CSCL involves students communicating in the same space and time—a chat room, for example—whereas asynchronous CSCL allows for students to work on their own schedules and at their own pace—for example, online writing spaces, online forums, and e-mail exchanges. CSCL can be entirely mediated by computers and networks, with learners located in different buildings or even countries. It can also involve learners in the same physical space using computational devices—for example, handhelds or

tablets—to facilitate their face-to-face communication (Stahl, Koschmann, and Suthers, 2006). Indeed, all of these forms of collaborative learning, with the use of technology, are the focus of the CSCL field (Stahl, Koschmann, and Suthers, 2006). The primary purpose of empirical studies into CSCL has been to determine whether and when group study is superior to individual study. For example, Ibrahim and Harun (2017) explored how students construct argumentative knowledge in a social collaborative learning environment (SCLE), particularly in online discussions. Content analysis was applied to 88 discussion segments using a coding scheme developed by Weinberger and Fischer (2006). The scheme examined participation in the epistemic, argumentative, and social dimensions of interaction. The study revealed that argumentative dimension activities—for example, posing questions, making claims, and making counterarguments—were the most prevalent (30%), followed by social interaction activities like elicitation (72%) and consensus building. The study also indicated that minimal intervention from teachers encouraged independent, peer-driven knowledge construction. The study highlighted the need for well-designed tasks and minimal yet strategic instructor interventions to optimize learning outcomes. The study of Stegmann, Weinberger, and Fischer (2007) investigated how computer-supported collaboration scripts can enhance the quality of online discussions, particularly in facilitating the construction of well-structured arguments and argumentation sequences. Scripts act as external aids that guide learners' interactions, aiming to complement or enhance their internal reasoning processes. Findings indicated that collaboration scripts effectively improve the quality of online argumentative discourse and foster knowledge on argumentation. However, their influence on domain-specific learning may require longer

interventions or greater alignment with internalized cognitive scripts. This research highlights the potential of structured collaboration tools to enhance learning in asynchronous online settings. Zhu, Shui, and Chen (2023) studied how social annotation technology combined with structured participation roles can enhance knowledge construction and social interaction in higher education. The study aimed to address challenges in social reading, particularly in web-based environments, by designing a pedagogical scaffolding framework. This framework incorporated participation roles—facilitator, synthesizer, and summarizer—within the hypothesis of social annotation tools. The findings indicated that role-takers, who are the facilitators and synthesizers, demonstrated more central positions in interaction networks as actively engaging peers. Facilitators and synthesizers contributed higher-level annotations: critical reasoning and synthesis. Higher-level posts by role-takers inspired more advanced cognitive engagement from peers. Regular participants also engaged in knowledge construction, especially when role-takers provided thought-provoking annotations. Facilitators and synthesizers effectively guided discussions, with synthesizers excelling in integrating diverse ideas. However, some confusion arose about role distinctions, highlighting a need for clearer guidance. The study underscored the value of structured roles in fostering collaborative learning.

As noted above, these findings can contribute to the current study by aiding in the interpretation of data and providing insights into the factors influencing the co-construction of knowledge. However, Stahl, Koschmann, and Suthers (2006) argued that these factors interacted with one another in a manner that made it difficult to

draw conclusions regarding the causes of the circumstances and the outcomes of collaboration. As a result, empirical research has more recently shifted attention away from defining the parameters of effective collaboration towards attempting to comprehend the function that these factors play in mediating interaction (Stahl, Koschmann, and Suthers, 2006). One of the areas that triggered attention is the relationship between identity and knowledge constructions. For example, the work cited in Ke et al. (2011) explored the relationship between identity presence, content, and learners' participation in online discussions and knowledge construction. The results showed a positive connection between identity and knowledge construction. Similarly, Oztok (2016) investigated how learners approach identifications when interacting in online discussions. The results showed that learners use multiple identities in different stages of knowledge construction.

While research on the co-construction of knowledge has explored various contributing factors, the role of power dynamics and structures remains notably absent. This study aims to address this significant gap and contribute meaningfully to this underexplored area.

2.4.4 Assessing Online Collaborative Knowledge Construction

Research in this area has also emphasized the need for new methods of interaction analysis and modelling, driven by the shift toward a more process-oriented approach. According to Pena-Shaff and Nicholls (2004), researchers can determine whether computer conferencing effectively promotes critical thinking and facilitates the process of knowledge construction only by analysing both message content and

interaction patterns. Similarly, teachers require methodologies to assess how effectively students are engaging with and learning from one another within these environments. If we accept the constructivist view that knowledge construction is a process emerging from social interaction, then the assessment of knowledge construction should take place during learners' interactions in the classroom. Wever, Schellens, Valcke, and Van Keer (2006) presented an overview of 15 content analysis instruments that have been used in research to analyse transcripts of asynchronous and computer-mediated discussion groups in formal educational settings. These include several frameworks. For example, Henri (1992) developed a framework for analysing text-based communications in computer conferencing systems to enhance their design and usage. The study employed content analysis to interpret textual information systematically by categorizing and coding the content of computer-mediated discussions. The study revealed several insights into the dynamics of computer conferencing, including the types of interactions observed, such as questions, responses, and suggestions, as well as patterns of communication within group discussions and the impact of various communication styles on collaborative outcomes. The study proposed a framework that consisted of three categories of interaction: cognitive interactions—which involve sharing knowledge, asking questions, or solving problems—social interactions—which include expressing agreement, providing encouragement, or managing group dynamics—and organizational interactions—which pertain to coordinating tasks, setting goals, or clarifying roles. This framework is significant because it was one of the first tools to bridge the gap between theory and practice in the content analysis of digital communication, offering a replicable and systematic approach for researchers

and practitioners to improve the design and functionality of digital communication tools. However, the framework does not provide detailed descriptions of all phases of the knowledge construction process that take place through social negotiation in computer-mediated communication (CMC). Furthermore, the definitions of interaction it offers are either vague or not well-suited to the interaction patterns commonly observed in discussions (Gunawardena et al. 1997).

Another example is the framework developed by Pena-Shaff and Nicholls (2004). The framework consisted of several categories, such as Questions (information-seeking, discussion, and reflective), Replies (direct and elaborated), Clarification (stating ideas, using examples, reformulating problems, and identifying causes or comparisons), and Interpretation (generalizations, conclusions, hypotheses, and solutions). Other categories encompass Conflict (debating and disagreements), Assertion (defending or maintaining ideas), Consensus Building (clarifying misunderstandings, negotiating, and reaching agreements), Judgment (evaluating ideas or solutions), Reflection (self-appraisal and acknowledging learning), and Support (providing feedback and emotional rapport). Additionally, they included an "Other" category for mixed messages, social comments, and emotional responses. This framework offered a practical tool for educators and researchers to assess how online environments facilitate knowledge construction and interaction.

One of the prominent examples is the Interaction Analysis Model (IAM) developed by Gunawardena, Lowe, and Anderson (1997). The framework encompasses five phases: sharing and comparing information; identifying and exploring discrepancies or inconsistencies among ideas, concepts, or statements; negotiating meaning and

collaboratively constructing knowledge; testing and modifying a proposed synthesis of this co-constructed knowledge; and finalizing an agreement statement and applying the newly constructed meanings. Each phase features several operational indicators. The initial two phases demonstrate lower levels of negotiation and knowledge-construction skills, whereas the fifth phase showcases a higher level of knowledge construction. IAM is the framework that is used in this research to assess the collaborative process of knowledge construction in single-gender online discussion forums.

Overall, many studies have applied Gunawardena et al.'s (1997) model, including Schellens and Valcke (2005) and Marra, Moore, and Klimczak (2006). These two studies made some modifications to the tool to meet their own objectives and offer important insights regarding the tool's reliability and validity. They also offered practical illustrations of how they conducted their analyses, including determining the unit of analysis and the coding process. In chapter (3), I explained the IAM framework in more detail.

2.4.5 Gender And Co-Construction of Knowledge

Exploring the role of gender in online collaborative spaces is essential for comprehending human interaction within online learning environments. This study specifically focuses on female-only classes, providing a gender-specific context. This section discusses key research findings on how gender composition affects the dynamics of collaborative knowledge construction in online learning.

Research highlights how gender composition influences online collaborative learning. For example, Wu and Wang (2020) found that female-only groups were most active in message generation, while male-only groups displayed diverse discussion patterns. Balanced-gender groups exhibited the most complex cognitive transitions, suggesting that gender diversity enhances discussion richness. Another example is the study conducted by Takeda and Homberg (2014), the researchers analysed the impact of gender on group work processes in higher education, discovering that gender-balanced groups improved collaboration but not necessarily performance. This underscores the complexity of group dynamics and the non-linear relationship between collaboration and academic outcomes. Chan et al. (2013) studied gender differences in online communications among engineering students, finding that female students were more engaged and controlled the information flow more effectively. This points to significant gender-based variations in communication styles within online learning networks. Gunn et al. (2003) and Lin et al. (2019) further explored these dynamics, revealing that gender differences in technology access, literacy, and interaction styles reflect broader societal norms and influence educational performance. They advocate for educational strategies that support diverse gender approaches to foster inclusivity and equity in online learning environments. These findings collectively emphasize the importance of considering gender dynamics, as males and females have different qualities in terms of collaboration and cognitive abilities. A final example is the study conducted by Harskamp, Ding, and Suhre (2008). The authors examined the influence of partner gender on the collaborative learning and problem-solving abilities of male and female high school students in the field of physics. The study revealed that female students

in mixed-gender pairings (MG) had lower proficiency in solving physics issues compared to both male and female students in same-gender pairs. The difference in behaviour was attributed to the distinct interaction styles; in MG couples, females devoted a greater amount of time to asking questions rather than pursuing answers. On the other hand, when females were partnered with other females, there were no changes in problem-solving efficacy or interaction behaviour compared to male couples. This suggests that the gender of the partner has a substantial impact on the cooperative problem-solving process. The paper proposes that more investigation may examine analogous dynamics in domains where females may possess greater self-assurance, such as biology.

2.5 Power Relations

Power is a significant concept in the social sciences that has received considerable attention in research. Examining power dynamics is important to understanding many facets of societal institutions and human interactions. Scholars in political science, business, sociology, and psychology often investigate various aspects of power, such as its acquisition, exercise, distribution, and resistance.

2.5.1 The Concept of Power

Power is an important concept that has been extensively challenged and defined in several ways, illustrating its complex nature in human relationships and social institutions. Dahl (1957) pointed out that the ability to exert control over other people or impose one's will is a common definition of "power". Kreitzer (1965) further

elaborates on this concept by describing social power as the capacity to not only influence or direct behaviour, but also to assert one's desires in the presence of opposition or dissent. Blau's (2017) definition of power included both intimidating measures, where obedience is forced through the fear of losing something valuable, and reward-based influence, where behaviour is shaped by the promise of gaining benefits. This more comprehensive view of power captures the complexity of power dynamics in social interactions, where it manifests itself in a range of ways, from overt pressure to indirect influence.

More than any other thinker, Foucault (1982, 2002, 2020) challenges the common view of power as an oppressive aspect to a more analytical view (Balan, 2010). He contended that power is not an inherent quality but rather something that can be developed via actions that influence others (Foucault, 1982). Power is not exclusive to those attaining a position of control, rather, it is disseminated across society in everyday interactions and partnerships.

Through his distinct conceptualisation of power, Foucault (1982, 2002, 2020) offered a broader and more nuanced perspective than the one advanced by Marxist critical theorists. Marxist theorists typically highlighted the repressive functions of power, such as the dissemination of misrepresentative ideology that supports the interests of the ruling class (Mills, 2003). Marxists emphasised the role of society's or culture's underlying structural mechanisms in imposing particular agendas (Lee, 2020).

In his article "The Subject and Power", Foucault (1982) explores several key concepts related to his understanding of power, namely, violence, consent, freedom,

and confrontation. He distinguishes these from the concept of power in the following ways:

1. Violence

Foucault (1982) distinguishes violence from power by emphasizing that violence operates through direct physical force aimed at eliminating resistance, whereas power functions through relationships between active agents. Power engages with the freedom of others and creates possibilities for action and response, while violence seeks to suppress these possibilities, leading to inactivity rather than innovation.

2. Consent

According to Foucault (1982), power does not necessarily rely on consent, though consent can play a role in specific contexts. Power can exist without explicit agreement, yet may emerge from or be sustained by agreements, either temporarily or permanently.

3. Freedom

Foucault (1982) argues that power presupposes the existence of freedom. Power is exercised over individuals who are capable of action and resistance; it is not simply about intimidation or force. In situations where individuals are completely subjected, such as in slavery, there is no genuine power relation, only domination through constraint. Thus, freedom is a condition for power to function.

4. Confrontation

Foucault (1982) conceptualises confrontation as a fundamental element of power relations. Power is inherently unstable and constantly accompanied by the potential for resistance. This struggle is not always overt or violent but can manifest in diverse

forms, ranging from subtle defiance to organised opposition. The presence of confrontation reveals that power is always relational and contested.

According to Foucault (1983), violence and consent are related to power but do not constitute power itself. Power, in his view, is a structure of actions designed to guide or influence the behaviour of others. It shapes what individuals can or cannot do, not necessarily through force or agreement, but through more subtle mechanisms, such as stimulation, seduction, desire, or other forms of influence. Thus, power is fundamentally about governance: the conduct of conduct, or the ability to direct people's behaviour without relying on violence or legal authority (Foucault, 1982). In this sense, governance involves managing and shaping actions through indirect means, rather than through coercion or formal law.

Power, as such, is not a fixed concept (Foucault, 1982). It changes according to individuals' reactions. It cannot simply be erased or ignored because it is deeply embedded in society (Foucault, 1982). It shapes our social reality and determines how that world may be talked about, and as a result, excludes other possible ways of being and speaking (Jorgensen and Phillips, 2002, pp. 220-222). Kelly (2008: pp 37-38) concluded five features of power as conceptualized by Foucault; these are:

Power is non-subjective in the sense that it is not owned by one individual or a group of individuals nor led by certain people; it is relational so that it exists in relationships between people; it is decentralized in the sense that it does not originate from a particular individual or a particular social class, rather it is spread among all members of society and all classes; it operates in several directions in the sense

that it does not only flow from top to bottom but also flows from bottom to top; it is active in the sense that it is in continuous change and has its own mechanism.

Foucault (1977) argued that when we view power as a strategy, this means that we extend its domain to include a wide range of relations in society, whether hierarchical or horizontal relations (Balan, 2010). He stated: *“I am not referring to Power with a capital P, dominating and imposing its rationality upon the totality of the social body. In fact, there are power relations. They are multiple; they have different forms; they can be in play in family relations, or within an institution, or an administration”* (Foucault and Kritzman, 2013: P 38). In addition, Foucault also does not view power as a capacity of negative influence, but rather as a positive factor of change and control. Thus, the individual is not considered only as the object of power relations or the victim of its oppression, but as a constitutive element of those interactions (Mills, 2004 p. 20).

2.5.2 Foucault’s Theory of Power Relations

Foucault’s analysis of power relations was instrumental in shaping this research, as it specifically addresses the micro-mechanisms of power dynamics. Foucault (1991, pp. 91–95) argued that power relations can be characterised not as actions directly imposed on others, but as strategies that shape the range of possible actions available to individuals. He explored how power operates within everyday interactions between individuals and institutions (Balan, 2010). Foucault (1977) also examined how various institutions exercise power over people and societies, and

how individuals assert their identities through resistance to these effects of power (Balan, 2010). Much like capillaries in the human body, power dynamics within disciplinary institutions enable the emergence of diverse mechanisms of social control. These mechanisms regulate and direct individuals' thoughts and behaviours in specific ways (Lee, 2020). Power, in this sense, facilitates the emergence of new behaviours (Balan, 2010).

Discipline power, as defined by Foucault, expressly moves the focus of power studies from the "macro" level of ideologies and systems to the "micro" level of bodies (Gore, 1995). According to Foucault (2020, p. 155), disciplinary power operates at the bodily level as opposed to the sovereign authority of previous eras. Foucault (2020, pp. 138-139) argued that several facets of society are intertwined and mutually influence one another, including people's actions, their methods of communication, and the distribution of power in society. The term "discipline" is used to describe the regulated and controlled use of these factors. Institutions such as schools, hospitals, and the military all need discipline to function (Foucault, 2020, p. 138). He illustrated that European civilisations have been evolving since the 18th century to find better, more productive methods of integrating these factors (Foucault, 1982).

In sum, Foucault (1982) believes that power relations occur within "all relational structures of the society" (Balan, 2010). Foucault's work, therefore, was not to investigate the existence of power; rather, his research revolved around the way power operates (Barker and Quennerstedt, 2017). Despite this, Foucault does not downplay or ignore the state's and formal institutions' contributions to the

development and exercise of power (Pettas, 2019). Instead, his ideas on various forms of power, such as sovereign power, disciplinary power, and biopower, relate to particular regimes of knowledge and make several connections to how power relations developed from the top down (Pettas, 2019). As a whole, Power relations for Foucault are not about abstract entities such as freedom, rights, and regulation, rather, they are about everyday techniques of control (Paternek, 1987).

There are two important concepts associated with Foucault's power relations: discourse and subjectivity.

Discourse. Discourse, as defined by Foucault (2002, pp. 83–85), refers to the systematic processes that produce knowledge and meaning within social and institutional contexts. It is not simply a collection of symbols or texts but something that generates notions, speech, or effects (Lee, 2020; Mills, 2004, p. 16).

Foucauldian analysis examines the social frameworks where certain claims are accepted as fact while others are marginalized (Olssen, 2004; Lee, 2012). Foucault's focus lies not on whether discourse reflects truth but on how it becomes dominant, supported by institutional and societal forces (Lee, 2020; McKerrow, 2011).

Foucault's work spans two phases: "archaeological" and "genealogical."

Archaeology explores the historical conditions that shape knowledge acceptance, while genealogy examines the interplay of power and knowledge, showing how individuals are both shaped by and subjected to power through discourse (Jorgensen and Phillips, 2002, pp. 220–222). For Foucault, discourse is not only a

way of representing the world but also a mechanism for exercising power (Allan, 2022).

While understanding that Foucault's perspective on discourse is essential for framing certain theoretical contexts, it is important to clarify that my focus does not lie in studying discourse itself. Instead, I draw on these ideas as a foundational lens to explore related dimensions of power, knowledge, and their implications within online interactions and how they affect knowledge construction.

Subjectivity. The concept of subjectification describes the connections between knowledge and power (Lee, 2020). According to Foucault (1982), subjectification is a process aimed at constructing individual subjectivity through various mechanisms, such as normalisation, surveillance, and the problematisation of particular ways of thinking, speaking, and behaving. As Fendler (2014) explains, subjectivity in Foucault's (1977) framework is not a pre-existing, essential identity possessed by individuals. Rather, it is produced and constructed through a range of discursive and institutional practices, including language, social norms, and power relations. Lee and Brett (2014) suggested that the word "subject" in Foucauldian understanding can be substituted for the word "identity". Heyes (2014) claimed that the word "subject" is not simply a substitute for the word "person"; rather, the term involves the experiences that a person may have at a particular historical moment. Said experiences may lead to the transition from "person" to "identity." Kelly (2008) concluded that Foucault understands the subject as changeable, not fixed or authentic. Kelly further explained that the subject shapes itself and is shaped in various forms during different periods of time through a set of practices. Kelly (2008)

also concluded that due to Foucault's focus on practices and techniques that are inherently variable, subjectivity, likewise, varies historically. Fendler (2014) summarised five meanings of the term "subject," including:

1. The subject as an actor or an agent in a sentence in which the subject has an acting role.
2. Another meaning of the term 'subject' is the topic of discussion or investigation. Foucault's theory acknowledges that we are both the subject and object of our own insights. His genealogy, as such, tracks in what ways the self has become the subject of scholarly inquiry in modern times.
3. A subject is an individual who operates under authority. Humans are subjects of a king or queen, for instance, in a monarchy, and the rule of law in a constitutional democracy. Foucault's subject is involved in the government system.
4. A subject is the opposite of an object. The word "subjective" refers to our individual viewpoint or opinion on a subject. Foucault views subjectivity as being individual. The subject has a quality that cannot be reduced to objective traits like race, class, gender, age, ability, or sexual orientation.
5. In academic terms, a "subject" is a field of study. For example, history, math, economics, and linguistics are all subjects. Foucault's theory acknowledges the role of knowledge in constructing the subject and how the production of and relationship to knowledge contribute to this construction.

The authors asserted that Foucault's idea of the subject is an acknowledgement of the human complexity and the dynamic nature of our identities, which are shaped by both internal and external factors (Fendler, 2014).

In sum, subjectivity encompasses an individual's self-perception and also how they are seen and acknowledged by others within a social context. There are two other concepts that are key themes and are related to Subjectivity: (1) Docile Bodies and (2) the Panopticon.

Docile Bodies. Foucault argues that the construction of subjects is held through discursive practices. He claimed that discourse epitomizes social power capable of shaping individual identity. Gale (2014) elaborated on the fact that discourses are systems of social networks, constitution, and hegemony. Therefore, being subject to the discourse has the effect of positioning, creating, and hence controlling subjects in ways that result in submissive bodies (Heyes, 2014). Lee and Brett (2014) rationalized that in the process of subjectification, an individual becomes the target of studies that construct knowledge about people's attributes and properties. This knowledge classifies persons into two categories: the good and the bad. Afterwards, the knowledge yields a group of norms that regulate "good behaviours" and assess "bad behaviours" (Snyder, 1984). According to this understanding, none of the people who have been stigmatized as good or bad represent the complete objective truth or the absolute truth, which led Foucault to look at the role of discourse in the normalization of particular persons or the problematization of other individuals (Lee and Brett, 2014). In sum, docile bodies are those that have been trained, shaped, and controlled by these institutions to behave in predictable and orderly ways.

The Panopticon. Foucault (2020, p.194) introduced the Panopticon as a metaphor for how surveillance and self-regulation are enacted as institutional practices in prisons, schools, hospitals, etc., which construct subjects. The Panopticon design

worked to enforce social control by ensuring bodies were under continuous observation without the use of force. The result is that "bodies become the target of disciplinary power", which he called Docile Bodies (Heyes, 2014; Khan and MacEachen, 2012). According to Heyes (2014), Foucault identified three disciplinary practices in society's institutions that strengthen subjectivity. First, ranked surveillance operates by making subjects continuously observable and identifiable through "one gaze" that sees everything incessantly. Foucault (2020, p.200) considers this type of visibility, Panopticon Visibility, as a symbol of how power operates on subjects in general. Second, normalizing judgment is executed through detailed control over people's daily actions that have not been disciplined. A penalty is then not only punishment but also disciplinary, where the repetitive exercise of penalties serves as both punishment and training. The third method is examination, where a subject is observed through the lens of normalizing power and assessment (Heyes, 2014). Subjectification might be a helpful concept in demonstrating the connections between power and knowledge (Lee and Brett, 2014).

It is obvious how difficult it is to analyse power relations within Foucault's framework, as it entails many concepts. Nevertheless, there are some significant attempts that transformed Foucault's ideas of power relations into steps and frameworks of analysis. One of these is the work of Parker (2014) in his book *Discourse dynamics (Psychology Revivals): Critical Analysis for Social and Individual Psychology*. He suggested a framework of about twenty steps to discourse analysis. Willig (2013) summarized Parker's (2014) steps into six stages in her book *Introducing Qualitative Research in Psychology*. Another attempt to analyse power relations is made by

Gore (1993). In her study, Gore extracted eight concepts of Foucault's power relations and monitored how students and teachers impose these strategies upon each other. The eight power relations strategies include surveillance, normalisation, exclusion, classification, distribution, individualisation, totalization, and regulation. Because the current research focused on how individuals exercised power techniques in their everyday interactions (specifically in online learning interaction spaces) and how this contributes to their knowledge construction, the analysis of the data will follow Gore's (1995) framework.

2.5.3 Power Relations in Educational Settings

In educational settings such as universities, power dynamics between instructors and students are governed by well-defined norms. However, these dynamics are not static; they are influenced by broader societal shifts, such as changes in market policies (Symonds, 2020). These shifts also affect students and their interactions with one another. While the educational literature primarily focuses on top-down power structures, there is a notable lack of studies exploring the nuanced dynamics of power in micro-level relations.

An example of research in power relations between teachers and learners is the study conducted by Madsen et al. (2024). The authors investigated how university professors use different types of power and authority at various stages of their careers to enhance teaching and build relationships with students. The focus is on three types of power: Formal Power, which is authority granted by their role as a teacher—for example, setting rules and managing the classroom; Expert Power,

which is the authority granted by their knowledge and expertise in their subject; Referent Power, which includes Building trust and respect through personal connections with students. The study employs a qualitative, interpretive approach. Semi-structured interviews were conducted via videoconferencing and analysed using thematic coding through NVivo software. The study found that university professors utilize formal, expert, and referent power differently across career stages to foster student engagement, learning, and relationships. Early-career faculty focus on establishing credibility and structure by leveraging formal power and expertise while building rapport with students, often struggling to balance warmth with authority. Mid-career professors refine their teaching methods to emphasize critical thinking and professional development, using their expertise to mentor students, though they face challenges in balancing flexibility with fairness. Late-career faculty prioritize mentorship and co-learning, creating highly supportive and accessible environments by drawing on their extensive experience; however, they also navigate tensions in maintaining relevance and boundaries with students. Across all stages, the effective use of power involves a dynamic interplay of these domains, evolving with experience and career development.

Another example of teacher-student power relations is the study conducted by Donnelly, McGarr, and O'Reilly (2014). The authors explored power dynamics in Inquiry-Based Science Education (IBSE) classrooms, focusing on how established teacher-student roles and classroom norms influence the integration of IBSE, particularly in science education. The study identified mechanisms of power that either facilitate or hinder inquiry-based approaches. The study was based on case

studies of two Irish chemistry teachers using a Virtual Chemistry Lab (VCL) to support guided inquiry. Data were collected through video-recorded lessons, teacher interviews, student focus groups, and self-assessment sheets. Key Findings included identifying two forms of power: direct and indirect. Direct power techniques, such as teacher surveillance and control over procedures, were prevalent. Indirect power, such as defining norms and controlling ownership of ideas, to some extent reinforced traditional roles. Teachers' questioning often focused on procedures rather than deeper conceptual understanding. Students struggled to take ownership of ideas, often deferring to the teacher or treating the activity as a "classroom game."

Buzzelli and Johnston (2001) also explored the teacher-student power relations. The authors investigated how teaching inherently involves unequal power dynamics and moral considerations, analysing how these elements are expressed and negotiated in real classroom interactions. The authors employ a qualitative, micro-level analysis of classroom discourse, focusing on a specific interaction during a third-grade writing activity called "author's chair." They utilize Bernstein's framework of pedagogic discourse to analyse how authority is enacted and negotiated. The study showed that the teacher's authority has dual dimensions: control over classroom behavior and being a source of knowledge. This authority is inherently tied to power dynamics and moral responsibility, as teaching often requires making decisions that influence students' moral development. In addition, the findings showed that the teacher's role integrates instructional discourse (helping students improve their writing) with regulative discourse (instilling moral and social norms). The study provided a framework for understanding how the tensions between these roles manifest in

everyday educational practices. Since this study was conducted in elementary schools, power dynamics may manifest differently in higher education due to differences in institutional structures, social expectations, and the varying levels of autonomy and agency offered to students and educators.

A final example of teacher-student power relations is the study conducted by Gore (1995). Gore utilised Foucault's power perspective to explore how teachers and learners exercise micro-level techniques of power differently in different educational contexts. She identified eight power relations techniques: normalisation, surveillance, exclusion, distribution, classification, individualisation, totalization, and regulations. What makes this study significant is that it provides an explicit framework of power relations in pedagogy across different contexts. Gore's work is integral to this study, as its framework will support the data analysis process. Further details about Gore's (1995) study and its application in this research will be provided in Chapter 3.

As for learner-to-learner power relations, the only study that I found is the study conducted by Cornelius and Herrenkohl (2004). The authors recognised three forms of power relations during the learning process of two students in a science classroom. The three forms included the ownership of ideas, partisanship, and persuasive discourse, with the work exploring how these power relations contribute to meaning construction. However, the three power relations noted are inadequate in that they did not capture all other possible power relations strategies in the class.

Finally, a study conducted by Xiaogui (2005) investigated power relations at both teacher-student power relations and student-to-student power relations, analysing

them in two different contexts: in traditional pedagogical models and collaborative learning models. The study examined power dynamics in mathematics education through a sociological lens, particularly informed by Foucault's theories. The research compared conventional teaching, characterised by instructor authority and passive student engagement, with collaborative learning methods that equally distribute power among students. The results showed that power in the classroom is relational and tied to discourse, knowledge, and societal factors like gender and class. In addition, the study showed that collaborative learning fosters creativity and student empowerment but risks power imbalances if not carefully facilitated. The study highlights the importance of understanding these dynamics to create more inclusive and effective mathematics education.

As highlighted in this review, there is a notable gap in research exploring student-to-student power relations, emphasizing the need for further studies in this area.

2.5.4 Power Relations in Online Settings

Studies of power relations in online learning environments examine hierarchical dynamics similar to those found in traditional settings, such as teacher-student power relationships and organisational authority. For example, Fajar and Nadhillah (2023) investigated the power dynamics between an English lecturer and students at Teachers' Training College and Educational Sciences of the Indonesian Teachers' Association (STKIP PGRI Jombang) during online learning amidst the COVID-19 pandemic. The research employed a qualitative approach, utilizing content analysis to examine observational data and Critical Classroom Discourse Analysis (CCDA) as

the theoretical framework. The findings revealed that the lecturer occupied a dominant position of power, exercising control over instructional interactions. However, the study also demonstrated the lecturer's efforts to maintain good manners and express solidarity with students when appropriate. This dual approach underscored a nuanced relationship that balanced hierarchical authority with moments of equality and mutual respect. Another example of a teacher-student power relation in online settings is the study done by Kaufmann and Buckner (2019). The authors examined how instructors' use of power impacts student motivation, affective learning (emotional connection to the course and instructor), and cognitive learning (perceived learning outcomes). This research partially replicates Richmond's (1990) study on power dynamics in traditional classrooms, applying the framework to online learning environments. The data was collected through surveys of 161 students enrolled in asynchronous online courses, employing quantitative methods for analysis. The findings revealed that Expert Power consistently correlated with positive outcomes, including increased motivation, affective learning, and cognitive learning, making it the most influential power type in online settings. Referent Power was associated with enhanced affective learning, fostering stronger emotional connections with instructors. Reward Power showed a moderate positive relationship with student motivation and learning outcomes. Conversely, Coercive Power was negatively associated with cognitive learning, highlighting the detrimental effects of punitive or authoritarian teaching methods in online contexts. Lastly, Legitimate Power showed no significant associations with any measured outcomes. The study concluded that expert and referent power bases are crucial for fostering positive learning experiences, while coercive power should be avoided to promote

effective online education. Xu, Zuo, and Chen (2023) also examined hierarchical power relations in educational online settings. The study investigated power dynamics and authority in online teacher communities of practice, focusing on how these elements influenced pedagogical inquiry and learning. Using a case study of a four-teacher online practice group and applying Goffman's micro sociological framework, the researchers analysed discourse to explore power and authority dynamics. They identified methods through which mentor teachers established authority and examined the impact on novice teachers' participation. The findings revealed that hierarchical power often suppressed critical dialogue and deep inquiry, resulting in a dominance of single perspectives and superficial discussions. The study highlighted the need for balanced power dynamics to promote collaborative and reflective professional development in online teacher communities.

Few studies have examined power relations in online learning settings through a broader lens, encompassing institutional power, teacher power, as well as relational and social power. For instance, Anderson (2006) explored the dynamics of power and interaction in an online learning environment, particularly in asynchronous discussions within a distance education program. The study sought to understand how personal agency, social structures, and institutional policies shape participation and interaction, revealing the complexities of power relations in digital educational settings. The study utilized a qualitative research design. The data was collected through interviewing 25 students. The findings showed that learners exhibited agency by deciding when to post, respond, or ignore messages. Their choices were influenced by personal interest, group loyalty, and perceptions of others'

contributions. Group dynamics encouraged a supportive environment but also led to self-censorship and normalization. Lecturer presence was both a motivator and a source of control, as students sought to meet implicit expectations. In addition, the study found that asynchronous platforms allowed flexibility; however, they imposed challenges such as message overload and delays in responses. Also, time constraints and competing responsibilities significantly impacted participation. Overall, the study highlights the interplay of personal agency, social structures, and technological affordances in shaping online learning interactions.

Another example is Pettitt's (2002) study. The author explored how adult distance learners in online undergraduate business management courses navigate power dynamics in terms of time, proximity, and authority to maintain, obtain, or share control in their educational and personal contexts. The study employed a narrative and thematic approach to explore learners' experiences within a socio-structural framework. The data was collected through semi-structured interviews. The study found that adult learners in online undergraduate courses navigate power dynamics by balancing the demands of education, work, and family life. They gained flexibility in time and proximity through distance learning, enabling them to study from home and manage routines more effectively. However, this flexibility was limited by power structures such as instructors' control over course policies and grading, employers' demands for productivity, and family responsibilities. Learners actively negotiated these constraints, employing strategies like digital communication with instructors and multitasking to maintain control over their schedules. While they valued the course content's relevance, their primary focus was obtaining a degree, even if it

required compromising some power. This highlights the importance of designing distance education that supports autonomy while acknowledging external constraints.

Apart from educational settings, in other social studies, several studies investigated power relations in online discussion forums with no focus on education. For example, Guittar and Carter (2014) tested Foucault's concepts of disciplinary power, such as hierarchical observation, judgment normalisation, and examination between individuals in the online discussion forum environment. The researchers concluded that Foucault's concepts of power relations could help to understand the mechanisms through which online users impose disciplinary power on each other. Another study is the study of Nguyen, Torlina, Peszynski, and Corbitt (2006), which investigated how power relations are exercised and evolve in virtual communities, specifically within the context of two Vietnamese communities, "PoetryForFun" and "VietKiem." The study aimed to understand the power dynamics shaped by socio-technological contexts and national cultural influences. Using Foucault's concept of power relations as a theoretical lens, the study concluded that virtual communities, though seemingly democratic, are inherently hierarchical and political. Power practices are deeply embedded in the community-building process, influenced by both traditional and virtual contexts.

The findings from these two studies, Guittar and Carter (2014) and Nguyen, Torlina, Peszynski, and Corbitt (2006), are valuable for the current study as they examine how power operates through Foucault's lens, emphasizing its relational and distributed nature, as well as its function as a disciplinary mechanism. I believe these

concepts are essential for understanding power dynamics within virtual and online learning communities.

2.5.5 Surveillance in Online Settings

Online surveillance involves more than just observation; it entails complex interactions between technology and individuals' behaviours (Albrechtslund, 2018). While it has the potential to ensure adherence to regulations, it may also impose constraints on individuals' independence and creativity, which influences how people perceive their online presence (Al-Hamamra, Qabaha, and Daraghmeh, 2022).

Studies on online surveillance focus on two distinct perspectives: positive and negative. The negative perspective views surveillance as oppressive and controlling. For instance, in a study conducted by Al-Hamamra, Qabaha, and Daraghmeh (2022), the researchers highlighted the impact of surveillance on online education. The study concluded that Palestinian university literature professors are discontented with the online learning systems implemented during the COVID-19 crisis because these platforms rely on a comprehensive system of monitoring and discipline. Teachers perceive themselves to be monitored by an "invisible other" who observes their discussions and actions. They encounter examination from various stakeholders, such as parents and students, which elicits apprehension and distress owing to the ambiguous character of the supervising body. This results in self-surveillance that disciplines both staff and students. In addition, the monitoring mechanisms, as indicated by the researchers, have reinforced the conventional teaching methods that prioritise common sense. They hinder the exercise of

academic freedom and independence, resulting in a culture of conformity that hinders critical thinking and resistance to administrative controls among educators. Therefore, the researchers concluded that hegemony and diverse types of dominance are strengthened by these online venues. The unseen observer reduces the educator to a mere subject of policies, devoid of agency in their creation, and transforms them into a passive recipient of knowledge rather than an engaged participant in the act of communication. Another example is the study of Basalamah and Elyas (2014). The authors explored the transformation in power dynamics and educational practices within Saudi Arabia's virtual classrooms compared to traditional settings. By applying Michel Foucault's concept of the panopticon, the researchers analysed how virtual learning spaces affect the roles and authority of teachers in a culture deeply rooted in hierarchical and physical spatial discipline. The study found that virtual classrooms reversed traditional power structures. Teachers lost their authoritative visibility, feeling "out of place" and struggling to manage classrooms without physical presence. The shift empowered students, who now controlled their engagement and visibility, creating what the authors called a "reverse panopticon". Instructors reported frustrations related to the lack of visual and spatial cues, difficulties managing student participation and behavior, and reduced effectiveness in assessing engagement and performance. Lastly, teachers were increasingly subjected to institutional surveillance, leading to self-censorship and amplified feelings of vulnerability.

Another example that examines surveillance with a cautious perspective is the study by Samuelsson and Lindström (2022). The authors highlighted the need to increase

awareness of the monitoring element of digitalization in schools and teacher training. According to their research, which involved surveying current and former student teachers at Umeå University in Sweden, having knowledge about surveillance is necessary in order to make informed and independent choices regarding online conduct. The results uncover a pervasive privacy paradox among student teachers: while they claim to be concerned about their privacy, they often fail to take adequate measures to safeguard it online. This contradiction is partially explained by the complex nature of the issue and the ignorance of the teachers, who are supposed to advise the next pupils on gaining digital competency.

On the other hand, there are some studies that view online surveillance as a positive mechanism that regulates behaviour and reinforces positive conduct. For example, Deranek, Richards, Tworoger, and Schmidt (2015) discussed the role of surveillance in regulating ethical behaviour. The authors studied how students reacted to the surveillance software during a team-based ERP simulation in an undergraduate course. They used open-ended surveys after the course to gather feedback and compared it to students' behaviour during the simulation. The findings indicated that the programme effectively controlled negative behaviour, and the majority of students did not perceive it as disturbing. The findings also indicated that surveillance systems have the capability to oversee and promote ethical behaviour in online educational environments. This study highlighted the benefits of surveillance systems in online learning software despite recent concerns about privacy and surveillance in online technologies. Another example is the study of Dawson, Burnett, and McArdle (2005). The authors investigated the impact of two forms of

surveillance on online students' learning behaviours: the university's information facilities policy and the academic approval of forum postings. The results showed that university surveillance measures and lecturer monitoring of class forum discussions influence learners' behaviours. Irrespective of their degree of awareness, participants showed that monitoring had an impact on their browsing habits, the range of topics they addressed, and their writing style. Additionally, the research revealed that students are more inclined to modify their writing style rather than their browsing habits or the variety of subjects they discuss in forums. Lastly, a review of 54 forum posts showed few instances of misspellings and few humorous or personal remarks, suggesting that students edit their work carefully. Overall, the findings suggest that surveillance techniques as a mode of governance influence student behaviour and that further research is needed.

Apart from online education, Marwick (2012) presented the idea of "social surveillance, which is a common way to monitor people on social media sites like Twitter and Facebook. The study suggests that this kind of surveillance involves observing other people's content and considering your own content from other people's points of view. Surveillance in this meaning is different from normal surveillance because of the way power works, the structure, and the way content is shared. Using Foucault's theory of power relations, the author discovered that social surveillance operates along three axes of power, hierarchy, and reciprocity; these axes are continually shifting and changing.

In conclusion, the studies reviewed in this section demonstrate the applicability of Foucault's theories on power relations and the panopticon in the context of online

surveillance. These studies serve as a critical foundation for employing Foucault's perspectives in my analysis, enhancing the depth and rigor of my exploration into power.

2.5.6 Power Relations and Gender

Research on gender dynamics in online learning environments indicates that the experiences of women and men differ due to the power relations that emerge during their interactions. For instance, the study conducted by Herring et al. (1995) examined the dynamics of gender relations in computer-mediated communication (CMC). The objective was to investigate if women could engage at the same level as men in mixed-sex CMC groups without experiencing conversational dominance or repression. The findings showed that men used different strategies to restrict or manipulate women's involvement when it surpassed a certain level (around 30%). These tactics included threatening to leave the discussion and expressing discomfort or overwhelm when women's participation was considered excessive. The research proposed that women may have more comfort and empowerment in women-centered or women-only groups, where they have the ability to establish the parameters of communication. This stands in contrast to most mixed or men-centered organisations.

Another example is the study conducted by Sussman and Tyson (2000), which examined the communication patterns of individuals in computer-mediated settings where the participants were unaware of each other's gender. Power-related behaviours are assessed based on posting length, initiation frequency, and content

type. The results showed that males often provide lengthier messages and exert control over discussion groups, in accordance with conventional gender norms of leadership in contexts when both genders are present. Surprisingly, women are more likely to start conversations, especially on themes related to women, which would indicate a higher level of comfort or perceived knowledge in these areas. Although anonymity has the capacity to hide gender, conventional power relations continue to exist, and cyberspace is mostly dominated by males. This highlights the influence of societal gender norms on communication patterns, indicating ongoing disparities in online interactions within professional and educational settings. Both Herring et al. (1995) and Sussman and Tyson (2000) emphasised the continuing influence of common gender norms even in communication in online environments. They acknowledged that while CMC has the ability to provide a fair and equal platform, societal and gender norms still impact communication patterns. In certain cases, these norms may reinforce typical gender roles, leading to situations where males may dominate or exert control over discussions.

Some studies indicate that there are no differences between men's and women's experiences in online learning environments. For example, Jun (2007) examined the nature of power relations revealed in a master's level course in an online learning environment, focusing on language use. Using Frequency Analysis and the Mann-Whitney U test, and using gender and race as the independent variables, the study showed that there were no significant differences between men and women in the use of powerful or powerless language in online discussions. Eisenchlas (2012) also investigated the dynamics of advice-giving in online Spanish language forums in

terms of gender differences. The findings suggest that there are no notable gender disparities in the syntactic composition of guidance provided or received. Both men and women used direct communication methods, characterised by straightforward and explicit instructions. Both genders also deployed mitigating language such as empathy, tenderness, and emoticons to lessen the impact of their messages. These two studies by Jun (2007) and Eisenchlas (2012) enhance our comprehension of online communication by demonstrating the impact, or lack of gender effect, on the dynamics of online negotiations.

Some studies focused on female experiences in online learning communications, as it has been assumed that women feel more comfortable in such an environment than in face-to-face communications. For instance, the study by Amanatullah and Morris (2010) explored how women adopt various strategies in response to different political settings—whether self-oriented or others-oriented—to manage perceptions and avoid negative consequences in mixed-gender online forums. The research found that in anticipation of unfavourable evaluations, women display reduced assertiveness in self-advocacy situations, which leads to a decline in competitive strategies and less favourable outcomes, as demonstrated in a controlled laboratory experiment. Conversely, when a negative reaction is less expected, women adopt more assertive and competitive strategies, resulting in more successful outcomes. The study highlights the importance of emotional intelligence and supportive environments in enhancing negotiation results. It suggests that by managing emotional expressions and adapting to contextual expectations, women can effectively navigate gender norms and reduce potential conflicts in negotiations.

The varied results of these studies show that the impact of gender on online communication cannot equally apply to all types of computer-mediated communication (CMC). This highlights the importance of settings or contexts in supporting interaction dynamics in such learning environments. Specifically, the settings of these studies typically involve both male and female participants, under the assumption that online learning environments are generally mixed-gender. However, there are cases where settings are exclusively male or female, such as in Saudi Arabia. This raises questions about the potential power dynamics that may emerge in gender-specific settings. The current study aims to address this critical gap by exploring the impact of power relations on collaborative knowledge construction in female-only online discussion forums.

2.5.7 Power Relations and Knowledge Construction

In this section, I examine research on how power influences how knowledge is constructed, verified, and shared. The studies cover both traditional and virtual learning environments.

For example, in research conducted by Cutri, Whiting, and Bybee (2019), the authors explored the design and implementation of an online critical multicultural teacher education course aimed at sharing knowledge production between educators and students. The study revealed that enabling students to contribute content from social media and real-world contexts helped shift power dynamics, fostering collaborative learning and deeper engagement with critical pedagogy concepts like ideology, hegemony, and bias. However, this approach required the

instructor to take significant pedagogical risks, including relinquishing traditional control and navigating the challenges of online discussions, such as maintaining critical analysis without devolving into opinion-based exchanges. While students appreciated the opportunity to apply course concepts to contemporary issues and develop their critical thinking, the study highlighted tensions in balancing student autonomy with the instructor's responsibility to guide discussions and manage sensitive topics. Ultimately, the findings underscore the potential of online environments to support critical pedagogy while emphasizing the need for careful design and reflexive practices to manage inherent challenges.

The research conducted by Teo and Tan (2019) examined the dynamics of power interactions in the context of chemical synthesis apprenticeship. The study focused on the transmission of expert knowledge and practical skills to trainees, emphasising the changes in power dynamics that enable effective learning. Using narrative analysis, the study discovered that power is purposefully circulated via a combination of non-cultural instruments—such as expert surveillance—and cultural tools—such as specialised equipment and laboratory settings. The research also observed the dynamic management of power relationships, in which the expert imposed and relinquished control in a variable manner based on the trainees' competency and the introduction of new tasks. Furthermore, the apprenticeship was distinguished by several "genres" of work—such as suction filtering and melting point testing—each necessitating distinct skills and knowledge. The control and power transitioned from a high level of expert control to a greater level of apprentice control as the apprentices became proficient in each activity. In contrast to the often-discussed

dialectical conceptions of power and knowledge connections, this research found a non-linear relationship. The dynamics of power and knowledge changed throughout various activities and phases of the apprenticeship. The study's findings highlight the complex and non-linear characteristics of learning and power dynamics in apprenticeship settings. This implies that these contexts need thorough power management in order to facilitate successful learning and acquisition of skills. This final notion corresponds with the underlying beliefs of the present research.

DiAngelo and Sensoy (2009) challenged the idea of "the right to my opinion" in equity-oriented classrooms. They stressed the significance of how educators manage viewpoints in the classroom, arguing for true critical thinking and conversation rather than letting every perspective stand. The research critiques and reconsiders "opinion" in education, specifically the way it silences marginalised perspectives and hinders critical thinking. The researchers propose a more critical approach to teaching and learning that recognises the power dynamics of valuing and dismissing ideas. This study relies on theoretical analysis and discourse criticism rather than data collection and statistical analysis. They study how views preserve power systems and exclude others in speech. The results imply that enabling everyone to voice their ideas in educational settings, particularly with sensitive equity topics, may perpetuate inequality. Educational institutions may enable power differences by mindlessly accepting all ideas as equal. The researchers recommend encouraging students to speak, critically evaluate, and reflect on their thoughts, particularly on power dynamics and social justice.

These aforementioned studies are very important for exploring how educational practices can support and question power structures, thus affecting overall knowledge construction. It also introduced a theoretical understanding of the relationship between knowledge and power, which is vital for the current study.

2.6 Conclusion

This chapter examined three key topics within the realm of online learning. The first section highlights online learning strategies, particularly collaborative and peer-to-peer learning. It also provides an overview of online learning practices in Saudi Arabia. The second section delves into collaborative knowledge construction, beginning with a clear definition of the term, followed by an exploration of its historical evolution and the theories shaping its development. Additionally, it examines techniques for assessing knowledge construction in online learning and identifies research trends, shedding light on gaps in the field of collaborative knowledge construction in online settings. The third section focuses on the concept of power, drawing on Foucault's (1983, 2002, 2020) theory of power relations. It reviews research on power dynamics in educational contexts, highlighting gaps in this area.

This comprehensive review uncovered significant gaps in existing research, which are summarized into four key areas:

First, in online discussion forums within Saudi educational research, there is a noticeable lack of qualitative studies exploring the process of online collaborative knowledge construction. Qualitative research is crucial for providing an in-depth understanding of the processes, constraints, and social factors involved. Addressing this gap would contribute significantly to both the practice and theory within the unique Saudi Arabian context.

Second, while much research on knowledge construction has focused on identifying conditions that foster successful outcomes, there remains a clear gap in examining the role of power dynamics in shaping interactions. Understanding how these dynamics influence collaborative knowledge construction is essential for advancing this field.

Third, in research on power relations, the majority of studies have concentrated on top-down structures, whether at the broader institutional level or within teacher-student relationships. However, there is a significant gap in exploring power dynamics among learners themselves. This area is particularly important in online settings, where learners often experience feelings of isolation and abandonment.

Fourth, while there is a growing body of research on gender in online learning environments, a significant gap remains in understanding women's experiences within female-only online educational contexts. While some studies, such as Wu and Wang (2020), Harskamp, Ding, and Suhre (2008), and Amanatullah and Morris (2010), have investigated women's participation in online discussions, they typically assume coeducational settings, overlooking the specific dynamics, opportunities, and challenges that may emerge in gender-segregated environments. As a result, the social, cultural, and pedagogical factors influencing women's engagement and learning outcomes in such settings are either underexplored or generalized from mixed-gender studies. Moreover, the varied and sometimes contradictory findings in existing research highlight the importance of context in shaping online communication and participation.

Female-only educational environments remain prevalent in many parts of the world. Single-sex education for women is not only characteristic of certain cultural contexts, such as Saudi Arabia, but is also a well-established model in numerous countries, including the United States, the United Kingdom, Japan, China, South Korea, India, Pakistan, Sudan, and others. These institutions, and the unique dynamics they present, are explored in greater detail in Chapter One, Section 1.3. Therefore, addressing this distinct gap becomes crucial.

This study aims to address these gaps by examining how micro-level power relations influence collaborative knowledge construction within single-gender online discussion forums in the context of Saudi higher education. The objective is not only to deepen theoretical understanding but also to improve practical approaches to collaborative learning and interaction, ultimately fostering more effective and inclusive online learning environments in Saudi educational contexts.

The next chapter focuses on the theoretical framework of this thesis in order to effectively navigate the complex webs of knowledge construction and power relations.

Chapter 3:

The Theoretical Framework

3.1 Introduction

In this chapter, I outlined the theoretical framework that served as the foundation for the current research. The framework influences and guides almost all aspects of the research, for example, the research design, data collection methods, analysis, and interpretation of the findings.

The framework consists of two theoretical perspectives: the Interaction Analysis Model (IAM) developed by Gunawardena et al. (1997) and the Power Relations Techniques developed by Gore (1995). The structure of the chapter is as follows:

- First, I introduce the Interaction Analysis Model (IAM) developed by Gunawardena et al. (1997).
- Next, I present the Power Relations Techniques proposed by Gore (1995).

By combining Gunawardena et al.'s (1997) model and Gore's (1995) framework, I aim to gain a deeper understanding of the power relations dynamics underpinning the collaborative knowledge construction process in single-gender online learning forums. I believe that, by employing the two frameworks, the research will expand

upon the limitations of a constructivist paradigm and provide more critical aspects that help to understand the context of single-gender online learning classes.

3.2 The Interaction Analysis Model (IAM)

The Interaction Analysis Model (IAM), developed by Gunawardena et al. in 1997, is designed to examine and understand how participants collaboratively construct knowledge through social negotiations in computer-mediated communication (CMC) learning environments (Lucas et al. 2014). It conceptualizes interaction in online learning as a medium for knowledge construction. Therefore, IAM provides a systematic framework for analysing interactions in online discussions or conferences, utilizing qualitative analysis to evaluate the learning process. The model suggests that knowledge construction occurs in five core phases, which are not precisely sequential (Oztok, 2016). These phases are as follows: sharing and comparing information, discovering dissonance, negotiating meaning, testing and modifying constructions, and agreement/application.

Hereafter, I discuss the model in detail, addressing the following aspects: the theoretical background of IAM, how IAM was developed, phases of IAM, and strengths and limitations of the IAM.

3.2.1 The Theoretical Background of IAM

The IAM is rooted in the constructivist theory, drawing heavily on the principles articulated by Lev Vygotsky, an important figure in educational psychology.

Vygotsky's (1978) sociocultural theory suggests that learning is fundamentally a

social process, emphasizing the role of interactions and collaborations in the construction of knowledge. Cognitive development, as such, is not merely an individual endeavour but occurs through social interaction and cooperative learning environments (Vygotsky, 1978). According to Wertsch and Rupert (1993), Vygotsky (1978) argued that our capacity for thought, reasoning, and problem-solving is significantly influenced by our interactions with others. This perspective implies that cognitive growth is intertwined with social experiences, highlighting that reality and meaning are based on social contexts (Doolan, 2011). Vygotsky (1978) also noted that cultural and linguistic factors play crucial roles in shaping the social environments that mediate learning. This underscores the importance of considering the collective settings in which individuals operate. Overall, Vygotsky's (1978) contributions underline the significance of collaborative learning and the collective nature of knowledge construction, which are keystones of the IAM.

3.2.2 How was IAM developed?

The development of IAM progressed through three stages: critical analysis of existing models, precise definition of interaction, and the application of a grounded theory approach.

3.2.2.1 Critical Analysis of Existing Models

Gunawardena et al. (1997) started their work by studying the strengths and limitations of existing models and frameworks that have been used to analyse interactions in online learning environments. For example, they examine the model of Hiltz (1990). This model was based on four dimensions: the inherent feature of the

technology, the psychological and social qualities of individuals using the technology, the traits of the group using the technology, and the interplay of all these elements. Another example is the message maps developed by Levin, Kim, and Riel (1990). A message map is a visual depiction of the connections between individual conference messages. The message map helped to identify the interrelation of different discussions. The third example is the content analysis tool developed by Henry (1992). Henri presented a content analysis technique that entails breaking down messages into units of meaning and categorising them depending on their subject matter. The categories of analysis include social components, interactive dimension, cognitive skill application, and metacognitive abilities. The last example is the model developed by Newman, Johnson, Cochrane, and Webb (1996). In this last model, Newman et al. (1996) combined Henri's content analysis model and Garrison's model of critical thinking. The purpose of the model is to assess critical thinking in face-to-face and computer-supported collaborative learning.

After reviewing these four models, Gunawardena et al. (1997) concluded that these models serve as a good starting point for analysing computer-mediated communication (CMC) interactions, yet they lack accuracy. Furthermore, the definitions of interaction in these models were ambiguous or inapplicable to the actual pattern of interaction in the context of Gunawardena et al.'s (1997) study. They then came to a conclusion that a more constructive approach to data analysis is needed for assessing knowledge construction in the online learning discussion environment.

3.2.2.2 Definition of Interaction

One critical phase in the development of the Interaction Analysis Model (IAM) was redefining the concept of "interaction." This step was necessary because, despite the extensive review of previously established models, it was clear that none offered a precise and clear definition of interaction that adequately addressed the uniqueness of computer-mediated communication in online learning environments.

As argued above, to inform their definition of interaction and their analysis of the online discussion data, Gunawardena et al. (1997) carefully reviewed a wide range of theoretical frameworks and models. For example, they reviewed several theories such as Vygotsky's (1978) social constructivism theory, Situated Learning and communities of practice (Lave and Wegner, 1991), Jonassen's, Mayes and McAleese's (1991) constructivist learning environments theory, as well as their work in the evaluation of constructivist learning. As a result of reviewing these theories, the researchers gained a better understanding of the relationship between interaction and knowledge construction. Consequently, Gunawardena et al. (1997) introduced their new definition of interaction, which is the process in which participants collaboratively construct new knowledge or form a different perspective on a topic via exchanges that enhance one another's contributions rather than just tracking responses or message threads in a computer-mediated communication environment.

To better understand the concept, they use a metaphor of a "patchwork quilt block". In this metaphor, a quilt block is produced by piecing together many fragments of fabric; these fragments stand for the contributions made by various individuals. Each individual contributes their own unique thoughts and ideas to the process of

knowledge construction in the same way as each individual scrap of cloth provides its own unique colour and texture to the overall design. Interaction is recognized as the crucial process of assembling the parts in the production of knowledge, and the mechanism by which these contributions are fitted together is believed to be part of that process.

For Gunawardena et al. (1997), interactions are the key to constructing knowledge in a constructivist environment. In the same way that puzzle pieces are put together, with each interaction, a clearer picture or understanding begins to unfold as more interactions take place. In sum, Gunawardena et al. (1997) believe that collaborative knowledge construction is driven by interaction.

Interaction, therefore, is not viewed as a singular event but as an ongoing, gradual process that unfolds over time as participants exchange and build upon each other's contributions (Gunawardena et al. 1997). It is a key to constructing knowledge in a constructivist environment.

3.2.2.3 The Application of a Grounded Theory Approach

The grounded theory approach was instrumental in developing the Interaction Analysis Model (IAM) by providing a systematic framework for analysing and constructing a model founded on empirical evidence. Here's how it was applied in the context of the IAM's development.

The process started by data collection as Gunawardena et al. (1997) analysed transcripts from a global online debate that was conducted as part of the

International Council on Distance Education's (ICDE95) pre-conference. These transcripts captured asynchronous computer-mediated communication (CMC) discussions, which served as the primary dataset for examining participant interactions.

Afterward, by using open coding, Gunawardena et al. (1997) closely reviewed the debate transcripts to identify patterns, themes, and recurring elements within the interactions. They particularly focused on:

2. *Cognitive activities* that were carried out by the participants. These activities included questioning, clarifying, negotiating, and synthesising, among others. These exercises allow participants to share their thinking processes and demonstrate their level of intellectual involvement with the group.
3. *Arguments* that may arise from various philosophical perspectives, differing views on learning and educational goals, diverse experiences, professions, and cultural backgrounds.
4. *Recourses*, such as anecdotes, quotes from the literature, and gathered statistics, that participants bring to the table in order to discuss and debate existing distinctions and then forge new meanings.
5. *Indicators of learning or knowledge production* that may be traced back to interactions within the group.

Next, the analysis revealed the following results: First, two distinct forms of learning were identified. The first, termed "learning by accretion" or "pooling of knowledge," involves participants enhancing each other's understanding by providing additional examples of already familiar topics. In the second form, participants were genuinely compelled to alter their ways of thinking to accommodate new ideas or beliefs that challenged their existing cognitive frameworks. Second, tacit negotiation was

observed. This refers to a form of negotiation that is not explicitly articulated or addressed by the participants. The authors found that, even in instances where participants appeared to agree, a subtle, ongoing internal dialogue was taking place to reconcile their understandings. Third, overt negotiation occurred when an example provided by participants did not conform to established parameters. The group then suggested a new category or adjusted the boundaries of an existing one, leading to the co-construction of knowledge.

Overall, the analysis showed that negotiation was a key component of the co-construction of knowledge. Understanding how group knowledge is generated and shaped requires looking at both overt and covert types of negotiations.

The authors (Gunawardena et al. 1997) recognized that such an analysis would require dividing the progression of participants' arguments into stages. They also realized that they were impacted by their own conceptual frameworks and cultural knowledge, which brought to light the fact that this kind of study is inherently subjective. Therefore, following these findings, the authors next outlined the negotiating process in knowledge co-construction in a detailed framework. The framework shows the five phases of negotiation that reflect the process of collaborative construction of knowledge. These knowledge construction phases can be used for both individual and group learning.

3.2.3 Phases of Interaction Analysis Model (IAM)

Gunawardena et al. (1997) explain that the model was specifically customised to analyse the dynamics observed in debate transcripts, focusing on how interaction

facilitates collaborative knowledge construction within a constructivist learning environment.

The framework consists of five phases. Each phase includes several operation indicators, with the first two phases representing low negotiation and knowledge-building skills, while the fifth phase exemplifies higher negotiation and knowledge-construction skills. In what follows, I explain the model in detail.

1. Phase I: Sharing and comparison of information; stage one operations include:

- A. A statement of observation or opinion
- B. A statement of agreement from one or more other participants
- C. Corroborating examples provided by one or more participants
- D. Asking and answering questions to clarify details of statements
- E. Definition, description, or identification of a problem

2. Phase II: Discovery and exploration of dissonance or inconsistency among ideas, concepts, or statements. Operations that occur at this stage include:

- A. Identifying and stating areas of disagreement
- B. Asking and answering questions to clarify the source and extent of disagreement
- C. Restating the participant's position, and possibly advancing arguments or considerations in its support by references to the participant's experience, literature, formal data collected, or proposal of relevant metaphor or analogy to illustrate point of view.

3. Phase III: Negotiation of meaning and co-construction of knowledge:

- A. Negotiation or clarification of the meaning of terms
- B. Negotiation of the relative weight to be assigned to types of argument

- C. Identification of areas of agreement or overlap among conflicting concepts
 - D. Proposal and negotiation of new statements embodying compromise, co-construction
 - E. Proposal of integrating or accommodating metaphors or analogies
4. Phase IV: Testing and modification of a proposed synthesis of the co-construction:
- A. Testing the proposed synthesis against "received fact" as shared by the participants and/or their culture
 - B. Testing against existing cognitive schema
 - C. Testing against personal experience
 - D. Testing against formal data collected
 - E. Testing against contradictory testimony in the literature.
5. Phase V: Agreement statement and the applications of newly constructed meaning:
- A. Summarization of agreement(s)
 - B. Applications of new knowledge
 - C. Metacognitive statements by the participants illustrating their understanding that their knowledge or ways of thinking (cognitive schema) have changed as a result of the conference interaction

The model was tested and validated by applying it back to the transcripts of the online debate. This allowed the researchers to assess its effectiveness in capturing the processes of social negotiation and knowledge construction. In addition, it provides researchers with a process and a practical example of its application.

3.2.4 Strengths and Limitations of the IAM

Strengths. The IAM possesses several strengths that have established it as a widely utilized framework in research for assessing and analysing the process of

collaborative knowledge construction, as evidenced by studies such as Schellens and Valcke (2005), Moore and Marra (2005), Lucas et al. (2014), Oztok (2016), and Zhang et al. (2017).

One primary strength is its contribution to understanding how knowledge is shared and constructed in CMC environments. The phases proposed in this model are somewhat random compared to the unstructured nature of interaction (Oztok, 2016; Gunawardena et al., 1997), yet the sequential relationship within the stages provides a structured lens to examine and explain the often unstructured process of knowledge construction (Wise and Chiu, 2011). The sequence helps researchers make sense of and analyse interactions systematically.

Secondly, IAM focuses on constructivist learning; it is suitable for any social constructivist and collective learning settings, including virtual classrooms, online debates, and network learning. According to Lally (2000), IAM is suitable for a wide spectrum of teaching and learning contexts because it centres around interaction as the medium for the co-construction of knowledge. That is why it has been extensively employed as a method of data collection and as an assessment tool for Knowledge Construction in various educational contexts.

Here are examples of studies that have utilized the Interaction Analysis Model (IAM) in different contexts. Schellens and Valcke (2005) integrated IAM with other content analysis models to investigate the relationship between task-oriented communication and phases of knowledge construction in online asynchronous discussion groups. This study was part of an Instructional Sciences course for university freshmen at

Ghent University, Belgium. Moore and Marra (2005) employed the IAM framework to explore the effects of structured versus less structured discussion protocols on knowledge co-construction within online forums. This research was conducted in a graduate-level instructional design course of an online master's curriculum for Educational Technology at the University of Missouri, Columbia, using a mixed-methods approach. Roseli and Umar (2015) applied IAM to assess levels of knowledge construction in online forum discussions among postgraduate students in a blended-learning program in Malaysia. They combined the IAM framework with Bloom's Revised Taxonomy in a quantitative study focusing on the frequencies of knowledge construction. Öztok (2016) used IAM to analyse the interaction dynamics within online threaded discussions, particularly examining how individuals' identity elements contribute to different phases of knowledge construction. This study was conducted in a fully online graduate-level education course at a large North American research university, with participants including part-time and full-time graduate students from diverse cultural, geographical, and professional backgrounds. Finally, Zhang et al. (2017) applied IAM to analyse social knowledge construction among primary school teachers in a structured online professional development program. The participants, primarily female (61%) with an average of 18.48 years of teaching experience, were from a county in China engaged in a six-month program. Finally, Judy et al. (2018) employed IAM to analyse online group discussions on the "One Portal All Learners (OPAL)" platform, designed for teacher collaboration. The study explored factors influencing engagement in knowledge construction among teachers from various schools participating in Singapore's Networked Learning Communities (NLCs).

These studies shared the focus on collaborative knowledge construction in online or blended environments, specifically asynchronous online discussion forums, with IAM used as an analytical framework. However, they diverge in participants' cultural backgrounds and geographical locations—for example, Belgium, Malaysia, North American, China, Singapore—methodologies—for example, qualitative, quantitative, mixed methods—and the contexts of education—university courses, professional teacher development programs, Networked Learning Communities (NLCs). These differences reflect the varied ways IAM can be applied across different educational contexts.

I believe that applying the model in different educational contexts facilitates comparisons between findings and conditions, thereby expanding our understanding of the process of collaborative knowledge construction. Moreover, its application by different researchers offers important insights regarding the tool's reliability and validity.

Limitations. The IAM model, while valuable, shows certain limitations in its application. Pena-Shaff and Nicholls (2004) have raised concerns regarding its suitability in scenarios involving less experienced learners. They pointed out that the model's dependence on structured data from formal debates among professionals might not work well in the less formal, more varied conversations that occur frequently in school situations.

An additional limitation is the model's exclusion of social interaction aspects. Lucas and Moreira (2010) asserted that, while the IAM emphasises interaction as a means

of knowledge building, it fails to illustrate the social and interactional dynamics that extend beyond the suggested categorisation of knowledge construction phases. Gunawardena et al. (1997), the developer of this framework, argued that participants in structured debate settings tended to focus solely on tasks without engaging in social interactions, leading to the exclusion of social content from the model as it was considered irrelevant.

Having identified limitations in the IAM model, especially its oversight of social relationships, it becomes crucial to examine the underlying dynamics of educational interactions. This necessity guides us toward exploring the concept of power relations. Through this examination, researchers can deepen their understanding of how power dynamics shape the quality of interactions and the construction of knowledge in online environments. Insights gained from this research can guide the creation of more inclusive and equitable online learning spaces, thus addressing the challenges posed by unequal power distribution among participants. This claim is supported by several studies, including Khan and MacEachen (2021), who argued that constructivist analytical tools often fail to distinguish between marginalized and powerful voices in social settings. Consequently, they recommend the Foucauldian approach as an effective analytical method for addressing these issues by emphasizing the power dynamics within society. Furthermore, Oztok (2016) called for an examination of identifications with respect to power relations on online discussion platforms to unveil hidden constraints in group work or community construction. Additionally, Cutri, Whiting, and Bybee (2020) advocated for exploring the dynamics of power between learners and instructors in online discussions,

focusing on maintaining academic rigor while ensuring that students' contributions are valued.

Power dynamics in educational settings have often been perceived as inherently hierarchical, with educators exerting control over learners. Michel Foucault's (1982, 2002, 2020) concept of power relations challenges this traditional view by examining how power manifests and operates through social interactions in multiple directions. Foucault's perspective provides a particularly relevant framework for the current study, as he emphasizes that power is not solely hierarchical but also dynamic and relational, shaping interactions within social structures. This approach offers a nuanced understanding of how power influences both individuals and groups in educational contexts.

Foucault's (1982, 2002, 2020) concept of power as relational and dynamic aligns closely with the design of the IAM model. Gunawardena et al. (1997) developed the IAM model for learners described as professionals of equal stature, emphasizing collaborative interaction. In this context, the dynamics differ significantly from a traditional teacher-led classroom, where authority plays a more influential role in shaping knowledge construction. In a collaborative environment, power relations tend to be more distributed and balanced, contrasting with the hierarchical dynamics typically found in teacher-led settings.

By applying Foucault's theory of power, I delve into the deep impact of power dynamics on the co-construction of knowledge, exploring how these forces shape our understanding of reality and influence academic discourse. Foucault's theory of

power is inherently complex and broad, presenting challenges in its application due to its multifaceted and unstructured nature. To address this, I sought a framework that could refine Foucault's ideas into a more coherent structure. This search led me to adopt Gore's 1995 framework on power relations techniques, which is directly inspired by Foucault's work. I will provide a detailed explanation of Gore's framework in the next section.

At this point, I'd like to justify using these two frameworks in my research. The IAM model by Gunawardena et al. (1997) follows the constructivist theory, while Gore's power relations (that stemmed from Foucault's theory of power relations) aligns with the Critical Theory. Despite their differences, these two theories can be complementary, as some researchers suggest expanding social constructivism with Foucault's view of power relations. Olssen (2017) highlights the value of using Foucault's analysis of power relations to enhance the explanatory power of constructivist frameworks. This combination allows for a deeper understanding of how knowledge is shaped by both discursive practices and the broader societal and historical forces of power. Guzzini (2005) advocates, though not directly, for integrating Foucault's principles of power relations into a broader constructivist framework alongside other theoretical contributions on power relations, such as those of Lukes (1973) and Bourdieu (1977).

3.3 Power Relations Techniques

This section introduces the second theoretical framework utilised in this thesis. Developed by Gore in 1995 and drawing from Foucault's (1977, 2002, 2020) influential theory of power relations, this framework consists of eight techniques of power relations that focus on micro-level educational interactions. Like Foucault (1982), Gore (1995) suggests that no location is free from power relations, meaning that power dynamics are present in all environments and contexts. This assertion challenges the notion of a neutral space, free from power dynamics. Gore (1995) argued that the methods of exercising power are consistent across both traditional and alternative settings. Her study, which examined four different educational contexts, high-school physical education classes, first-year teacher education cohorts, feminist reading groups, and women's discussion groups, indicates that the techniques of exerting power and influence are similar across various types of organisations and groups. Nevertheless, Gore (1995) asserted that, with the exception of Bernstein (1975, 1990), Bourdieu and Passeron (1977), and a small number of other scholars, the majority of educational researchers have overlooked the thorough analysis of power dynamics at the micro level in pedagogy. She asserted that the uniformity observed in teaching techniques across different locations and time periods can be traced to enduring power dynamics within educational institutions and processes, which remain largely unchanged by curriculum modifications. This claim by Gore (1995) about teacher-student power relations has also been supported by subsequent studies, including those by Donnelly, McGarr and O'Reilly (2014), Buzzelli and Johnston (2001), and Penuel (2019). Gore (1995) argued that the existing power structures in educational settings are normalised and reinforced as people become accustomed to certain ways of

learning and interacting within educational contexts. This makes alternative methods seem less reasonable or effective, thereby sustaining the status quo (Gore, 1995). Additionally, Gore suggests that using these techniques can reveal the impact of power on the behaviour and identity of students and educators within educational institutions. Understanding these processes creates opportunities for improvement.

3.3.1. The Power Relations Framework

The eight techniques of power relations are surveillance, normalisation, exclusion, classification, distribution, individualisation, totalization, and regulation. In the following section, I present Gore's (1995) explanation of each technique:

Surveillance. Surveillance is the intensive monitoring, observation, or scrutiny of individuals or activities. It specifically targets individuals to control their actions and facilitate comparisons. According to Foucault (2020, pp.170 -171), surveillance is central to educational practices. In educational settings, educators monitor students' progress and behaviour to maintain classroom order (Penuel, 2019). Practices such as addressing students by name and ensuring they are focused on tasks exemplify surveillance in the classroom (Gore, 1995).

It is also crucial to recognize that students, along with instructors, participate in surveillance. Common practices among students, such as comparing grades or work, stem from surveillance (Gore, 1995). This is because surveillance enables comparisons that are essential for establishing or confronting norms. According to Foucault (2020, p.171), these instances of surveillance, whether conducted by

teachers or learners, are integral to the teaching process (Donnelly, McGarr and O'Reilly, 2014; Lam, 2021; Kim et al., 2024).

Normalisation. Normalisation, in this framework, refers to the act of creating, upholding, or following a standard, hence establishing what is normal (Gore, 1995). Adhering to norms is often a common practice in educational settings (Yang, 2023). Education usually involves teaching the norms, which include ethics, beliefs, knowledge, and behaviour (Kaur, 2019). Hence, the role of authority to enforce these norms seems to be a fundamental element of educational efforts (Puolimatka, 2020).

Education is deeply connected to ethical principles and societal obligations (Gobagoba and Moswela, 2014). Teachers usually reflect on and express their teaching methods and consistently assess and rationalise their educational decisions based on these societal obligations (Hawthorne, 1986). Good communication is vital in this process, not just with students but also with classmates, coworkers, and the community. Through the exchange of thoughts and criticisms, academics may enhance their teaching methods, demonstrating that education is a collaborative endeavour (Panitz and Panitz, 1998).

Exclusion. Exclusion practices in the educational environment are manifested when a student is physically removed from an activity or when certain identities and practices are being marginalised (Gore, 1995; Tobbell et al., 2021; Hansen, 2023). Typically, educational settings lack the openness and flexibility needed to accommodate diverse student behaviours and identities. As a result, learners with disabilities, those from various ethnic and national backgrounds, and students facing

unique circumstances—such as single mothers—are often the groups most likely to experience exclusion (Tobbell et al., 2021).

According to Foucault (2002), exclusion and normalization often coexist. This is because norms are typically established by defining what is considered abnormal. Following Foucault (1977), Gore (1995) characterized exclusion as a means to set out borders and establish zones that highlight distinctions. Consequently, in educational contexts, setting explicit boundaries for what is tolerable for teachers and students can determine whether inclusion or exclusion occurs (Razer 2021). Strict or narrow limits may exclude individuals whose behaviours or needs differ, whereas clearly defined boundaries can promote a safe and respectful environment by preventing harmful or disruptive actions (Razer 2021). Avoiding exclusion, as such, demands thoughtful interaction from both teachers and students. Tobbell et al. (2021) asserted that the sense of inclusion is always fostered by ongoing interactions among students and teachers, students and the institution, and students with each other.

Although long overlooked by researchers, exclusion also persists in online learning settings. It can occur in various forms: through administrative policies that restrict specific users or the exposure of certain concepts (Edwards, 2013) and via community norms where members ignore, dismiss, or critique alternative opinions (Hansen, 2023). As Gore's (1995) research focused on face-to-face settings, documenting and studying these incidents of exclusion in online environments could extend Gore's (1995) findings as they may manifest differently in various settings.

Classification. Classification, which refers to the process of organising and categorising knowledge, organisations, individuals, and oneself based on specified standards or features, is evident in educational institutions (Gee, 1995). This process is closely connected with the notion of disciplinary power, as explained by Foucault (2020). In schools, classification manifests itself through various practices, such as the categorisation of knowledge into different disciplines, the assessment of students through grades, and the sorting of students based on their abilities or success levels (Gee, 1995). These categories not only serve as organizational tools but also as instruments of control and authority, thus shaping learners' self-perception and influencing how others perceive them (Lee and Bret, 2014).

In his book, *Madness and Civilization*, Foucault (2003) tracked how social classification has occurred throughout history to certain individuals in a society: the jobless, the insane, and the poor—who are isolated from one another in asylums. According to Foucault, the isolation of the insane in shelters created the circumstances that enable us to control and investigate madness. As a consequence, some new protocols were created to control madness, and this eventually led to the emergence of new fields of knowledge in psychology and medicine.

By analysing micro-level classification practices, such as labelling students as either competent or incompetent, researchers and educators can identify and correct these oppressive practices (Lee and Bret, 2014). Although classification can be a useful tool for generating new knowledge, it often reinforces existing norms about what is considered normal and abnormal (Snyder, 1984). The practices of classifying,

excluding, and grouping students not only define success and failure but also reveal the powerful influence of normative frameworks within education (Lee and Bret, 2014).

Distribution. The notion of distribution describes how people or things are arranged, isolated, separated, and ranked within a specific location (Gore, 1995). This technique is important for exercising power, especially in structured settings such as schools. It can be seen in a number of ways, including (Foucault, 2002, pp. 141-148; Gore, 1995):

1. **Spatial Distribution:** This refers to how bodies are arranged physically to control interactions in certain spaces. For example, in physical education, instructors often use space as a tool to control participation by adjusting students' physical placement during exercises to affect their access to learning resources.
2. **Group Distribution:** This describes how people are categorised and divided into groups according to standards such as ability or alphabetical order. Group distribution is a strategy used by educators to control classroom dynamics. Students are sorted into alphabetical tutorial groups, which strengthens the teacher's authority and restricts student autonomy.
3. **Resource Distribution:** This indicates the division of resources among people, such as time, focus, or physical space. The way that chairs are arranged and materials are distributed in the learning environments, such as study groups or workshops, may have an indirect but important impact on involvement and engagement in the learning process.

The distribution strategy impacts power relations in several ways. For example, people in positions of responsibility, such as educators, often have the ability to decide how the resources will be distributed (Foucault, 2002, pp. 142). This further reinforces their power over others, such as students, who normally have less influence over these choices. In addition, students may exercise power by manipulating their position within a group or by negotiating group dynamics to their advantage (Gore, 1995). Moreover, distribution enables surveillance and control. Any effort by learners to switch groups, for instance, may be quickly observed and handled. This maintains the established hierarchy and encourages the normalisation procedures.

Distribution in online environments may manifest itself differently compared to face-to-face learning environments. Robson (2015) described online platforms as highly structured environments in which these structures—whether they are technical design, dominant discourses, or organizational agendas—act as mechanisms of distributed power. Analysing the complexity of distribution in online settings increases the understanding of the overt and covert ways of power in this environment.

Individualization. In the context of education and pedagogy, individualisation is a process where people are characterised by their distinct traits or behaviours (Gore, 1995). This idea focuses on acknowledging and addressing each person's unique characteristics, experiences, or inputs in group activities since these factors may greatly influence relationships and power dynamics. In Foucault's (1982) perspective, individuality refers to the subject. Therefore, all his discussions on

subjectivity (see Chapter 2) are essentially explorations of one's individuality and identity formation.

Some key aspects of individualisation include (Gore, 1995): personal anecdotes and experiences that learners share with others, recognising or attributing specific characteristics that define an individual's identity or persona, and assessing oneself in relation to others. While individualisation highlights single characters or actions, it has a close relationship with totalization. This will be further explored below.

Totalization. Totalization involves addressing entire groups of participants within the educational context or any context. Simple linguistic tools, such as the use of the pronoun 'we' represent a form of totalization (Gore, 1995). Both students and instructors engage in totalization themselves when they identify as members of various groups. This strategy has an effect on influencing and controlling groups (Gore, 1995).

Popkewitz and Brennan (1997, p. 69) and Jorgensen and Phillips (2002, pp. 26-27) note that totality, in Foucault's ontology, refers to the process in which discourse creates a dominant, unified system of meaning that eliminates any alternative interpretation of the meanings.

Foucault (1982; 2020, pp. 23-24) rejected the claim that there is a structured, holistic, and unified system of knowledge and discourse that can clarify everything. He contends that different discourses will generate various forms of knowledge and truth throughout history and that these discourses are always situated, dependent, and historical. Accordingly, Foucauldian totalization refers to the reduction of

complex phenomena to a single, predominant explanation. Foucault views this as a suppressive perspective that obscures alternative interpretations or oversimplifies them (Zuelow, 2023, p. 10). The totalized idea, in this sense, is the dominant and default perspective (Gutter and Carter, 2014).

Regulation. According to Gore (1995), the concept of regulation refers to the process of analysing and categorising explicit rules and restrictions in specific contexts. It examines the process of managing or directing others according to rules. It includes limitations or boundaries that define actions. It may employ either positive or negative feedback systems to ensure compliance with desirable behaviours. Hence, regulation demonstrates how power dynamics and control mechanisms are implemented in specific situations (Gore, 1995).

While previous techniques of power in the study had regulating effects, the category of regulation is defined here by explicit rules that are actively implemented or enforced—such as discussion rubrics that are provided by the instructor, systems of grades, and deadlines and time constraints—which are further explained in chapter 6.

To this point, I believe it is relevant to talk about Foucault's approach to analysing power, particularly since Gore's (1995) framework is derived from his ideas. In his article, *The Subject and Power*, Foucault (1983) suggests that in the analysis of institutions, the primary emphasis should be placed on comprehending the power dynamics that they embody. Instead of only analysing the structures or functions of institutions in isolation, it is essential to consider how power acts inside them,

influencing actions, choices, and relationships. Foucault (1983) further suggested that the analysis of power relations requires considering five elements:

- *The System of Differentiation*: Economic, linguistic, cultural, and skill differences induce an individual to exercise power over others. Every power relation is generated by differences and, at the same time, produces these differences. These differences are determined by law or social status traditions with their attendant privileges.
- *The Types of Goals*: Those who exercise power pursue various goals in reaction to others, such as upholding advantages, accumulating profit, enforcing legal authority, or performing a particular task.
- *The Means Used to Achieve Power Relations*: This includes the threat of weapons, the effect of words, or complex means of surveillance.
- *Forms of Institutionalization*: Power relations can manifest themselves in different types of institutions. An open institution, such as a family, mixes traditions with legal structures and phenomena associated with norms and trends. A closed institution, such as an educational or military institution, has its own regulations, hierarchical structures, and administration. Moreover, institutions may take the form of a highly complex and comprehensive system like the state, which encompasses multiple agencies under its management and control.
- *The Degree of Rationalization*: This stage focuses on the actual exercise of power relations in reality and how it depends on multiple factors, such as the instruments used, expected results, and costs. According to Foucault, this process is very complex and occurs as part of a continuous cycle in which power endows itself with processes.

Although these five analysis techniques were not specifically employed in this study, they facilitated engagement with Gore's (1995) frameworks.

3.3.2 How the Power Relations Framework was Developed?

To develop this framework, the researcher, Gore (1995), implemented a systematic categorisation process aimed at identifying instances of power dynamics within educational interactions. The data was organised into several predefined categories, each aligned with Foucault's methodologies for analysing the exercise of power. Numerous incidents were coded to highlight various power tactics, illustrating the complex and dynamic nature of power relations in educational settings. After categorising the data, the researcher employed a quasi-quantitative analysis method to compare different settings. This approach facilitated an exploration of the types and frequencies of power strategies employed in each environment that has been studied.

3.3.3 Strengths and Limitations of Gore's (1995) Power Relations Techniques Framework

The strengths. Gore's (1995) framework on techniques of power relations has two key areas of strength. First, the framework offers an innovative utilisation of the Foucauldian theory of power relations. It is based on the idea that power is everywhere and circulates rather than being possessed (Foucault, 1982). It emphasises how power functions not just at the institutional or structural level but also via daily encounters in the classroom (Gore, 1995; Deacon, 2006; Donnelly, McGarr and O'Reilly, 2014). Gore (1995) stated that her own contribution to knowledge was documenting the techniques of power, as her work is among the first to apply Foucault's (1982, 2002, 2020) ideas on disciplinary power to various educational contexts. According to Buzzeli and Jhonstons (2001), Gore (1995) noted that prior examinations of classroom practices have focussed on the mechanisms

through which power is possessed by individuals or institutions. Therefore, in her framework, Gore (1995) suggests shifting the focus of the analysis from individuals who hold power, such as instructors and administrators, to the practices where power operates in various educational contexts. This shift is crucial as it redefines power from being seen as a possession or instrument of certain influential persons to seeing it as something manifested via individual behaviours and interactions inside educational institutions (Buzzeli and Jhonstons, 2001). This viewpoint on power relations opposes the belief that some educational environments are inherently free from power dynamics by shifting the emphasis from explicit forms of power to ubiquitous hidden mechanisms of power (Gore, 1995).

Second, the framework offers a very explicit practical manifestation of power relations across different pedagogical contexts (Buzzeli and Jhonstons, 2001; Donnelly, McGarr and O'Reilly, 2014). By breaking down power into eight observable techniques—for example, surveillance and individualization—Gore (1995) provides detailed classifications that help researchers code and analyse micro power relations incidents in different educational settings.

The limitations. Although Gore's (1995) framework of power relations provides a comprehensive framework for understanding micro-level power relations in different educational contexts, it has several limits that need additional exploration and critical analysis.

First, several recognized power techniques—including totalization, individualization, normalization, and exclusion—exhibit contradictions, similarities, and considerable

overlap (Donnelly, McGarr, and O'Reilly, 2014). Although Gore's work in breaking down micro-level power relations techniques into explicit categories is significant for researchers and educators, she did not provide detailed descriptions of what each of these categories entails, nor did she offer indicators to define these abstract categories, a step that could have helped avoid overlap and similarities between categories. Therefore, in this research, I have introduced several indicators that serve as subcategories/themes for some of the main categories. These subcategories/themes were identified inductively during the data analysis and reviewed in accordance with Foucault's (1983, 2002, 2022) theory of power relations. I hope this refinement will aid future researchers in applying this framework during their analysis.

Secondly, Gore's (1995) implementation of the framework across four diverse educational settings, while comprehensive, is notably limited. This is due to the absence of thorough contextual explanations. Thorough contextualized descriptions are essential in qualitative research to guarantee depth and clarity in analysis (Ravitch and Carl, 2016, p.1; Creswell and Poth, 2018, pp. 6-7). Gore's (1995) dependence mostly on observational data caused this absence. To overcome this issue, I extended the framework by integrating more detailed descriptions and other data collection techniques, such as semi-structured interviews. In addition, I inductively identified sub-themes, which are detailed in Table N. 2, that serve as new insights to enrich the framework.

Third, Gore's (1995) analysis primarily focused on the daily interactions between teachers and learners, with less emphasis on the dynamics among learners themselves (Donnelly, McGarr, and O'Reilly, 2014). Given the framework's potential to capture and interpret hidden micro-level power relations techniques, it would be valuable to investigate these techniques at the level of peer-to-peer interaction. Doing so could provide a broader perspective on how power circulates among learners in various directions.

3.3.1 Rationales for Using Gore's (1995) Power Relations Techniques Framework

The framework for analysing power relations, developed by Gore (1995) and inspired by Foucault's theories, has been tested in face-to-face educational settings. However, its applicability in online learning environments has not been explored. Given the unique dynamics and communication forms of online contexts, it is critical to examine how these power dynamics appear differently in virtual settings. Therefore, one of the primary goals of this study is to adapt and apply this framework to better understand and analyse power strategies within collaborative learning environments on digital education platforms.

Consistent with this, Lee (2020) suggests that Foucault's approach provides a valuable lens for technology-enhanced learning researchers to delve into the complex power relations that shape the educational practices in virtual settings. This method involves examining who holds power, how it is exercised, and how it impacts the creation and dissemination of knowledge. Such a broader perspective can help

researchers design and implement technologies that are more equitable and efficient.

Educational theorists should adopt a broader range of methodological approaches. As noted by Mauri (2018) and supported by Kincheloe (1991), addressing the complexity of educational issues requires refining our analytical tools. This includes enhancing our ability to understand how power operates, how personality develops, and how disciplinary systems are validated, rather than ignoring these complexities.

3.4 Conclusion

To sum up, this theoretical framework chapter presents two frameworks. The first is the Analysis Interaction Model (AIM) by Gunawardena et al. (1997), designed to assess the process of knowledge construction in a collaborative learning environment. The model is structured from lower to higher cognitive abilities; however, the application of the model often happened in a non-sequential manner. It consists of five phases: sharing and comparing information, discovering and exploring dissonance or inconsistency among ideas and concepts, negotiating meaning and co-constructing knowledge, testing and modifying a proposed synthesis of the co-construction, and agreeing on and applying newly constructed meaning. Each phase includes several operational indicators, with the first two phases representing lower levels of negotiation and knowledge-building skills, while the fifth phase exemplifies higher negotiation and knowledge-construction skills. Most studies utilizing the AIM framework indicate that knowledge construction in

these environments mainly occurs at the lower levels, specifically in the sharing and comparing of information.

Although various factors may contribute to this, social factors such as power relations are rarely investigated as contributors to collaborative knowledge construction. This gap exists because researchers agree not to use theories from different paradigms to study a single phenomenon, based on the assumption that each paradigm relies on fundamentally different theories and concepts. Since studying knowledge construction falls under the constructivist paradigm and studying power relations belongs to the critical paradigm, research exploring their interplay is scarce.

Hence, in this research, I tried to combine two theoretical lenses from these different paradigms. The second theoretical lens in this research, as such, is the Power Relations Techniques developed by Gore (1995). The framework aims to explore instances of power relations within the micro-interactions level in educational settings. These techniques consist of eight strategies: surveillance, normalisation, exclusion, classification, distribution, individualisation, totalization, and regulation. The research, as explained above, seeks to explore the effect of power relations techniques on the process of collaborative knowledge construction in online discussion environments. While this framework has been investigated in face-to-face educational settings, it has not been explored in online settings. Hence, this study also aims to explore these concepts of power relations in online discussion forums.

3.4.1 Complementarity of Constructivism and Critical Ontology:

Despite ongoing debates concerning the compatibility of Constructivism and Critical Theory, this research adopts a reflective and deliberate integration of both approaches to address the complex nature of collaborative knowledge construction in online learning environments. While these paradigms emerge from distinct epistemological and ontological foundations, this study argues that they can be employed sequentially and complementarily within a single research design. Each constructivist and critical theory offers unique strengths that, when combined, provide a more comprehensive understanding of the research problem while also helping compensate for the limitations inherent in each approach when used in isolation.

Social Constructivist Theory contributes valuable insights into the lived social experiences and meaning-making processes of individuals (Lupton, 1992). Central to this perspective is the notion that meaning is co-constructed through interaction and dialogue, whereby individuals actively negotiate, contest, and reshape meaning within their social contexts (Siregar et al., 2024). These dialogic processes are critical for understanding how immediate knowledge emerges in collaborative settings, an area that critical theory does not fully capture (Siregar et al., 2024).

However, Constructivism has notable limitations, particularly in its tendency to overlook the influence of power and structural inequality on meaning-making. As Lupton (1992) and Khan & MacEachen (2012) observe, Constructivist approaches often fail to differentiate between dominant and marginalised perspectives, thereby overlooking the broader sociopolitical forces that shape discourse. This shortcoming

underscores the need for a complementary framework that can critically interrogate the conditions under which knowledge is produced and validated.

Critical Theory addresses this gap by addressing issues of power, ideology, and structural inequality in the analysis of discourse (Bogna, Raineri, & Dell, 2020).

Critical theory focuses on bringing to light marginalised voices, silenced issues, and invisible narratives that are often neglected in dominant discourses. (Khan and MacEachen, 2012)

By integrating these two paradigms, the research adopts a dual-lens approach that facilitates a more holistic understanding of collaborative knowledge construction.

This methodological pluralism is supported by scholars such as Bogna, Raineri, and Dell (2020), who advocate for combining Constructivist insights with Critical Realism to uncover deeper causal mechanisms and hidden structures in social interactions.

Accordingly, the study applies two theoretical frameworks aligned with the nature of its distinct data sources:

- Constructivist Framework for Online Discussions (IAM Framework):
Constructivism informs the analysis of discussion threads, focusing on how participants construct knowledge, negotiate meaning, and position themselves through discourse. Rather than treating forum posts as isolated comments, the analysis interprets them as rhetorical strategies, acts of persuasion, alignment, or resistance, through which participants co-construct understanding.

- Critical Ontological Framework for Interviews (Gore's Power Relations):

Drawing from Foucault's theory of power and operationalized through Gore's (1995) framework, a critical lens is applied to interview data. This approach aims to uncover the underlying structures of power that shape learners' self-perceptions and social roles. Notably, the analysis emphasizes peer-to-peer power dynamics over traditional hierarchical relationships, offering a nuanced view of power in online learning spaces.

By integrating these analytical perspectives, the study embraces a form of methodological pluralism that acknowledges the complexity of power and knowledge in online learning environments. It enables a nuanced analysis that captures both the interpersonal process of knowledge construction and the wider structural forces that shape such processes. Ultimately, the combination of Constructivist and Critical frameworks aligns with the study's central aim: to explore how power relations influence collaborative knowledge construction within online learning discussion forums.

This chapter has contributed to grounding the research in relevant theoretical traditions, clarifying key concepts and variables, guiding the formulation of research questions and offering a systematic lens through which to interpret the findings.

Chapter 4: Methodology

4.1 Introduction

Chapter four serves as a crucial roadmap for the study, detailing the methods chosen and the rationales underpinning decisions. It also provides comprehensive explanations of where and how the data was collected and analysed, offering a clear understanding of the research design.

The chapter consists of eight main sections: research ontology and epistemology, research design and methodology, context, process and ethics, data collection tools, participants, data analysis, and validity. The research ontology and epistemology help to situate the research within a broader philosophical and theoretical background and to justify and explain the research design and methodology. The methodology section provides an overview of the research procedures, objectives, and overall design. The context, process, and ethics section introduces the setting where the research takes place, the process of accessing the field, and the measures taken to protect the participants' rights and confidentiality according to Lancaster University regulations. The data collection section describes data instruments and procedures used to gather data. The participant section goes through the sampling process and recruitment of individuals. The data analysis section explains the three approaches used to analyse data, including thematic analysis (deductive and inductive) and the qualitative content analysis tool. Finally, the validity section outlines the procedures undertaken to ensure the accuracy of the

data and its interpretation. The aim is to achieve confidence in the study's results.

The sections will be introduced in a coherent order to ensure clarity and transparency.

Before starting with the sections, and to remind the reader of what is being investigated in this research, here are the research questions and aim:

The study aims to answer this main question:

How do power relations techniques influence the co-construction of knowledge in single-gender online learning forums?

To answer the question above, I first tried to answer the following sub-questions:

- *How do learners in the online discussion forum negotiate meaning and construct knowledge collaboratively?*
- *What are the power relations techniques imposed by female learners over one another in single-gender online discussion forums?*

To address these questions, I selected methods that enable a detailed examination of the participants' knowledge-construction processes within online learning discussion forums, as well as methods to analyse the techniques of power relations exerted among participants. This chapter outlines the methodological framework, which integrates two foundational models: the Interaction Analysis Model (IAM) by Gunawardena et al. (1997), a tool for content analysis, and Gore's (1995) framework for analysing power relations techniques. I demonstrate how these frameworks

collaboratively provide a robust analysis of both knowledge construction and power dynamics within an online collaborative writing environment.

4.2 Philosophical Assumptions

This study adopts a qualitative research approach, which is ideal for exploring the informative, situational, and realistic views of the world's social phenomena in their natural settings (Creswell and Poth, 2018, p.40). At its core, qualitative research aims to understand the experiences, beliefs, and attitudes of the participants by engaging directly with them through various methods like observations, interviews, and text analysis (Patton, 2015, p. 3).

In this research, I focus on the experiences of online learners in discussion forums. The objective is to uncover the power dynamics that shape attitudes, and how these factors influence knowledge construction. This approach is crucial, especially given the predominance of quantitative methods in prior research within Saudi Arabia's context of online learning. By looking into learners' discourses and narratives, qualitative methods allow for a comprehensive understanding that quantitative research might overlook. Moreover, adopting a qualitative approach aligns with the philosophical underpinnings of this study, where knowledge is viewed as multiple, subjective, and contextual (Ravitch and Carl, 2016). This perspective is crucial for interpreting complex social interactions and phenomena (Patton, 2015, p. 5).

The upcoming sections detail the ontology, epistemology, specific design, and methodology of this research, further illustrating how qualitative methods provide deep insights into learners' experiences.

4.2.1 Ontology

The ontology of qualitative research claims that truth is created diversely by different people, and thus, truth is multiple and dynamic rather than static (Ravitch and Carl, 2016). By carrying out qualitative research, researchers are accepting the notion of multiple realities. Therefore, researchers will convey multiple perceptions to the reader in the research findings (Creswell and Poth, 2018, p. 20). While most qualitative ontologies have a relativist view—that is, society is an outcome of individuals interacting with each other (King and Horrocks, 2010)—there are other ontologies to qualitative research such as the ontology of Critical Theory. Critical Theory suggests that reality is shaped by a combination of cultural, social, economic, political, gender, and ethnic factors, which come together to form a series of constructions that are now perceived as a fixed reality (Guba and Lincoln, 1994). It argues that language naturally includes power dynamics and is therefore used to either empower or oppress individuals (Scotland, 2012).

This research is grounded in a critical ontological position, which assumes that reality is socially constructed but inherently shaped by unequal power dynamics. While social constructivism provides a foundation for understanding how individuals collaboratively construct knowledge, it often neglects the ways in which marginalized voices and hidden power structures influence this process. By integrating Foucault's theory of power relations, this research expands upon the constructivist perspective, acknowledging that the co-construction of knowledge is deeply embedded in and affected by power dynamics. This ontological stance guides the study's

methodological approach, focusing on how power dynamics shape knowledge construction in single-gender online discussion forums.

4.2.2 Epistemology

Epistemology—the philosophical theory of knowledge—addresses key questions concerning what constitutes knowledge and the processes through which knowledge can be acquired, validated, and transmitted (King and Horrocks, 2010; Scotland, 2012). This research delves into the complex, social dynamics of collaborative knowledge construction within online learning environments, with a particular focus on how social interactions and power structures influence knowledge construction in online discussion forums.

Adopting a Critical Theory framework, my epistemological stance is both transactional and subjectivist (Guba and Lincoln, 1994). This perspective indicates that knowledge is gained through active participation and real-world interactions with the people involved. To align with this epistemological stance, I employed a qualitative case study methodology, focusing specifically on the context of single-gender online discussion forums at a Saudi Arabian university. The research went through two distinct phases: initially exploring how knowledge is collaboratively constructed within the asynchronous forum discussions, and utilizing knowledge construction analysis techniques. Then the research examined the power relations that participants impose upon each other while participating in the online discussion forums through the analysis of semi-structured interview transcripts.

This methodological approach was complemented by unstructured observations, essential for unpacking the complex relation between power dynamics at play within these online learning environments and the collaborative knowledge construction. The data analysis was carried out through qualitative content analysis and thematic analysis, allowing for a nuanced exploration of how power relations impact knowledge construction, highlighting who benefits from and who is marginalized by these dynamics.

By integrating these methods, the study not only showcases the collaborative nature of knowledge construction but also explains the often-overlooked power dynamics that significantly shape this process.

4.3 Research Design and Methodology

This research employed an explanatory case study to investigate the complex interplay between power relations and knowledge construction in online learning discussion forums. According to Thomas (2021, p. 12), a case study involves conducting an in-depth, multifaceted investigation of a phenomenon to achieve fully contextualized knowledge. In line with this, the current study aimed to gain detailed insights into the power relations dynamics that influence the process of collaborative knowledge construction using multiple data collection tools and analysis methods.

Explanatory case studies, as Yin (2018, p. 18) notes, are particularly effective for examining causal relationships that are too complex to be addressed by surveys or experiments. This approach suits the study's aim of exploring how power relations and knowledge construction interact in online forums, revealing their nuanced and

interconnected dynamics. The design of the explanatory case study in this research follows these procedures:

- a. Case Selection:** This explanatory case study focuses on the educational interactions of postgraduate female online learners within the online discussion forums at a Saudi single-gender higher educational institution, during the spring semesters from 2020 to 2022. This setting offers a distinctive context to explore how power relations dynamics influence knowledge construction among these learners in a digital learning environment. The case was carefully selected based on clearly defined boundaries, as recommended by Creswell and Poth (2018, p. 79), ensuring a focused and insightful analysis. The study is defined by:
- i. Temporal Boundary: Confined to the spring semesters spanning from 2020 to 2022, this specific timeframe provides a distinct period for in-depth analysis.
 - ii. Geographical and Contextual Boundary: Located within a Saudi single-gender higher educational institution, the study utilizes this unique setting to examine how it shapes the dynamics of power and knowledge. This environment introduces a cultural and academic context which will deepen the investigation into how these factors influence educational interactions.
 - iii. Demographic Boundary: Specifically focusing on postgraduate female online learners, the study excludes male students, traditional classroom learners, and undergraduate students,

thereby sharpening its focus and relevance to the selected demographic.

- iv. Contextual Focus: The online discussion forums are the primary medium through which education is delivered, adding complexity and richness to the study.

b. Data Collection Methods: The data collection methods consisted of three methods: online discussion forums, online semi-structured interviews, and online unstructured observation.

c. Data Analysis: The analysis was conducted in three phases:

- i. **Phase 1: Forum Message Analysis – Exploring Knowledge Construction.**

I employed a qualitative content analysis tool, the AIM framework developed by Gunawardena et al. (1997), which is grounded in social constructivist theory, to analyze discussions in single-gender online forums. The aim was to investigate how knowledge was co-constructed within collaborative online discussion forums. The focus was on examining the nature and process of knowledge construction in peer-to-peer interactions.

- ii. **Phase 2: Interviews – Exploring Power Relations.**

I adopted a thematic analysis approach, informed by a critical ontology, and utilized the power relations framework developed by Gore (1995) as a predefined schema for coding and categorization. The aim was to explore learners' experiences of power within these interactions. The focus was on how power

was perceived, enacted, resisted, or experienced in the context of forum dynamics.

iii. **Phase 3: Synthesis – Linking Power and Knowledge Construction.**

I used thematic analysis and interpretation to integrate findings from Phases 1 and 2. The goal was to analyze when, where, and why power relations influence knowledge construction.

i. .

d. Reporting Results

The findings were presented in three chapters:

- i. The first chapter (Chapter 5) presented the outcomes of analysing discussions in the online forums using the IAM content analysis tool. This chapter detailed the collaborative knowledge construction processes that occurred within the forums.
- ii. The second chapter (Chapter 6) presented the outcomes of analysing participants' semi-structured interviews. This chapter detailed the power relations techniques exerted by participants upon each other and other power dynamics specific to this setting.
- iii. The third chapter (chapter 7) presented the connection between the two sets of findings, aiming to unpack the interplay between power dynamics and collaborative knowledge construction.

Specifically, I presented scenarios where power dynamics either

facilitated or hindered the collaborative knowledge construction process. These situations were contextualized within the framework of prior research.

In the remainder of this chapter, I will provide further details about the procedures outlined above, along with the challenges and limitations encountered during the research process.

4.4 Context, Process, and Ethical Approval

Introducing the context in which the case is situated is crucial. According to Stake (2006, pp. 12-13), the setting and circumstances where the case occurs help to understand what is relative and what is not, how the activity is undertaken, and how it is experienced and perceived.

Hence, the current study was conducted within an E-Learning Diploma Program at a female-only university in Saudi Arabia. The diploma was established in 2017 under the College of Education through its Department of Educational Technology. It serves as a postgraduate qualification designed to provide additional professional development in eLearning after completing a Bachelor's degree.

The study system in the diploma was blended in that some classes are fully online, and others are hybrid. The program offers eight courses:

1. E-Learning (Tech 730),
2. Technological Innovations in E-Learning (Tech 731),
3. E-Learning Strategies (Tech 732),
4. Instructional Design (Tech 733),
5. E-Content Development (Tech 734),
6. Mobile Learning (Tech 735),
7. E-Learning Projects Management (Tech 736),
8. Final Project (Tech 730, Tech, 731, Tech 733, Tech 734).

Every course within the programme necessitates three credit hours, with a total of 24 credit hours for a student to successfully complete their studies and graduate. The main aim of the diploma programme is to develop competent individuals who can effectively combine academic knowledge with practical expertise in digital technology. The programme seeks to provide students with the essential skills required to design and conduct interactive educational endeavours using digital resources. In addition, it equips them with the necessary skills to effectively use e-learning initiatives to tackle challenges that arise in the industry.

The program targets educational professionals, including K-12 teachers and corporate trainers. It also aims at instructional designers who want to specialize or advance their skills in designing blended learning. Additionally, it is intended for e-learning developers interested in developing e-courses and materials. Lastly, it caters to career changers and graduates with bachelor's degrees who seek to enter the educational field.

To achieve its goals, the program requires the use of certain teaching and evaluation strategies to guarantee quality learning, as stated in the official course descriptions

and plans. These strategies are specifically developed to accomplish the learning objectives of the programme and improve the effectiveness of online courses. Some of these strategies are group work, flipped learning, collaborative learning, self-reflection reports, portfolios, and project-based e-learning. In order to effectively utilize these strategies, an LMS platform, the Blackboard, and an LMS platform were employed. Blackboard is a learning management system that is designed to facilitate synchronous and asynchronous learning activities through a group of features such as discussion boards, video conferencing, virtual classes, e-tests, real-time document collaboration, and grading systems.

The programme was a pioneering initiative in e-learning for Saudi institutions, giving the college and the university a distinct competitive edge. This initiative was in accordance with Saudi Arabia's Vision 2030, which highlights the importance of integrating technical application methodologies with sciences as crucial tools for cultural, social, economic, and health development.

In its early years, the programme was well received as it welcomed 23 female students in its first year of establishment. In 2018, the program was able to achieve multiple successes. For example, students' final projects won first place in the national robotics Hackathon organized by Princess Nourah bint Abdulrahman University. Furthermore, the programme has equipped graduates with the necessary skills and qualifications to successfully compete for positions in renowned e-learning institutions in Saudi Arabia, such as the National Centre for E-Learning. However, in 2020, the programme started to experience challenges with low enrolment rates.

This research focuses on one pedagogical strategy: the asynchronous online learning discussions that are facilitated by online forums, one of the Blackboard learning tools. Online discussions have been recognized by numerous studies as a critical factor in the success of e-learning courses. This strategy reduces learner isolation and creates a professional learning community. The platform's capability to archive all interactions provided a rich source of data, capturing the nuances of how participants engaged with the content and each other. This environment, characterized by its technological tools and educational focus, offered a unique opportunity to observe and analyse the subtle dynamics of power relations in online educational settings.

The forums studied for this study were single-gendered. They were part of the learning activity of a course titled “E-learning Projects Management (Tech 736)”. The course extended over four months and was structured into weekly modules covering various topics: the Definition and goals of the e-learning environment, Electronic content and databases, Initiating the e-learning project, Planning and Designing the e-learning project, Implementing the e-learning project, Monitoring the e-learning project, Managing sponsor and stakeholder expectations, and Closing the project. Each module includes pre-recorded lectures, supplementary reading materials, weekly discussion prompts, and live question-and-answer sessions with the course teachers. The weekly discussion prompts were the target of the study.

The course was taught by two instructors who played crucial roles in various aspects of the course. They were responsible for delivering the course materials, designing activities and homework, and creating and conducting tests and examinations. A

significant part of their role involved the discussion forums, where they wrote and managed discussion questions, monitored learners' answers and interactions, and provided guidance to stimulate meaningful discussions. Additionally, they graded the students' performance based on their participation in the forums as well as other course activities. The instructors' role in this research was important as they facilitated the process of data collection. They also were part of the validation process as they reviewed the analysis and the interpretation of the forum messages.

However, the instructors were not included in the data collection. I did not interview them nor did I analyse their responses to the learners in the forums. The exclusion of the instructors from this research was deliberate, as the focus was solely on analysing the learners' power relations strategies and their impact on knowledge construction. Although the authority of instructors typically influences classroom power dynamics, the scope and time constraints of this study did not permit such an examination. Future research could extend this study by exploring the role of instructors in this context.

To approach the institution, several procedures were conducted. First, I obtained ethical approval to conduct the study from Lancaster University. Second, I obtained formal permission from the university at which this study was conducted, which included access to online classes hosted on the Blackboard LMS platform, communication with teachers and students, collecting and examining data in the forums of the e-learning diploma program, and ensuring adherence to the institution's ethical principles and privacy policies. Third, I contacted the e-learning deanship to consult them about which of the courses is suitable for the research

objectives. The e-learning deanship suggested several courses for the research. I then began communicating with the instructors of these courses via email and phone. Seven instructors expressed willingness to allow me to observe their classes and collect data. Among them, only one class, taught by two instructors, was suitable, as their use of the online discussion forum was thorough and constructive.

Afterward, I contacted the learners of this course with the arrangement of the instructors through the Zoom meetings platform to explain the study to them and to explain their role in the study. Following that, I sent an email to each of the learners to determine which of the individuals were interested in participating in the study. Once I received interest from a potential participant, I provided those participants with consent forms to ensure that they were fully informed about the study and voluntarily agreed to participate—more information about participants' recruitment is explained in the semi-structured online interview section.

The study was conducted over three years, with three different cohorts. In each cohort, a new group of learners was enrolled, but the course content and instructors remained consistent across all three years. This structure was chosen because every cohort, due to relatively low enrollment numbers, did not yield sufficient data on its own. The first one included seven participants. The second included four participants, and the third one included 10 participants. The total was 21 participants. By repeating the data collection across three separate enrollments, I aimed to achieve data saturation. The data collection methods: online semi-structured interviews, forum messages, and online unstructured overt observation, were used in each cohort to maintain consistency. This was also applied to the data analysis

methods as I used thematic analysis and qualitative content analysis to analyse data from all the cohorts.

4.5 Methods

This section explains the methods used in the current study to collect research data and the procedures followed in each method. There are three major methods of collecting research data: online semi-structured interviews, online discussion forums, and online unstructured observation.

4.5.1 Online Discussion Forums

In the current research, the online course titled E-learning Projects Management (Tech 736), offered a diploma for learners during the academic years 2020, 2021, and 2022. Additionally, it included a discussion forum as an integral component. Participants actively engaged in weekly forums centered around eight topics, where they published and exchanged messages. These forums provided a rich dataset for exploring collaborative knowledge construction.

An online discussion forum, as defined by Giles (2017), is an online platform—either standalone or part of a larger website—where individuals engage in discussions on specific topics. These platforms, as Riley (2006) notes, rely on written language as the primary mode of interaction, distinguishing them from spoken communication. In educational contexts, online forums have become increasingly popular due to their ability to enhance learning, foster collaboration, and promote critical thinking among learners (Onyema et al., 2019).

The primary purpose of collecting data from these forums was to explore how participants collaboratively construct knowledge. The dataset for this study consisted of 420 messages, each representing an individual learner's post within the forum. These messages were analysed qualitatively using the IAM content analysis tool, which will be further detailed in the analysis section.

However, the data collection process was not without challenges. I faced challenges in archiving and storing the data collected due to the university's retention policies. On a frequent basis, the discussion boards, assignments, names, etc. are deleted after a certain period of time. The only data retained is the content of the course itself. Having said that, I had to print the discussion of the first group, and I was able to maintain it as a hard copy document. Afterward, I learned to save the discussions as a PDF for the second and third groups on my desktop.

4.5.2 Semi-Structured Online Interviews

I used Semi-structured online interviews to collect data about participants' experiences and the power relations dynamics that influence the process of collaborative knowledge construction in online learning discussion forums. In qualitative research, interviews are commonly used tools for data generation (King and Horrocks, 2010). As noted by Ravitch and Carl (2016), the main purpose of using interviews is to obtain an understanding of individuals' current experiences and how they comprehend and structure the reality of the practice, incident, situation, or phenomenon under study. Therefore, by using semi-structured interviews, I aimed to generate deep, rich, customized, and contextualized data about the participants'

experiences that helped to unpack the techniques of power relations that the participants used over each other.

The questions asked during the interview were a combination of open-ended and in-depth inquiries, with the intention of encouraging participants to talk about their experiences and opinions using their own expressions. Please see Appendix (2) for interview questions. Karatsareas (2022) asserted that semi-structured interviews primarily rely on open-ended questions that encourage participants to elaborate on their ideas and thoughts by sharing their own unique insights, anecdotes, and phrases in relation to the topic at hand.

For the convenience of the participants, I conducted all interviews remotely. According to King, Brooks, and Horrocks (2018), online qualitative interviewing has produced a large and growing methodological literature due to its significant advantages in terms of access and convenience. However, I faced several challenges while conducting online semi-structured interviews. These included technological issues, such as unstable internet connections that interrupted the flow of the conversation. In one interview, some data was lost; however, it was a small amount. Additionally, participants were reluctant to use cameras, which made communication more challenging due to the absence of physical cues. Lastly, the interviews were conducted in Arabic, while the analysis was in English. Translating from Arabic to English posed challenges that have been addressed in the section on validity.

There are many video conferencing tools for online interviewing, such as Skype, Zoom, and Google Meet. I found Zoom to be the better option due to its ease of use and accessibility for students pursuing remote education. Hence, the process of setting up a Zoom meeting was as follows:

Participant recruitment. First, I contacted the course instructors to obtain their permission and discuss the best approach to recruit their students for the study. Then, the instructors recommended arranging a Zoom meeting with the students to explain the study's aims and the interview process. Afterward, I held a Zoom meeting with the learners to introduce the study, detailing its purpose and the interview format. In addition, I informed the learners that the interviews would be conducted via Zoom for convenience and safety. Besides, I explained to the learners that a consent form would be sent via email to those who agreed to be part of the study. Third, I clarified that participation was voluntary, and only those who agreed to the terms and returned the signed consent form would be part of the study. Participants were also notified about their anonymity, the confidentiality of data transcripts, and their right to withdraw from the study at any stage within two months of conducting the interview.

Participant Response. Out of 21 learners, 15 agreed to participate in the interview and sent back the signed consent forms through email, indicating their willingness to be interviewed. However, messages from all 21 learners in the online forum were used as data for the study. Consent and permission to use the online discussion data were obtained from the institution where the course was taught.

Scheduling Interviews. I individually arranged interview dates and times with each participant, using both email and WhatsApp for effective communication.

Conducting the Interviews. I conducted one-to-one interviews via Zoom, lasting between one hour and half an hour each. At the start of each interview, I requested permission to record the session for research purposes, to which all participants consented without objection. I also explained the study's aims to them and read them their rights. Finally, I informed them about how and where the data provided by them would be stored and when it would be deleted.

This strategy of using interview methods and ethical procedures was consistently applied across three distinct participant groups. For each group, these recruitment processes were carried out separately. The process guaranteed a trustworthy recruitment and data-gathering procedure that followed Lancaster University's ethical codes of consent and privacy (please see Appendix 1, 2).

4.5.3 Unstructured Online Observation

One of the most important instruments for data collection in qualitative studies is observation (Creswell and Poth, 2018, p. 166). According to Ravitch and Carl (2016, p. 160), observational research investigates the behaviour and interaction of individuals and/or groups to understand the meanings and significance of these behaviours in their specific context.

In this research, I used unstructured online observation as an additional method to contextualize the study and to deepen my understanding of the data collected through discussions and interviews. Mulhall (2003) argued that the purpose of unstructured observation is to comprehend and analyse behaviours within a specific context. Therefore, I found that using unstructured observation is suitable for this research objective, which seeks to explore and gain a deeper understanding of the relationship between collaborative knowledge construction and power relations in the context of online learning discussion forums.

Additionally, because this study is situated in the context of online learning, the focus of observation was limited to text on the screen. Garcia et al. (2009) defined online observation as the act of closely examining and monitoring textual content and visual representations shown on a computer screen. Hence, the process of observing participants online in this research entails tracking their behaviour and interaction via their textual contribution to the online discussion forums. To illustrate this observational process in detail, here are the steps that were carried out throughout the research:

The Field of Observation. Determining and identifying a precise "field" for the purpose of observation is a critical undertaking in any observational study (Ciesielska, Bostrom, and Ohlander, 2018). Therefore, the field of observation for this study is an online discussion forum used within an e-learning diploma program at a university in Saudi Arabia. This forum, which was part of the course titled E-learning Projects Management (Tech 736), facilitates academic discussions and student interactions, which are the primary focus of this observational method.

Access To the Field. Formal permission from the institution has been obtained. This permission includes the collection and examination of data in the forums of the e-learning diploma programme, guaranteeing adherence to the ethical principles and privacy policies of the institution. In addition, ethical permission was obtained from Lancaster University to ensure compliance with institutional ethical standards and privacy policies.

Time. In the course of this study, observation was conducted over three academic semesters. Each semester comprised a distinct observation period lasting four months. During each of these periods, the focus was placed on individuals' participation in the online discussion forum.

Fieldnotes Taking. Fieldnotes involve documenting the researcher's observations and interpretations of participants' behaviours. Although fieldnotes often become the primary data set from which researchers derive findings (Copland, 2018), in this study, fieldnotes were not used as a primary data set. Instead, they served as a tool to contextualize and understand the study's context.

Consequently, I complimented the unstructured online observation with detailed field notes. My approach to taking fieldnotes during participants' interactions in an online discussion forum was shaped by tacit knowledge. Wolfinger (2002) states that ethnographers depend on tacit knowledge to interpret observed behaviours. My familiarity with the participants' language and cultural characteristics allowed me to recognise the emotions and implicit meanings in their comments. Moreover, my expertise in digital communication norms and the unique cultural dynamics of online

groups enabled me to identify interaction patterns and contextual nuances. Thus, the process of documenting and writing fieldnotes involved my interpretation of the behaviours I observed on the screen. For instance, these behaviours included learners imitating each other's writing, some learners consistently interacting with certain peers while avoiding others, the timing of participation, some learners' ability to exceed the required participation levels, others' struggle to meet the minimum required for participation, the intensity of discussions, and the level of politeness displayed. These notes helped me to reflect and draw a connection between collaborative knowledge construction and power relations. Hernández-Hernández and Sancho-Gil (2018) claimed that fieldnotes help researchers not only capture their initial thoughts and emotions but also communicate their reflexivity process in light of their experiences and observations in a way that represents their ontological, epistemological, methodological, and ethical views as they collect data.

As previously mentioned, unstructured observations were not primarily used as a data collection method. Instead, they played a crucial role in contextualizing the overall research. These observations were key in understanding the subject matter and the dynamics within online classroom forums. They allowed me to grasp and interpret the educational environment from an insider's perspective. Without this observational insight, the interpretations of data from interviews and discussion forums might have been less comprehensive, potentially compromising both the objectivity and validity of the findings. Therefore, while these observations were not analysed in a traditional manner, they were essential in linking the findings from

interviews and discussions, as detailed in Chapter 7. This approach significantly enhanced the cohesion and depth of the overall analysis.

4.6 Participants

The study covered three periods of students' cohorts. The three cohorts included 21 female learners; however, only 15 learners consented to be interviewed. These participants were female online learners—with different educational backgrounds and life experiences—who were enrolled in the E-Learning programme Diploma at a university in Saudi Arabia during the academic year 2020/2021/2022.

The recruitment process for participants was conducted via purposive sampling, which involved the deliberate selection of individuals who possessed particular characteristics or skills that were deemed pertinent to the study's objectives.

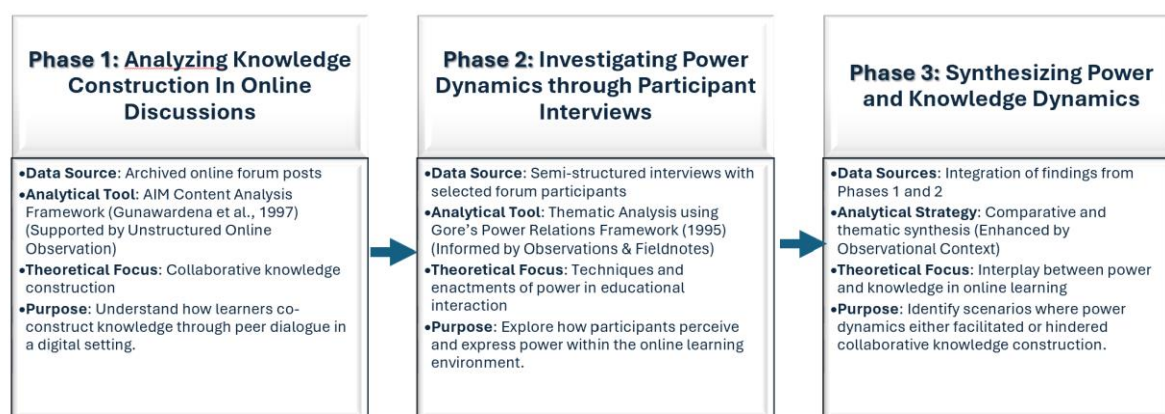
According to Creswell and Poth (2018), in purposeful sampling, the researcher chooses participants and locations for his study deliberately based on their relation to the research phenomenon. My rationale for using purposeful sampling stems from my objective to deeply investigate and understand the case, necessitating the selection of data-rich cases (Merriam, 1998, pp. 823-826). Such cases provide in-depth insights and detailed knowledge about particular instances, rather than broad, experiential generalizations (Patton, 2015, p. 264). Therefore, I am aware that the outcomes of this approach cannot be broadly generalized to larger populations (Bryman, 2012, p. 418). Accordingly, participants were specifically selected for their enrolment in the course E-learning Projects Management (Tech 736), which prominently incorporates an online discussion forum as a key component.

The fifteen participants who were interviewed were Faaten, Jamila, Israa, Ariam, Fadwa, Hiba, Lubna, Renad, Farah, Hana, Suha, Marwah, Nawal, Hind, and Maha. They completed their undergraduate studies and have diverse educational backgrounds and work experiences, which made them appropriate for a thorough investigation of power relations in the context of online learning. In addition, this diversity helped to capture a wide spectrum of perspectives and expertise that enhanced the depth of analysis. In Table (2), I illustrated some demographic information about the participants.

4.7 Data Analyses

This research utilized two data sources: semi-structured interviews and online discussion forums. To thoroughly examine these datasets, two distinct qualitative analysis techniques were employed. Firstly, a qualitative content analysis using the Interaction Analysis Model (IAM) developed by Gunawardena et al. (1997) was applied to systematically classify, evaluate, and interpret the textual data from the online forums. Secondly, a thematic analysis was conducted on the semi-structured interviews to investigate the techniques of power, defined by Gore (1995), that participants exerted on one another. Thirdly, an integrative analysis was carried out to connect the findings from both data sources, with a focus on how power dynamics intersected with collaborative knowledge construction. This stage involved interpreting when, where, and why power relations emerged during interactions, culminating in a deeper understanding of how these dynamics shaped knowledge construction and learning outcomes. The three phases of the research project are

also illustrated in Flowchart 1



Flowchart (1) The Research Phases

4.7.1 Qualitative Content Analysis

I applied the Interaction Analysis Model (IAM) developed by Gunawardena et al. (1997) as a qualitative content analysis framework to analyse messages in the online discussion forum. The framework consisted of five phases (described in detail in Chapter 3). According to Schreier (2012, p. 59), qualitative content analysis is an analysis technique that aims to precisely describe the significance of qualitative data by systematically categorising segments into a coding framework, enabling an analytical representation of information. Hsieh and Shannon (2005) distinguished between three types of qualitative content analysis: conventional, directed, and summative. In conventional content analysis, the coding frame emerges from the data, while in the directed content analysis approach, the researcher uses an existing coding frame. The summative content analysis approach focuses on discovering the underlying meanings of words or content. Although some steps in the application of each approach are similar, I chose the directed approach because it aligns closely with the focus of this study, which is to investigate how learners

construct knowledge collaboratively. The cognitive skills required for knowledge construction have already been well-documented in the literature. Therefore, applying an existing and validated framework not only serves the research goals effectively but also prepares the ground for the next phase of the study, which will explore power relations and their influence on knowledge construction. Using this data analysis approach helped me to capture incidents of collaborative knowledge construction that occurred in online discussion forums. Below, I illustrated the process of this analysis:

Determining the Dataset. The dataset comprises all messages posted within the online discussion forums of three online classes during the spring semesters of 2020, 2021, and 2022. These forums were part of a Blackboard learning management system, which facilitated various interactions among participants. I had direct access to the courses, which allowed me to save each discussion page as a PDF on my computer. The data from these PDFs were then carefully extracted into a coding Excel sheet to ensure comprehensive retention of all questions, responses, and comments made by students. In total, the dataset encompasses 420 messages, representing a full spectrum of student interactions over the specified periods. The dataset contains a total of 603 messages, which cover a wide range of student interactions within the indicated time periods.

Defining the Unit of Analysis. The dataset for the online forum discussions consists of 420 messages. Following the approach by Gunawardena et al. (1997), each message was selected as the unit of analysis. This decision was made in accordance with Gunawardena et al.'s (1997) analysis approach to better code and

classify different types of cognitive or interactive behaviours (like questioning, agreeing, summarising, etc.). However, posts were not examined in isolation. They were contextualised within their wider threads, using a narrative approach to understand how each message fits into the overall discussion and how learners respond to each other.

This method allowed for a detailed analysis that carefully examined what was said within posts while acknowledging the broader discursive context and how messages were used within it. In this way, the approach helped to provide a more complete and accurate picture of the co-construction of knowledge and group learning happening in the online learning forums.

Developing a Coding Sheet. In this step, I started by developing a coding sheet based on the phases and operations described in the IAM framework. This coding sheet served as a tool for organizing and categorizing data (discussion forum messages) according to the predefined categories identified by the IAM framework. It is particularly important as it helped me to sort the large volume of data into manageable segments. I created the coding sheet using Microsoft Excel. The coding sheet is structured with four main columns and includes data for five rows. The columns are designated as follows:

1. **Phase:** Indicates the phase of knowledge construction as defined by the IAM model.
2. **Indicator:** Provides a list of certain indicators that show the presence of the specific stage within a message.

3. **Code:** Gives the indication a brief code for easy access and interpretation.
4. **Example:** offers a post or message that serves as an example of the stage and indication that are being used.

Each row corresponds to one of the stages of knowledge construction, as defined in the IAM model. This helps to show how each stage is represented in the forum discussions.

Coding Messages. Each message in the discussion forum was marked according to the phase it represented. Basically, I focused on a number of elements in the discussions that were clarified in the IAM model. These elements include the cognitive activities carried out by the participants, such as questioning, clarifying, negotiating, and synthesising, among others. Also, I looked at the sorts of arguments that were presented during the discussion. In addition, I looked at recourses, such as anecdotes and quotes from the literature, and gathered statistics that participants bring to the table in order to discuss and debate existing distinctions and forge new meanings. Finally, I looked at indicators of learning or knowledge production that may be traced back to interactions within the group.

Although the coding sheet was designed to allow for frequency calculations of each code, this step was not undertaken. Instead, the focus of the analysis remained on the qualitative interpretation of the messages as I prioritized depth of understanding over quantitative metrics.

Explaining Phases and Operations. The data gained from the online discussion forum was analysed and qualitatively explained according to the phases and

operations. For rigour results, the instructors of the courses reviewed the interpretation of the data.

4.7.2 Thematic Analysis

Thematic analysis (TA) is a technique for identifying connections, similarities, and distinctions in data (Ravitch and Carl, 2016, p. 222). There are two main ways of coding procedures in the thematic analysis approach: an inductive approach—where the process is led by the data—a deductive approach—where the process is guided by a theory (Wertz, et al. 2011, p. 92). Braun and Clarke (2022, p. 10) describe the deductive method as an analysis informed by pre-existing theoretical assumptions. These assumptions act as a framework for interpreting, categorizing, and forming themes within the data. Thus, the deductive method functioned as an interpretive tool for coding and explaining the data.

In this study, I applied a thematic analysis method based on Gore's (1995) theoretical framework—explained in Chapter 3—that focuses on power relations techniques. These techniques: surveillance, normalization, exclusion, classification, distribution, individualization, totalization, and regulation were used as a predefined thematic framework to guide the interpretation and categorization of data collected from participant interviews.

Initially, I listened to the interviews several times and then transcribed these interviews to prepare the data for thematic analysis.

After transcribing the interviews, I approached the dataset deductively. I immersed myself in the data by repeatedly listening to and reading each interview. I then applied the predefined themes to the data, with each theme representing a concept from Gore's framework to guide the analysis. For example, instances demonstrating individual agency were categorized under 'individualization.' This coding process was iterative, involving continuous refinement of themes as the analysis delved deeper into the data.

Despite the initial reliance on a deductive approach, I recognized gaps in identifying sub-themes within Gore's framework. This realization led me to adopt an inductive approach, allowing for the emergence of smaller, more specific patterns corresponding to each main theme. This shift facilitated the identification of new insights and sub-themes that enriched the findings, which are detailed in Table N. 2.

This dual approach, both deductive and inductive, ensured a comprehensive understanding of the dataset. By integrating two coding techniques, the analysis not only conformed to the theoretical frameworks but also remained open to unexpected patterns and themes. This methodological approach effectively addressed the study problems, particularly regarding the power relations methods used by participants in the online learning forum.

4.7.3 Thematic Synthesis – Linking Power and Knowledge Construction.

I used thematic analysis and interpretation to integrate findings from Phases 1 and 2. The goal was to analyze when, where, and why power relations influence knowledge construction

4.8 Validity and Positionality

4.8.1 Positionality

Positionality refers to the role and sociocultural identity of the researcher within the study environment and setting (Ravitch and Carl, 2016). In qualitative research, the researcher serves as the instrument of inquiry (Bourke, 2014). The researcher's education, social class, upbringing, work experience, talents, aptitudes, interests, and cultural background, as well as their involvement in the research process and analysis, all contribute to the credibility of the research findings (Patton, 2015).

Given that this study was conducted in Saudi Arabia, my home country, I acknowledge the importance of my positionality as a researcher and the potential influence it may have had on both the research process and its outcomes. I consider myself an insider in terms of shared cultural and gender identity with many participants, which may have facilitated access and rapport. Simultaneously, I recognise my outsider status owing to differences in my professional role and academic background, which may have shaped my interpretations and interactions in distinctive ways.

My position as an insider. First, being a member of the Saudi culture, where this study was conducted, allowed me to have a strong connection with the participants. I shared with them cultural norms, beliefs, and practices. This involves understanding social manners, language (Arabic), and historical contexts. In addition, being a female researcher, I found it easier to build relationships and gain access with participants who were all female learners. This was crucial in the Saudi culture, where gender norms impact social interactions.

My personal involvement with online discussion forums started during an online creative writing course that I joined to enhance my English writing skills. The online discussion forums were amongst the core activities in that course. The course considerably improved my writing skills. It also inspired my teaching methods later on as I incorporated much of what I had learned. Throughout these experiences with using online discussion forums in learning and teaching, I noted that the quality of the discussion varies. I realised that many aspects contribute to learners' knowledge construction, which goes beyond asking insightful questions. Because certain behaviours were apparent throughout the discussions, I concluded that interactions in the online discussion forums imply hidden power dynamics that influence how learners engage, react, and perceive each other, which eventually affects their learning. This experience motivated me to investigate this learning environment and also influenced the questions I asked and the way I interpreted data.

Based on what I have introduced above, I consider myself an insider investigator who has the potential to understand how participants feel and what they have experienced in their learning journey. This strong connection with the participants

and my position in the university impacted how I collected and analysed data. According to Merriam et al. (2010, p 411), "*Being an insider means easy access, the ability to ask more meaningful questions and read non-verbal cues, and most importantly, be able to project a more truthful, authentic understanding of the culture under study.*" These words precisely illustrate the advantages of being an insider researcher. As stated in the assertion, my personal involvement as an insider researcher helped me obtain valuable and authentic data as participants trusted me and felt more comfortable and open in sharing their experiences and emotions with me. In addition, my connection to the culture helped me to comprehend cultural references, norms, values, and implicit standards that outsiders might overlook. Also, using the same language (Arabic) enabled participants to express themselves accurately, which facilitated more coherent and refined interactions between us during interviews. Moreover, these shared backgrounds helped me pick up on details in language use, such as tone, cultural codes, and references such as idioms. Finally, my experience with online education in Saudi Arabia helped me gain insight into the learners' experiences within these environments.

However, it is important to recognise that while insider status may offer valuable insights, it also carries the risk of introducing bias. To mitigate this, I employed several strategies to enhance the objectivity and validity of the study, including the triangulation of data sources and methods. In addition, I consulted with course instructors regarding the research findings. These procedures supported the identification and management of potential personal biases in the interpretation of the results.

My position as an outsider. On the other hand, as an employee of the university where the study took place, I represent an authoritative figure for the participants, which might create a power dynamic when interviewing them. Qualitative inquiry has long emphasised the existence of power relationships between researchers and participants, especially in the interview process (Karnieli-Miller, Strier, and Pessach, 2009; Florczak, 2016), and that these power dynamics are usually established at the beginning of the interview and then change throughout an interview (Al  x and Hammarstr  m, 2008). This also aligns with Foucault's (1975) notions that power relations exist in every relationship.

Considering the inherent power dynamics in the researcher-participant relationship, I have implemented steps to reduce this power hierarchy by strictly adhering to Lancaster University's ethical requirements. These requirements ensure that participants' identities and confidentiality are respected and that their consent is based on adequate information. I also regularly reflect on my thoughts and understanding of the data while analysing it.

I am also a researcher completing my studies in a foreign country, having enrolled at a British university where English is the primary language of instruction and academic communication. However, the data for my study were collected from a Saudi institution where Arabic is predominantly used for both teaching and everyday interactions. This dual-language context required me to collect the data in Arabic and subsequently translate, analyse, and report it in English. This process posed both linguistic and interpretive challenges, particularly in ensuring that the original meanings and nuances were preserved throughout the translation and analysis

stages. To overcome this situation and maintain the validity of the results, I consulted an accredited translator to assess all the translation tasks that I carried out throughout the study (see the appendices). This dual role gives me a fresh outsider perspective. However, it also made gaining the trust of participants challenging.

4.8.2 Validity

The term validity, in qualitative research, indicates that the research findings are accurate in representing participants' experiences. In other words, validity refers to the extent to which the research outcomes are consistent and valuable (Ravitch and Carl, 2016). Researchers in qualitative research use a lens based on the perceptions of individuals who supervise, analyse, contribute, or read and revise the inquiry (Creswell and Miller, 2000; cited in Ravitch and Carl, 2016).

There are many terms that are used interchangeably with the term validity in qualitative research such as trustworthiness, quality, and rigor. In fact, many scholars prefer not to use the word validity in qualitative research. This is because the concept of validity was first related to the traditions of quantitative research. In this sense, the concept has its roots in the positivist epistemological traditions (Ravitch and Carl, 2016). Nevertheless, according to Ravitch and Carl (2016), the most commonly used terms to suggest the cruciality of obtaining reliability and consistency in qualitative research are the two terms, validity and trustworthiness.

Therefore, in this study, I will use the term validity since it continues to be used in qualitative research and since it has traditions that are compatible with qualitative research epistemology. Creswell and Poth, (2018, p. 259) have identified a set of

strategies to achieve validity in qualitative research. These are: “(1) Corroborating evidence through triangulation of multiple data sources; (2) Discovering negative case analysis or disconfirming evidence; (3) Clarifying researcher bias or engaging in reflexivity; (4) Member checking or seeking participant feedback; (5) Prolonged engagement and persistent observation in the field; (6) Collaborating with participants; (7) Enabling external audits; (8) Generating a rich, thick description; (9) Having a peer review or debriefing of the data and research process”.

Accordingly, in the research conducted, I applied some of Creswell and Poth's (2018) strategies that I found appropriate to my research questions, participants, and the contexts of the study:

- *Pilot study. (Aljared & Oztok, 2024)*

The pilot study served as a crucial preliminary phase to assess the feasibility of the research design, test data collection instruments, and explore initial patterns related to power relations and knowledge construction in online learning environments. It was conducted with three postgraduate students enrolled in an online course at a Saudi university. Two instruments were tested: semi-structured interviews and online forum discussions.

A multi-layered data analysis approach was employed to examine power relations, identity expression, and knowledge construction within the online setting. Drawing on Foucault's theory and Gore's (1995) framework, four key power strategies, surveillance, normalisation, exclusion, and classification, were identified, with sub-themes developed inductively under the main themes. In addition, an inductive

analysis of identity revealed that participants' professional, motherhood, and institutional identities influenced their engagement. Forum discussions were also analysed using Gunawardena's (1997) model. The findings showed that participants predominantly reached surface-level participation (Phase 1), with limited evidence of negotiation or deeper knowledge constructions (Phases 2/3).

These findings were instrumental in refining both the methodological approach and the theoretical framework for the main study. The pilot thus yielded critical methodological, conceptual, and theoretical insights that shaped the direction and design of the main research. Following an illustration of these insights:

1. The pilot highlighted significant gaps in the original semi-structured interview questions, particularly their inability to fully capture the range of power strategies outlined in Gore's (1995) framework. For example, key aspects such as surveillance were not adequately addressed. As a result, the interview guide was substantially revised for the main study to ensure comprehensive coverage of all eight power strategies: surveillance, normalization, exclusion, classification, distribution, individualization, totalization, and regulation.
2. Additionally, the pilot demonstrated that while the main power strategies could be identified deductively, numerous sub-themes and behavioral indicators emerged inductively from the data. This led to the adoption of a hybrid analytical approach, combining deductive coding based on Gore's framework with openness to emerging patterns grounded in participants' experiences.

3. The pilot confirmed that Foucault's concept of micro-power relations is highly effective for interpreting peer-to-peer dynamics in online learning environments. It confirmed that power is not solely exercised by instructors but is actively negotiated among students through subtle mechanisms such as self-surveillance, peer monitoring, selective participation, and the enforcement of informal norms.

4. The relevance and practicality of Gore's (1995) framework were validated through its successful application in analysing power relations in this educational setting. Although only four of the eight strategies were observed due to the limited sample, this reinforced the framework's suitability for capturing complex power dynamics in educational contexts. This validation allowed me to confidently proceed with this theoretical lens.

5. An important theoretical insight emerged regarding the role of identity. The pilot demonstrated that identity was inherently embedded within the analysis of power relations, as conceptualized by Gore (1995). As a result, identity was not treated as a separate analytical category but rather was understood as being continuously constructed and performed through the exercise of power, in line with Foucault's theoretical perspective and Gore's framework.

6. The analysis of discussion threads revealed a predominant pattern of surface-level engagement, with most posts coded at Phase 1 (sharing opinions) according to Gunawardena et al.'s (1997) model. There was minimal evidence of deeper cognitive engagement, such as negotiation or integration of ideas (Phases 2 and 3). This finding underscored the importance of examining the hidden social and cultural

factors, particularly power dynamics, that may inhibit students from progressing to higher levels of knowledge construction in online forums. It also informed a more targeted focus in the main study on how power relations shape participation, learning, and knowledge construction.

In sum, the pilot study was pivotal in validating the conceptual and theoretical frameworks, ensuring their applicability to the research context. It also played a fundamental role in enhancing the data collection instruments, particularly through the refinement of interview questions and coding schemes. Finally, it contributed to clarifying the research focus, leading to a more coherent integration of power and knowledge construction.

- *Generating a rich, thick description.*

Thick description refers to the richness of the details presented by the researcher when introducing material or discussing a theme. According to Creswell and Poth (2018), a thorough description of events, participants, ideas, and context using strong action verbs and quotes (p. 236) all supported the validity of the research. In this study, I have provided robust explanations and in-depth analyses of the data I have presented.

- *Having a peer review to review and discuss the data interpretations and research process.*

As part of my strategy to ensure the validity of data interpretations and the research process, I engaged in individual peer reviews. I presented my work separately to two

course instructors—who also taught the course in which I conducted the research and collected the data—and to an external expert, a lecturer at a UK university. The instructors provided feedback based on their firsthand knowledge of the course environment, allowing them to critically engage with my explanations in light of the specific teaching and learning context. For example, they highlighted areas where I had taken certain behaviors or responses for granted, prompting me to provide clearer justifications and evidence for my explanations rather than relying on contextual understanding.

In contrast, the external expert, who provided an outside perspective, challenged me to ensure that my analysis was transparent and clear to readers unfamiliar with the course environment. His feedback focused on clarifying concepts specific to the local context and ensuring that my interpretations were data-driven rather than solely based on insider knowledge. This perspective prompted me to articulate my conclusions more clearly and to consider alternative interpretations.

By integrating both the context-sensitive insights of the instructors and the objective, external critique of the expert, I was able to refine my analysis, address potential biases, and enhance reflexivity. This process contributed significantly to strengthening the overall trustworthiness of my findings.

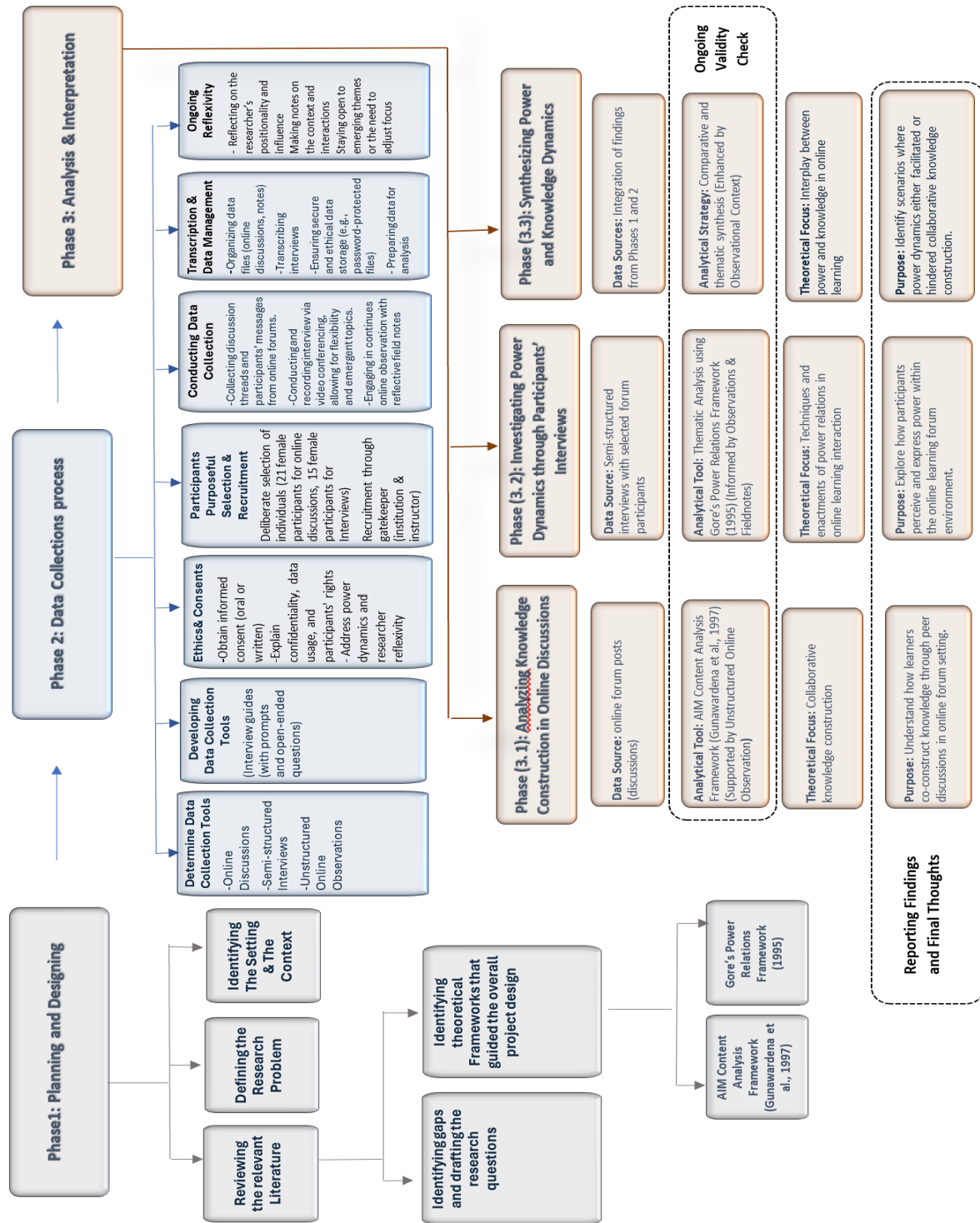
Additionally, one participant was invited to review selected portions of my data interpretations as part of a member checking process. During this review, the participant not only confirmed the general accuracy of my interpretations but also provided valuable contextual insights. These included clarifying their intentions and

motivations behind certain statements, offering background information that influenced their responses, and correcting potential misinterpretations. By incorporating these clarifications and additional context, I was able to refine my analysis to more accurately reflect the participants' perspectives, thereby enhancing the credibility and depth of the findings.

- *Having a professional translator*

I enlisted the services of a licensed translator who worked proficiently in both Arabic and English languages. He assisted with the translation of the text from the original language (Arabic) to English and evaluated the degree of correspondence between the translated sections and the original language. In this process, the translator strictly complied with professional ethical norms, which include the principles of confidentiality and accuracy (see appendix 3). Furthermore, he was mindful of the cultural nuances to avoid the potential for misunderstanding or mistakes in communication.

4.9 Research Process Flowchart



4.9.1 Explanation of The Research Process

The research process unfolded across three interrelated phases: Planning and Designing, Data Collection, and Analysis & Interpretation, each carefully structured to align with the study's theoretical and ethical foundations.

Phase 1: Planning and Designing

This initial phase was dedicated to establishing the theoretical and conceptual foundation of the study. It commenced with a comprehensive literature review, which identified gaps in existing knowledge and guided the formulation of clear research questions and relevant theoretical frameworks. Additionally, this phase involved defining the research problem within its broader academic and social context, as well as determining the appropriate research setting and context.

Phase 2: Data Collection

The second phase involved multiple layers of data collection, grounded in qualitative methodology and ethical rigor. Purposeful sampling was employed to recruit participants—21 females for online discussions and 15 for interviews—via institutional gatekeepers. Data collection tools included:

- Online Discussions to observe natural peer interactions.
- Semi-Structured Interviews, allowing for flexibility and depth.
- Unstructured Online Observations with reflective field notes.

Ethical considerations were integral throughout, with informed consent obtained and issues of confidentiality, power dynamics, and reflexivity explicitly addressed. Data tools such as interview guides with open-ended prompts were developed iteratively.

Reflexivity was maintained continuously to account for researcher positionality and evolving insights. The data were systematically managed through secure transcription, organization, and storage.

Phase 3: Analysis & Interpretation

In the final phase, a multi-layered analytical strategy was applied across three sub-stages:

I. Stage (1) 3.1: Knowledge Construction in Online Discussions

Using Gunawardena et al.'s (1997) AIM Content Analysis Framework, this phase analysed how learners collaboratively built knowledge within forum discussions.

II. Stage (2) 3.2: Power Dynamics in Participant Interviews

Semi-structured interviews were examined using Gore's (1995) Power Relations Framework to uncover how participants navigated and articulated power in the online forum learning environment.

III. Stage (3) 3.3: Synthesis of Power and Knowledge

Insights from the previous sub-phases were integrated through a comparative thematic synthesis to explore how power dynamics facilitated or impeded collaborative knowledge construction.

Throughout the process, I tried to engage with ongoing validity checks, ensuring that both data collection and interpretation remained trustworthy and aligned with the chosen frameworks.

4.10 Conclusion

In this chapter, I have provided a detailed explanation of the methodology I used in this research, which has focused on studying the relationships between collaborative knowledge construction and power relations in online discussion forums. I have employed a case study approach, situated within the specific context of online discussion platforms used in a diploma course for female students at a Saudi university. I have collected data through online forums, semi-structured interviews, and unstructured observation, supporting the use of a qualitative research strategy. The participant group comprised of 21 female students divided into three cohorts over three consecutive years. The methods of qualitative data gathering and analysis included content analysis and a deductive-thematic analysis approach. The study followed a three-phase design: beginning with an analysis of forum messages to understand knowledge construction (Phase 1), followed by interviews to explore underlying power relations (Phase 2), and culminating in an integrative analysis examining how and when power dynamics influenced knowledge construction outcomes (Phase 3). Ethical approval has been maintained throughout the research, and I have taken specific procedures to ensure validity. My positionality has also been clearly articulated.

The methodological choices I have made were informed by the Constructivist and Critical Theories, which jointly underpin a comprehensive exploration of knowledge construction and power dynamics in online discussion forums. Constructivism allows us to see how learners have actively constructed knowledge within their social contexts, while the Critical Theory highlights the pervasive influence of power relations within these learning environments. This integrated approach has provided a nuanced understanding of interactions and learning within the forums.

Table 1: Thematic Analysis

| Themes (categories) | Sub-themes |
|---------------------|--|
| Surveillance | Checking others' intellectual activities and posts |
| | Displaying one's personal information |
| | Searching for others' backgrounds and personal information |
| | Engaging in corrective training |
| Normalisation | Cultural and societal norms |
| | Educational system norms |
| Exclusion | Exclusion from others |
| | Self-exclusion |
| Individualisation | Self-definition and categorisation |
| | Resistance and negotiation |

| | |
|------------|--|
| | The articulation of personal viewpoints |
| | Reflection on personal narratives |
| Regulation | Self-regulation and adhering to the instructor's rules |
| | Perceived consequences |
| | Regulation of others |

Table: 2: Participants' Demographics

| No | Pseudo Name | Groupe | Age | Gender | Educational level and background | Location | Marital status | Employment status | Work experience | Additional Notes |
|----|-------------|--------|-----|--------|--|--|---------------------|--------------------|---|--|
| 1 | Nawal | 1 | 30 | Female | Bachelor's degree in Islamic Studies | Riyadh, the capital and largest city of Saudi Arabia | Single | Student Unemployed | News Editor (2 years) | Took training courses in media for 3 years, post-graduation. |
| 2 | Hind | 1 | 31 | Female | Bachelor's degree in Information Systems | Riyadh | Single | Student Unemployed | No Work Experience | Intends to seek employment after the diploma. |
| 3 | Maha | 1 | 38 | Female | Bachelor's degree in Business Administration | Riyadh | Married, 5 children | Student Unemployed | Volunteer Data Entry, Assistant (1 year) Data Entry, Financial Officer (2 years) | After high school, remained home for 10 years. Completed university via distance learning. Volunteered initially, then transitioned to paid jobs. Studied English after employment. Received experience certificate. |
| 4 | Marwah | 2 | 29 | Female | Bachelor's degree in Computer Science | Al-Dammam, Eastern coast | Single | Student Unemployed | Teacher, Quality Coordinator, Public Relations Director, Instructor at a Teacher Training Institute | Obtained a trainers' training certificate, and conducted 10-12 training courses. |
| 5 | Suha | 2 | 32 | Female | Bachelor's degree in English Literature | Jeddah, Western coast | Single | Student Unemployed | Teacher (1 year), Event Planner (7 years) | |
| 6 | Farah | 2 | 28 | Female | Bachelor's degree in History and Media | Najran, Southern region | Single | Student Unemployed | Teaching and Training (5 years) | Volunteer work includes filming and conducting interviews. Skills in Filming and Photographing. |

| No | Pseudo Name | Groupe | Age | Gender | Educational level and background | Location | Marital status | Employment status | Work experience | Additional Notes |
|----|-------------|--------|-----|--------|---------------------------------------|---|------------------|--------------------|---|---|
| 7 | Hana | 2 | 26 | Female | Bachelor's degree in Family Education | Mekkah, Western region | Single | Student Unemployed | No work experience | Passionate in crafting and artistic works. |
| 8 | Renad | 3 | 28 | Female | Bachelor's degree in Mathematics | Mekkah, Western region | Single | Student Unemployed | Volunteer Mathematics Teacher at Umm Al-Qura University (3 years) | Developed and delivered e-courses via platforms like Zoom and Webex. Self-taught in presentation and curriculum design. Participated in ministries of health, civil defence, and transportation hackathons. Presented a personal innovation at COOT, the university innovation centre, which was well-received. |
| 9 | Lubna | 3 | 25 | Female | Bachelor's degree in Computer Science | Shaqra, a town in central Saudi Arabia, 190 kilometres from the capital, Riyadh | Single | Student Unemployed | Sales and Customer Service, Bank | |
| 10 | Hiba | 3 | 43 | Female | Bachelor's degree in History | Riyadh | Single | Working Student | Secretarial Communications, Deanship of E-Learning at a University (more than 15 years-until present) | |
| 11 | Fadwa | 3 | 29 | Female | Bachelor's degree in General Biology | Riyadh | Married, 1 child | Student Unemployed | Teaching (2 years) | Conducts training courses in Drawing; Skilled in Drawing |

| No | Pseudo Name | Groupe | Age | Gender | Educational level and background | Location | Marital status | Employment status | Work experience | Additional Notes |
|----|-------------|--------|-----|--------|--|----------|----------------------|--------------------|---|---|
| 12 | Ariam | 3 | 32 | Female | Bachelor's degree in English Language | Riyadh | Married, 2 children | Working Student | English Teacher, Secretary for the Head of Female Personnel Affairs at a university, Dean's Secretary, Translator at the Deanship of E-Learning, Technical Support for Blackboard and e-course developer. | Continuously seeks personal development, took courses via Coursera and Future X, including from universities in California. |
| 13 | Israa | 3 | 25 | Female | Bachelor's degree in Islamic Studies | Riyadh | Single | Student Unemployed | No work experience | Effectively managing social media profiles with a substantial number of followers; indicating strong digital communication skills and impact. |
| 14 | Jamila | 3 | 29 | Female | Bachelor's degree in Special Education and Learning Difficulties | Riyadh | Married, no children | Student Unemployed | Trainer at a special needs centre (3 years) | Skilled in painting and drawing. |
| 15 | Faaten | 3 | 34 | Female | Bachelor's degree in Computer Science | Riyadh | Married, 3 children | Working student | e-courses designer and developer | Skilled in graphic design and animated films. |

Chapter 5: Key Findings of Knowledge Construction Phases

5.1 Introduction

This chapter presents the findings from the analysis of online discussion forums across three groups. As outlined in the methodology, the analysis focuses on examining messages from each group as the primary unit of analysis, while also considering the broader context of the threads in which these messages appeared. While individual messages offer important insights into specific instances of knowledge construction, it is crucial to situate these messages within their wider thread contexts. This approach recognises that messages are not isolated but are part of a larger, ongoing dialogue that shapes their meaning and relevance. In this way, a message's contribution to knowledge construction cannot be fully understood without considering the dynamics of the entire conversation in which it is embedded.

The tension between analysing individual messages and considering their thread context lies in balancing the detailed examination of specific cognitive and interactive behaviours, such as questioning, agreeing, and summarising, with an awareness of the broader conversational flow. Each message is a discrete unit of analysis, yet it exists within the evolving collaborative effort of knowledge construction. By examining both the individual messages and their surrounding threads, the analysis remains aligned with the broader patterns of interaction that shape the collaborative negotiation of meaning.

The analysis was conducted using the IAM framework developed by Gunawardena et al. (1997), which provided valuable insights into the process of online collaborative knowledge construction. This framework identifies five phases that represent different levels of knowledge construction, as detailed in Chapter Three. The aim of this analysis is to address the first research question of the thesis:

How do learners in the online discussion forum negotiate meaning and construct knowledge collaboratively?

The findings in this chapter are organised according to the five phases of the IAM, with each phase detailed by its corresponding operations. According to Schreier (2012, pp. 230-231), there are three main structures for presenting findings in a qualitative content analysis approach: (1) using continuous text, (2) using text matrices, and (3) doing additional qualitative data exploration and analysis. In using a continuous text approach, the focus will be on categories or on cases. Hence, presenting findings by categories involves providing each category separately and then presenting underlying related examples from the materials. This approach will help to demonstrate how the categories were expressed in the data.

Following the analytical approach outlined by Schreier (2012), this study presents its results by categories. Within this framework, 'categories' refer to the phases of knowledge construction identified by the Interaction Analysis Model (IAM) tool.

5.2 Knowledge Construction Phases Identified in the Online Discussion Forums

The overall findings revealed that the five themes, each operating at distinct levels, were evident throughout the discussions across all groups. However, the majority of messages observed were in Phases 1, 2, and 3, with only a few messages reaching Phase 4 and just one thread representing Phase 5.

Additionally, in some discussion threads, learners progressed from Phase 1 to higher phases. This indicates how learners were working collaboratively to build their understanding and advance their thinking. Similarly, Gunawardena et al. (1997) found that learners' advancement of a particular thread from Phase 1 to Phase 5 demonstrates how knowledge is constructed collaboratively, as learners move from lower to higher cognitive abilities.

It was also observed that a single message posted by a participant could contain multiple phases within it. This implies that learners were actively building on their initial views, a result that also aligns with Gunawardena et al.'s (1997) findings.

In what follows, I discuss the phases and their operations with evidence of participants' discussions. Please note that—to ensure the confidentiality of the participants—their names are referred to using anonymous names.

5.2.1 Phase I: Sharing/Comparing of Information

In this Phase, participants share information and opinions on the topic, without challenging each other's views. This phase is identified by five operations: (A) A statement of observation or opinion (Phase1/A); (B) A statement of agreement from one or more other participants (Phase1/B); (C) Corroborating examples provided by

one or more participants (Phase1/C); (D) Asking and answering questions to clarify details of statements (Phase1/D); (E) Definition, description, or identification of a problem (Phase1/E).

The analysis has shown that learners have demonstrated this level of knowledge construction in the majority of their discussions across the three groups. This aligns with what other studies that utilised the IAM model concluded. Studies such as (Gunawardena, et al. 1997; Moore and Marra, 2005; Roselia and Umar, 2015; Oztok, 2016, and Judy et al., 2018) found that Phase 1 of knowledge construction is the most dominant phase achieved by participants. Here is an example of the debate between participants at this level of Knowledge construction. In this debate, the class discussed the topic of “The Project’s Closing Phase”. The instructor initiated the discussion by asking the learners the following question: *What are the actions that must be taken before terminating any project? Which of these actions do you think is the most important and why?*

In the following example, Nawal from Group 1 (G.1) answered the instructor’s question, initiating a new thread. Three learners, Hend, Maha, and Reem exchanged their ideas, thus producing messages at Phase 1. Here is Nawal’s post:

“The project closure procedures can be summarized as the following: ensuring project completion, training the workforce on project maintenance and operation, and securing post-sales services—including free maintenance when the contract terms specify it. Additionally, this involves documenting project outcomes, data, key product information, and activities that can be undertaken at the end of the project. This also includes closing contracts, releasing resources, and evaluating the

project process. Some project managers also include personal experiences and expertise during the phase of closure. In my opinion, the most important step is to release the resources, as it is important to balance the complete elimination of a particular resource that the organization no longer needs for the future, whilst considering the potential for certain resources to be required in the future.” (Ph.1/A)

In this excerpt, Nawal stated her opinion about the subject. She listed some of the project closure procedures that were discussed in the lecture and added some procedures that she came across while reading about the subject. Examples of the procedures presented by Nawal were distributing resources, assessing the project phases, and ensuring that workers were well-trained in the project maintenance and operation. Nawal also expressed her opinion and observation regards what she thinks is the most important action in the project closure. That is, releasing the resources. What is notable here is that the teacher's question allows Nawal and other students to consider multiple perspectives. Brookfield and Preskill (2005, pp. 157–162) emphasize that—to foster insightful and idea-rich online discussions—instructors should provide learners with questions and problems that encourage the exploration of complex thoughts and stimulate diverse perspectives. They further elaborate (pp. 38–42) that discussions are most effective when there is an element of uncertainty and learners can benefit from engaging with a variety of perspectives and experiences. In this context, Nawal shared her knowledge of the subject and expressed her opinion, exemplifying Phase 1, Operation A (Ph.1/A) of the IAM tool: sharing and comparing information or making an observational or opinion-based statement.

Some of Nawal's classmates, though, spotted some areas that had a lack of clarity in Nawal's post and started to ask her some questions. All contributions that occurred under Nawal's post were coded as Phase 1—Sharing/comparing information. Here are excerpts of the discussion to show the flow of thoughts between the learners within this level of knowledge construction:

Hend: "Hello Nawal, when you mentioned the activities that are able to be undertaken at the end of the project, what did you mean by the term 'activities'?"

(Ph.1/D)

Nawal: "The project handover to the client is included in the activities, as well as the contract closure activity; and issuing recommendations. It is also important to include the phase of project closure in the contract to make it clear to stakeholders that any additional work needs a new project with a new team (contract)." (Ph.1/D)

Maha: "Why do you think that releasing resources (either material or human), is considered the most vital part in this stage, while there are other significant parts, too?" (Ph.1/D)

Reem: "Excellent post, dear Nawal. You mentioned that some project managers include personal experiences and expertise in the project during the closure phase. Could you please provide more details, if possible?" (Ph.1/D)

Nawal: "Project managers are able to accomplish this by showing their personal experiences in the project, which allows the organisation to benefit when preparing similar projects or retaining and selling them as services to consulting firms."

(Ph.1/D)

The above messages, which were coded in Phase 1, exemplified one type of operations/statement in this phase which is asking/answering questions to clarify

details of statements. The sole purpose of these messages is to support the affirmative argument by seeking additional information that was not discussed in Nawal's Post. Although there were plenty of opportunities to develop the discussion further, test old opinions, or construct new knowledge, learners were cautious not to confront each other. Therefore, the argument in this debate does not move beyond clarification, exchange, and the sharing of information. Additionally, no further discussion was developed following Nawal's answers to her peers' questions.

5.2.2 Phase II: Discovery and Exploration of Dissonance or Inconsistency Among Ideas, Concepts, or Statements

In this phase, participants identified and explored areas of disagreement or contradiction among the information shared, and sought clarification or additional evidence. The second phase is identified by three operations: (A) Identifying and stating areas of disagreement (Phase2/A); (B) Asking and answering questions to clarify the source and extent of disagreement (Phase2/B); (C) Restating the participants' position—and possibly advancing arguments or considerations in their support by references to the participants' experiences, literature, formal data collected, or proposal of relevant metaphor or analogy—to illustrate a perception (Phase2/C).

Here are examples from the discussion board representing this level of knowledge construction. The following debate occurred in the second week of the course. During this week, the participants discussed the topic of "Database and Digital Libraries". The instructor initiated the discussion by introducing the following prompt:

Log into the Saudi Digital Library and search for the following topics (e-learning,

databases, digital libraries). Talk about your experience with the library in terms of the results you obtained, your opinion of this database (its advantages and disadvantages), and to which learning theory does the activity that you undertook during this assignment belong? The following thread is from Group 3 (G.3). In this thread, Shaima answered the instructor's prompt, initiating a new thread. Five learners: Lubna, Jamilah, Ariam, Fadwa, and Israa contributed to Shaima's post. Here is Shaima's post:

"I searched the digital library... and the results were positive in regards to how easy it was to obtain the content by clicking on the PDF button, together with the results' availability and reliability, as the Saudi Digital Library is the most academic gathering of information resources in the Arab world and covers all disciplines, and continuously updates its content, which results in huge academic resources. One of the most important advantages is that students can benefit from the content, and link it to the Blackboard. The search, however, mainly depends on keywords. When using general keywords, it is not possible to produce accurate results. Alternatively, when the search is customised to more precise keywords, we may not get the desired result, due to either unavailability or due to the words not matching. Therefore, you must know how to choose the right keywords to get accurate and good results. Finally, I think providing the learner with the opportunity to access recent articles, participate in knowledge construction, and connect different learning sources shows principles of communication theory..." (Ph.1/D+A).

In the post above, Shaima shared her experience with the Saudi Digital Library; she also expressed her opinion about the library. At the end of her response, she linked the activity she undertook during this assignment to the Communication Theory.

Regardless of the learner's incorrect response, my focus was on how the discussions were occurring to further their understanding of the matter. Shaima's post exemplified Phase 1 of the IAM model, exemplifying two types of operations in this phase: A and D, as she answered the instructor's question by stating her opinion and sharing her experience. This response aligned with what Gunawardena et al. (1997) concluded that a single message might convey more than one operation and sometimes more than one phase.

Jamila (G.3) entered the discussion, commenting on Shaima's post by adding:

Jamila: "Nice written Shaima, but I do not agree that keywords should be a problem; my experience is different. Whatever I write, many suggestions appear. In addition, as for your perspective about the theory that it is a Communicative Theory, I do not agree with you because the Communication Theory links knowledge, I think the beginning of the research process (the assignment) aligns with the principles of the Constructivist Theory." (Ph.2/A)

In the above message, Jamila disagreed with Shaima in regards to two areas: firstly, in how to use keywords in the search; and secondly, in the learning theory that learners were practicing. Jamila, in her response, indicated indirectly that her experience with the Search Engine in the Saudi Digital Library is quite positive. She also explained that she is confident that the theory they undertook in this assignment was the Constructivist, not the Communicative Theory. Jamila's response in this instance moved the discussion to Phase 2 as she introduced her opposing viewpoint. Jamila's post aligned with Phase 2 of the IAM model, exemplifying type A

of operations/statements of this phase (Ph.2/A)—the discovery and exploration of areas of disagreement among ideas and concepts or statements.

Ariam (G.3) also contributed to the discussion by expressing her disagreement with Shaima, as she stated:

Ariam: “Hi, Shaima, but I disagree with you in relation to the type of theory undertaken in this assignment. I think it is closer to the Constructivist Theory than it is to the Communicative one.” (Ph.2/A)

Ariam, in the post above, expressed her disagreement with Shaima regarding the theory being used. Unlike Jamila, Ariam did not provide any explanation of her opinion, which indicates that Ariam was not sure about her thoughts. Nevertheless, Ariam clearly stated her dissent with Shaima’s post. Ariam’s response, as such, aligns with Phase 2, Operation A of the IAM model (Ph.2/A)—identifying and stating areas of disagreement.

As Jamila and Ariam disagreed with Shaima regarding the theory's utilization, they received no response from Shaima or other classmates to deepen their understanding of the subject, nor did anyone attempt to advance the discussion to Phase 3—where members seek to reach a consensus on conflicting ideas. This attitude from Shaima and her classmates hindered the progression of the discussion towards a more advanced level of knowledge construction.

Furthermore, Fadwa and Israa, contributed to this discussion, as they focused on different aspects of Shaima’s response. They commented on how Shaima sees PDF

files as a positive feature. Contrastingly, they view it as a negative feature in consideration of its features with Arabic Language articles. Below is Fadwa's message:

Fadwa: "Thank you for putting forward this valuable response, my colleague, Shaima. However, I find PDFs to be negative in terms of when I want to extract some information from the content, it would not be possible on the PDF document, as it is not allowed, especially if the content is in the form of images. I think it is one of the things that slightly hinders the workflow." (Ph.2/A).

In the above message, Fadwa articulated her dissonance with Shaima in the matter of the PDF format. She expressed her reason for disliking PDF by saying it does not permit the copying of images and figures, which inhibits the workflow. While expressing her dissonance or inconsistency towards Shaima's ideas, Fadwa tried to move the discussion to Phase 3 by explaining her reasons. She was trying to convince Shaima about her opinion regarding PDF files. However, the discussion could not move to Phase 3 because it did not receive any response from Shaima. Therefore, Fadwa's response falls under Phase 2 indicator A (Ph.2/A). Similarly, Israa also had a negative view of PDF files; she explained:

Israa: "I really agree with you that the source when in a PDF format hinders workflow. Even if there are programs to convert PDFs into Word format, it is either a paid service or a poor-quality service in which results come into scattered letters that appear in reverse." (Ph.1/C) (Ph.2/A+C)

In this quote, Israa agreed with Fadwa in regards to the negativity of the pdf format. She also provided an example of how it is difficult to work with PDF files. Israa's

response, on the one hand, aligned with Phase 1, Operation C (Ph.1/C)—a statement of agreement that corroborated an example from a participant—as agreed with Fadwa. Comparatively, Israa disagrees with Shaima in terms of PDF format. Unlike Shaima, Israa viewed PDF files as a negative feature of the library. This disagreement resembled Phase 2 indicators A and C (Ph.2/A+C) as she supported her argument with references to her experience. Israa’s message contains multiple phases within it. This implies that Israa was actively building in her initial thought, a result that is also consistent with Gunawardena’s et al. (1997) study that noted instances of more than one and sometimes three phases present within a single message posted by one individual.

In sum, the messages above following Shaima’s post showed that a number of participants were expressing dissonance or inconsistency among ideas. However, the debate between participants did not trigger Shaima’s response to any of them. This, as I indicated earlier, could be one reason that hindered the advancement of the discussions to pursue a higher level of knowledge construction. This observation corresponds with Wu's (2021) results, which reveal that more than half of the participants in his study prefer in-class discussions due to insufficient prompt feedback from their counterparts, highlighting the need for online platforms to enhance their capabilities for ideas’ organisation, quicker responses, and feedback.

Another example was demonstrated in the fifth week when the class engaged in discussing the topic of “Planning and Designing The E-Learning Project”. The instructor introduced the topic by raising the following Prompt: *After reviewing the stages and core processes in instructional design and their objectives, in your*

opinion, what are the essential skills needed for any instructional designer to succeed? Then, discuss some ways that could help a beginner instructional designer develop these skills and competencies.

Farah (G.2) responded to the instructor's prompt with an extensive post. Her contribution motivated her classmates to engage in a detailed discussion, producing messages from Phases 1, 2, 3, and 4 of the IAM framework. However, some responses were unclear or inaccurate, prompting the instructor to intervene. This intervention played a crucial role in refining and directing the responses. Although the messages in this thread were from various phases, Phase 2 was the overall dominant phase. Therefore, I felt it would be more appropriate to include this example within Phase 2.

Here is Farah's (G.2) post.

"The instructional designer is the person responsible for executing and coordinating the work plan, possessing the ability to manage all aspects of the instructional design process by outlining procedural methods and representing them in maps.

An instructional designer needs to have a set of knowledge and skills, including the essential knowledge and skills to link theoretical principles with educational and training applications. The theoretical principles include psychology and learning theories. Among the essential skills for an instructional designer's success are: gathering educational content, preparing instructional materials, identifying and defining educational problems accurately, and considering individual differences by addressing the characteristics of the target audience, whom this software is developed for, during the analysis phase of the design process. Additionally, identifying strengths and weaknesses is achieved through feedback, which helps in re-evaluating goals and strategies selection, and making appropriate decisions.

These skills are linked to the instructional design processes as follows:

- *Analysis Phase: Accurately defining the problem allows for analysing the need, the learners, and the task, helping instructional design proceed correctly.*
- *Design Phase: Defining the problem precisely enables the identification of the necessary technologies or tools for the design process.*
- *Development Phase: Once the problem is accurately defined, the development phase of instructional design becomes more manageable.*
- *Evaluation Phase: This includes formative evaluation of instructional materials and assessing the adequacy of course organization, as well as evaluating the societal benefits of such courses, followed by a final or summative evaluation. Evaluation indicates the extent to which goals have been achieved and diagnoses learning outcomes (Al-Hila, 1999¹).*

Some ways that help any novice instructional designer in developing these skills and competencies:

- *Precisely understanding the aspects of the problem*
- *Correctly defining the objectives*
- *Knowing the target audience and their needs” (Ph.1/A+D+E)*

In this post, Farah (G.2) shared information and her opinions on the topic (Ph.1/A), without challenging any views. She answered the instructor’s questions to clarify the details of the statements (Ph.1/D). In doing so, she provided a definition and details on the topic posted by the teacher (Ph.1/E).

Marwah (G.2) was the first one to comment on Farah’s answer. She said:

“Bless you, Farah; your contribution is wonderful but needs some connection and integration. In my opinion, the skill of accurately defining the problem is not a skill

¹ This is an Arabic reference that was used by a participant in her post

itself but rather a step within the skill of problem-solving or the art of problem management... You also mentioned in the second skill: "considering individual differences, which is done by addressing the characteristics of the target audience, whom the software is developed for, during the analysis phase. In my view, analysing the targeted audience characteristics should be considered in all stages of the instructional design process, rather than being limited to a single phase. This skill of analysing individual differences is broad because, when applied, it achieves several results... some of which:

- *Enhancing the outcomes of the educational process*
- *Reducing educational losses*
- *Enabling all learner levels to reach their intended goals*
- *Addressing the various needs of large numbers of learners ...” (Ph.2/A; Ph.4/B)*

Marwah here noted that Farah’s post lacked coherence and unity. By making this observation, Marwah evaluated Farah’s post based on her understanding of effective writing, which she believes should be coherent, clear, and unified. This comment exemplified Phase 4—testing and modifying proposed synthesis or co-construction, Operation B—testing against existing cognitive scheme (Ph.4/B). In addition, Marwah provided additional input by clarifying certain points that she believed were correct. Her input identified and articulated specific points of disagreement with Farah’s ideas. Unlike Farah, Marwah views accurately defining a problem as not a standalone skill. Instead, it’s considered one essential step in a broader skill set, namely, problem-solving or problem-management. This point of view of Marwah reflects Phase 2 of AIM the model—the discovery and exploration of dissonance or inconsistency within a group's collective knowledge and thinking skills, Operation A, identifying and stating areas of disagreement (Ph.2/A).

The disagreement between Marwah and Farah here revolves around how each of them views the scope and role of individual differences within the process of instructional design. Farah, for example, sees individual differences as a skill that is only related to the analysis phase of software design when analysing the characteristics of the target audience. Marwa has a broader view. She believes that individual differences should be considered in all stages of instructional design, not just during analysis phase. In her opinion, this skill should be reflected in all stages and processes of instructional design as an essential part of decision-making at every stage. This difference between Marwah and Farah in viewing the role of individual differences exemplifies Phase 2—the discovery and exploration of dissonance or inconsistency within a group's collective knowledge and thinking skills, Operation A, identifying and stating areas of disagreement (Ph.2/A).

In this part of the discussion, the instructor identified the specific point of disagreement between Marwah and Farah, showing a preference for Marwah's perspective. The instructor confirmed that defining the educational problem is one of the most important stages in instructional design. She said:

“I agree with Maryam on what she mentioned; accurately defining the educational problem is one of the core tasks of an instructional designer. However, to accurately identify the problem, the designer must possess several skills, such as effective communication with the organization for which they are developing solutions, as well as critical thinking to help the designer get to the root of the problem and precisely identify needs when working on real-world instructional design projects.” (Ph.3/A)

Here the instructor tried to clarify the meaning to establish shared understanding between learners. This intervention elevates the discussion, encouraging learners to re-evaluate their positions. The instructor's message exemplifies phase 3—negotiation of meaning/co-constructing of knowledge, Operation A, negotiation, or clarification of meanings (Ph.3/A).

To deepen the discussion more, the instructor continued her comments by posting a question to the entire group:

“For example, let’s say a department manager requested your help in developing employees’ skills in a specific area, but when you spoke with the employees, they told you they are already proficient in this skill, though there are other factors affecting their performance. In this case, whose opinion would you consider? I’m curious to know all your opinions.” (Ph.2/B)

The purpose of this question is to prompt the learners to consider the issue from a different angle so they can better understand the source and extent of their disagreement. The scenario introduces a real-world situation where employees and a manager have differing views about the nature of a problem. By presenting this scenario, the instructor emphasizes the importance of gathering comprehensive data to accurately define the problem. This scenario reflects Phase 2—the discovery and exploration of dissonance or inconsistency among ideas, concepts, or statements, which involves identifying and addressing areas of disagreement or inconsistency within a group’s collective knowledge and thinking skills, Operation B, asking questions to clarify the source and extent of disagreement. (Ph.2/B)

The instructor's intervention encouraged more learners to contribute to the discussion, bringing Suha and Hana into the discussion alongside Farah and Marwah. Here are the participants' answers to the instructor's question:

Marwah: "...From my perspective: it's possible that the manager perceives the employees' skills as not achieving the desired results in this area, while the employees believe their performance meets the required outcome. This discrepancy may stem from the manager not clearly communicating the result they expect from their performance. This is one of the biggest issues caused by poor effective communication within an organization and the lack of feedback during performance. So, I think to address this problem, I would base my solution on the employees' perspective on how the manager communicates with them, assigns tasks, and evaluates their performance, and then start finding the appropriate solution to this issue." (Ph.2/C)

Suha: "I would start by asking the employees about the other factors they mentioned that affect their performance and assess whether they are truly issues affecting their performance or not. Based on my assessment, I would determine the next step and find a solution to the problem. For example, if they are indeed facing issues that have affected their skills, the solution would be to hold a dialogue session between the employees and the manager, where the manager clarifies his expectations and what he hopes to see from the employees, while the employees explain the difficulties and issues they've encountered. Through dialogue and discussion, the missing link between the manager and his employees can be bridged". (Ph.2/C)

Farah: "Thank you, Dr. (name), and also Marwah. As for your question, Dr. (name), I need to fully understand the problem by analysing the needs of both the employees and the manager and identifying the challenges each of them faces. This will help me determine whether the employees are proficient in the skills or if the manager has a different approach to assessing their skills." (Ph.2/C)

In all of these three contributions of Marwah, Suha, and Fatan, the learners were trying to restate their positions—by providing arguments or considerations that support their viewpoints. They drew from personal experiences and knowledge of the subject to make their arguments more persuasive and understandable. These three posts exemplified Phase 2—the discovery and exploration of dissonance or Inconsistency among ideas, concepts, or statements, which involves identifying and addressing areas of disagreement or inconsistency within a group’s collective knowledge and thinking skills, Operation C, restating the participant’s position and advancing arguments or consideration.

The discussion in this thread concluded with comments from Hana, who responded only to Farah's post and overlooked the instructor's follow-up question. Here is Hana’s work:

“Thank you for your effort and for enriching my knowledge of some instructional design skills, Farah. I have a short addition to your work regarding the steps for problem identification:

- 1. Recognize the problem*
- 2. Define the problem*
- 3. Provide possible solutions or alternatives*
- 4. Evaluate the solutions*
- 5. Choose the appropriate solution*
- 6. Implement the solution”.* (Ph.1/A)

Hana’s message here exemplifies Phase 1—Sharing and comparing information as she only shared her view about the topic, Operation A, exchange of ideas.

As shown in this thread, the instructor's intervention significantly boosted student engagement. Her involvement encouraged everyone to participate, even if their contributions, like Hana's, did not directly address her question. While participants' responses elevated the thread within its current phase by moving from identifying the area of disagreement to restating each participant's position, it did not advance it to the higher phase. This may be due to the instructor leaving the students' responses without further commentary, which left the conversation open-ended and without clear direction.

This thread demonstrated that learners move through phases of collaborative knowledge construction in a non-sequential manner, as observed by Gunawardena et al. (1997) and Oztok (2016). Rather than following a strict linear progression, participants shifted fluidly between phases, illustrating the dynamic and iterative nature of collaborative learning.

5.2.3 Phase III: Negotiation of Meaning/Co-construction of Knowledge

In this phase, participants proposed and negotiated new meanings or interpretations based on the evidence and logic, and attempted to integrate them into a coherent framework. This phase is identified by five operations: (A) Negotiation or clarification of the meaning of terms (Phase3/A); (B) Negotiation of the relative weight to be assigned to types of argument (Phase3/B); (C) Identification of areas of agreement or overlap among conflicting concepts (Phase3/C); (D) Proposal and negotiation of

new statements embodying compromise, co-construction (Phase3/D); (E) Proposal of integrating or accommodating metaphors or analogies (Phase3/E).

The analysis of the debate showed that participants tried on some occasions to move toward compromise, particularly when negotiating the meaning of a term. The following quotes below exemplify how participants tried to negotiate meaning and move the discussions to Phase 3. The discussion occurred in the third week, with the class discussing the topic of “Project Planning and the Use of Subject Matter Experts”. The instructor initiated the discussion by asking: *Who are the subject matter experts? How do you reach experts in your field? How do you convince them to work with you? And how do you deal with rejection?* The instructor encouraged the learners to incorporate their opinions into their responses.

Reem’s (G.1) contribution to this thread elicited three different points of view from her peers—Dina, Bayan, and Nawal—prompting discussions that advanced the conversation to Phase 3 of the knowledge construction phases. Here is Reem’s post in response to the main discussion question:

Reem: “The word ‘expert’ signifies an individual’s proficiency, capability, and familiarity with knowledge and sciences in a particular field. When someone is referred to as an ‘expert’, it implies clear understanding, knowledge, and possession of necessary skills to accomplish tasks that require expertise and awareness. An expert is typically a person who has completed their academic studies, worked for several years, and gained extensive experience in their field. I believe having an academic degree in the field is a must while having experience is less important... As for convincing an expert to work with me, this may be achieved by offering a suitable salary and providing additional benefits for the job...” (Ph.1/ A+D+E) + (Ph.3/A)

In the above message, Reem responded to the instructor's question by discussing the meaning of the term 'expert'. She tried to clarify the meaning of the concept by emphasising how experts should be knowledgeable in their areas of expertise. Reem's post, from one perspective, represents Phase 1 Operations (A +D+E) of the IAM model as she answered the instructor's question, shared her opinion about the subject, and defined the term "expert". Looking at another perspective, Reem's message exemplified Phase 3 Operation A as she negotiated the meaning of the term 'expert'. Reem's focus was on the necessity for the expert to have a university degree. Therefore, she defined experts as individuals who gained their knowledge mainly by acquiring a particular university degree. Moving from Phase 1 to Phase 3 in Reem's message indicates how individuals contribute to constructing knowledge by reflecting on their own ideas (Gunawardena et al. 1997).

Reem's definition of the term expert seems to have created contradictory responses from her classmates. For example, Dinah responded to Reem's message saying that to have a university degree should not identify who is /or is not an expert.

Dinah: "It is not a requirement, in my opinion, for an expert to have a university degree. Some experts have acquired their knowledge and experience through self-learning without attending university or achieving a high level of education. Some have expertise through practical work opportunities, which motivated them to engage in certain areas. They have now made their mark in their respective fields." (Ph.2/A) (Ph.3/A)

In the post above, Dinah expresses her disagreement with limiting the term 'expert' to those who have a university degree. She illustrated that the term 'expert' should encompass those who are knowledgeable in their field despite their academic

degree. Dinah's response aligns with Phase 2 Operation A (Ph.2/A) of the IAM model, as she stated her area of disagreement with Reem's post. Dinah also advanced her arguments by references to examples that are known in the real world. By engaging in a discussion to clarify the term 'expert' so a shared understanding is ensured, Dinah moved the discussion to Phase 3 of the IAM model, Operation A—negotiation or clarification of the meaning of terms. Dinah's message also proved that a single message posted by one participant may include multiple phases.

Bayan actively joined the discussion, expressing her agreement with Dinah's contribution; she asserted that numerous real-life examples demonstrate how individuals without a university degree have acquired valuable experience in specific areas of their lives. Simultaneously, Bayan also agrees with Reem's post in regard to the importance of having a university degree. Specifically, she stated:

Bayan "There is some truth in what you're saying, Dinah, and numerous examples in our lives support this. For instance, our grandparents didn't have extensive formal education, yet they excelled as caregivers due to their accumulated experience, learning from trials, and navigating various situations. They became good at raising children and maintaining the home. In the current era, I believe that, at a minimum, obtaining a university degree and gaining several years of practical experience in a specific field are necessary prerequisites for individuals to develop into 'experts'. It is through expertise in diverse environments that they are able to achieve this status."
(Ph.3/B)

Even though Bayan agrees with the main point presented by Dinah, she acknowledged that in today's society, possessing a university degree is often seen as a requirement for someone to be labelled as an 'expert'. In this instance, Bayan is assessing the importance or strength of each perspective regarding who should be

labelled as an expert. In Bayan's last sentence, it seems that for her, an expert with a university degree outweighs an expert with no university degree. Bayan tried to move the discussion toward compromise. By doing so, she moved the discussion towards operation B as she negotiated the weight of the two opposing viewpoints raised by her classmates. Thus, Bayan's response aligns with Phase 3 Operation B (Ph.3/B) of the IAM model, the negotiation of the relative weight to be assigned to types of argument.

Similarly, Nawal contributed to this discussion by discussing the advantages of having a university degree for an expert, as she stated:

"Hello Reem... I read my colleagues' responses and their comments on the academic background of an expert, which triggered me to share my viewpoint. I believe that obtaining a high academic qualification increases the expert's argument when presenting their justifications and evidence for an idea. Additionally, the failure of such qualifications does not negate their expertise, although it may not leave the same impression as having a higher qualification." (Ph.3/B)

Nawal, in the statement above, is contributing to the assessment of the importance and strength of various arguments regarding the meaning of the term 'expert'. She negotiated the relative weight to be assigned to the expert with an academic degree. Nevertheless, Nawal acknowledges that an expert may not have an academic degree yet still perform at a high level of performance. Nawal's response aligns with Phase 3 Operation B (Ph.3/B)—negotiation of the relative weight to be assigned to types of argument.

To conclude, the messages represented above proved that the participants tried to move toward compromise while negotiating the meaning of the term "expert". Having

fully expressed their opinions, participants began to discover common meanings and the possibility of agreement. Nevertheless, the lack of response from Dinah, the main post creator, hinders the potential for the debate to propose a new statement or integrate concepts.

5.2.4 Phase IV: Testing and Modification of Proposed Synthesis or Co-construction

In this phase, participants test the validity and applicability of the co-constructed knowledge in different contexts or scenarios and modify it accordingly. This phase includes the following operations: (A) Testing the proposed synthesis against “received fact” as shared by the participants and/or their culture (Phase4/A); (B) Testing against the existing cognitive schema (Phase4/B); (C) Testing against personal experience (Phase4/C); (D) Testing against formal data collected (Phase4/D); (E) Testing against contradictory testimony in the literature (Phase4/E). The following section presents quotes from discussion threads that illustrate Phase 4 of knowledge construction.

The following example is from week seven, where participants discussed the topic of “Implementing an E-Learning Project.” The instructor initiated the discussion by posing this question: *“Cloud computing offers numerous benefits in education; for example, it provides easy access to diverse learning resources and supports various applications, such as the Blackboard platform. However, despite different advantages, cloud computing in education has faced certain criticisms. Could you, please, highlight some of these criticisms and share your opinion?”*

In this example, Renad (G.3) was the first to respond to the teacher's prompt, initiating a thread that aligns with Phase 4 of the IAM framework. Her post prompted engagement from three classmates, Israa, Faaten, and Ariam, who collectively contributed five messages. Here is Renad's post:

Renad: *"In my opinion, there are certain criticisms of cloud computing that are worth to be mentioned. Firstly, a major concern is the constant risk of unauthorised access to user data, which poses a threat to the confidentiality of user information, particularly in large organisations. Also, cloud computing relies heavily on internet connectivity, which makes it difficult to work without a stable internet connection or when there is poor internet coverage. In addition, what I recently learned through my experience is that when there is a technical problem and I must contact customer service support, some cloud computing providers offer support that is not free and I am required to pay an amount of money."* (Ph.1/A+D) (Ph.4/C)

In the message above, Renad responded to the teacher's prompt by sharing her opinions and observations about a problem, exemplifying Phase 1 Operations A and D (Ph.1/A+D). Additionally, Renad highlighted several issues related to cloud computing, including some that her classmates were unaware of, such as the fees for technical support. By highlighting the issues related to fees for technical support, Renad tested and evaluated the proposed synthesis of cloud computing problems against her personal experience. Her post aligns with Phase 4 of the framework, which involves testing and modifying proposed syntheses or co-constructions. Specifically, it corresponds to Operation C, which focuses on testing against personal experience.

This new information about fees for technical support from Renad captured her classmates' attention and motivated them to respond. For instance, Israa expressed her dissatisfaction with this type of support and stated:

"Hello, Renad... This is the first time I've heard that there might be a fee for providing support services! That seems odd." (Ph.4/A)

In the message above, Israa tested the suggested concept of paid support services against the prevailing understanding of the service, which assumes that technical support is typically included with any cloud computing service. By expressing surprise by this new information, Israa implied her disbelief in this practice as an accepted norm within cloud computing providers. Israa's post aligns with Phase 4 Operation A (Ph.4/A) of the IAM framework, testing the proposed synthesis against the 'received fact' shared by the participants and/or their culture.

Faaten also contributed to this discussion by asking about the advantages and disadvantages of paid support services, as she added:

Faaten: "Thank you for your input, my friend, and I agree with what you posted. As for paid support services, this is new information for me. Do you think this is a positive or negative thing? I mean do you think companies are entitled to provide a support service (paid)!? In my opinion, I believe paying extra fees for technical support is a company's right, as the large number of customers and users of cloud computing requires human, material, and technical efforts." (Ph.4/B).

In this response, Faaten is evaluating the concept of paid support services by comparing it with non-paid support services. She asked Renad whether she sees it as a negative or a positive thing, and whether companies are justified in requesting

money in return for the support they provide or not. Then she expressed her opinion, indicating that she understands why companies may offer paid support services, due to the huge effort it requires. Faaten's response represents Phase 4 Operation B (Ph.4/B), as she tried to test the proposed synthesis (paid support services) against her experience and the existing knowledge people have developed regarding computing cloud services.

Ariam also participated in this discussion. She expressed her agreement with Faaten; however, she stressed the importance of the quality of paid support services in this sense:

Ariam: "That is true!! I agree with you, my colleague, Faaten. Companies have the right to provide technical support services with fees, but they also need to work hard to solve any problems that the customer may face and they should work to avoid potential issues before they occur. I believe this is a reasonable right of the user". (Ph.4/C)

In the post above, Ariam is testing the proposed knowledge against her personal experience. She is evaluating this proposed synthesis (the idea of paid services) based on her own experience. Although not explicitly stated, Ariam here suggests that the current support services are insufficient. This judgment from Ariam is most likely coming from her past experience with unpaid services. Thus, Ariam advocated that services need to be of high quality if they want to be paid. The evaluation against her personal experience represents Phase 4 Operation C of the IAM model (Ph.4/C).

Another example representing Phase 4 of the IAM tool is the discussions exhibited in the fourth week of the course when the class discussed the subject of E-learning.

The instructor initiated the discussion by asking this question: *Based on what you have learned in the e-learning lecture, what distinguishes e-learning from your point of view? Select only two advantages explaining to what extent these two advantages suit you and your goals, and which do you prefer, online learning or traditional face-to-face learning? And why?*

The example below is from Ariam's (G.3) post, which sparked a discussion aligning with Phase 4 of the IAM model. Participants in this thread included four learners:

Fadwa, Lubna, Jamila, and Israa. Here is Ariam's response to the teacher's post:

"E-learning transforms educational practices from papers, books, and indoctrination into digital content that is full of interaction and creativity, ... E-learning is distinguished by its ease of access at any time, ... this gives learners more time for analysis, conclusion, and search for information, ... Indeed, e-learning and its importance emerged during the Corona pandemic (COVID-19) when all areas of traditional education turned to the provision of educational content through online platforms. However, there are several disadvantages of e-learning that must be stated, including:

- *The lack of the Internet is a very big obstacle when experienced;*
- *Failure to engage in society is also an obstacle, as students lose the language of dialogue, interaction, and activity with peers, resulting in social isolation;*
- *Distractions from those at a student's home, which result in many negatives.*

From this perspective, it is always preferable in education to combine face-to-face and electronic education so that the student acquires all experiences and skills from both methods." (Ph.1/ A)

In the post above, Ariam (G.3) proposed her perception of e-learning based on the discussions with the teacher during the online class. Ariam's proposal illustrates some of the benefits and drawbacks of e-learning. Using a statement of observation or opinion, Ariam's post aligns with Phase 1 Operation A of the IAM model.

The subsequent discussion primarily focuses on assessing Ariam's statements and points of view regarding the disadvantages of e-learning. Learners' evaluation was based on data gathered, learners' own experience, and received facts commonly accepted in the educational culture in Saudi Arabia. For example, Fadwa (G.3), commented on Ariam's post addressing some disadvantages of online learning that add to Ariam's list. Here are Fadwa's words:

"Hello... I would like to add one negative aspect to consider, that is, upon returning back to traditional face-to-face education, there was a noticeable decline in the academic achievements of both female and male learners. They were also lacking basic skills which hindered their ability for a good performance. These observations were supported by the results of the pre and post-tests that we had conducted for the learners ." (Ph.4/D)

In the post above, Fadwa (G.3), is testing the benefit of e-learning as an educational system based on formal data collected from the result of pre-post tests conducted at the level of public education (K-12). Fadwa stated that the results showed weaknesses in pupils' achievements. Fadwa's argument represents Phase 4 Operation D (Ph.4/D)—which tests and modifies the proposed synthesis against formal data collected. Lubna (G.3) joined the discussions, expressing her agreement to Ariam's point of view, and said:

“I agree with you, Ariam, that e-learning depends on the motivation of the learner. If it decreases, the educational outcomes and acquired skills will decrease.” (Ph.1/B)

In this post, Lubna (G.3) states her agreement with Ariam’s post and emphasises the importance of motivation as a crucial factor in the success of e-learning. Lubna’s post as such was coded at Phase 1 Operation B (Ph.1/B)—a statement of agreement from one or more participants. Lubna’s contribution to this debate proves what was concluded about discussions earlier that learners move from one level to another in a non-sequential way while interacting with each other, which indicates how individuals contributed toward the co-construction of knowledge. This also aligns with the findings of Oztok (2016) and Gunawardena et al. (1997) studies.

Jamila (G.3) also contributed to the discussion and assessed the notion presented by Ariam based on her experience and her knowledge regarding e-learning platforms. She said:

“Greetings... You mentioned that one of the disadvantages of e-learning is the weakness of dialogue. However, I think that the dialogue exists in online learning just as it does in traditional face-to-face learning. Online learning platforms offer much software that supports both audio and video communications, allowing discussions between learners and the instructors.” (Ph.4/B+C)

In this post above, Jamila is testing one of the disadvantages of e-learning which is the weakness of verbal communication (dialogue) against what she already knows and what she experiences regarding e-learning. Jamila explained that in e-learning there are many means that support audio and video communication, which facilitate dialogue and discussions. Thus, Jamila is using her experience with e-learning as a reference point to assess Ariam’s point in regard to e-learning. She stated that what

she experienced with e-learning contrasts with what Ariam said about e-learning that it lacks dialogue. Jamila's message here aligns with Phase 4, exemplifying two types of Operations in this phase, the B and the C (Ph.4/B+C)—testing against cognitive frameworks and personal experience. Jamila's post shows how learners progressed from one phase to another toward knowledge construction.

Israa also joined the discussion and added:

"You're right, Jamila. Dialogue takes place in both formats, but in face-to-face traditional sittings, it is stronger and better for both parties (learners and teachers). Communication at a distance may suffer delays in response for several reasons. For example, the delay may result from a disruption in a network which may interrupt the flow of ideas. Furthermore, the large number of students may impact the teacher's ability to manage the online class. It is also possible for some students to feel tentative to participate because of fear, lack of confidence, or even due to the environment around them, at their home I mean" (Ph.4/A+ C).

In the above statement, Israa agreed with Jamila regarding the fact that the ability to discuss, chat, or converse is a feature that exists in e-learning platforms and systems. However, Israa here attempted to evaluate communication in online learning compared to communication in a traditional face-to-face learning environment. Israa tested the construction presented by Jamila against her personal experience and received facts, as she proceeded to provide reasons why dialogue in the face-to-face environment is preferable. These reasons were either from Israa's personal experience or from what is common knowledge regarding communication. Saying all that, Israa's contribution here aligns with Phase 4 Operations A and C (Ph.4/A+ C), testing the proposed synthesis against received facts as shared by participants; and testing the proposed synthesis against personal experience.

5.2.5 Phase V: Agreement Statement(s)/Applications of Newly Constructed Meaning

In this Phase, participants agree on the co-constructed knowledge and its implications for practice or action. This phase includes the following indicators: (A) Summarisation of agreement(s) (Phase5/A); (B) Applications of new knowledge (Phase5/B); (C) Metacognitive statements by the participants illustrate their understanding that their knowledge or ways of thinking (cognitive schema) have changed as a result of the conference interaction (Phase5/C).

The following discussion was demonstrated in the seventh week when the class engaged in discussing the subject of 'Project Monitoring and Control'. The instructor introduced the topic by raising the following prompt: *How to effectively handle resistance to change that may arise from individuals involved in a new project.* Nadia (G.1) answered this question as follows:

"It is inevitable to keep up with change, and necessary for every individual in society, as a result of the technological and informational revolution. Vision 2030 in the Kingdom of Saudi Arabia focuses on continuous change, which some individuals adapt to and utilize what they have learned, while others do not. Indeed, change management is considered one of the most challenging tasks in digital leadership, especially when individuals, who prefer the familiar and fear change, face it ... An example of this can be seen in education when the COVID-19 crisis necessitated the use of virtual classrooms to continue the educational process. However, some teachers and educators in schools and universities resisted and decided to rely on email or even WhatsApp for communication, disregarding online lessons and courses for teaching. This resistance is unfortunate as it proves detrimental to the educational process, as well as students' understanding and comprehension." (Ph. 3/A)

In the above post, Nadia (G.1) raised a critical issue that has always been facing the educational system and became more apparent when COVID-19 hit the world. This issue revolves around the resistance of teachers and educators towards technology.

In this post, Nadia is involved in discussions to negotiate and clarify the meaning of “resisting change”, providing a real-life example of this concept. She works towards establishing a shared understanding of “resisting change” to ensure effective communication and collaborative knowledge construction. Nadia’s post above aligns with Phase 3 Operation A (Ph.3/A+E), as she was able to clarify the meaning of a concept and relate it to more familiar ideas by applying this concept to real-life examples. The quality of Nadia’s post sparked Reem and Nawal to engage in discussion producing messages from all Phases 1, 2, 3, 4, and 5 of the IAM framework. This aligns with several studies that highlight the importance of critical contributions in discussions to stimulate more in-depth debates. For example, Ouyang and Chang (2019) found that deep-level individual contributions often spark further peer interactions and advance group knowledge construction. Similarly, the study of Wang, Woo, and Zhao (2009) found that for online discussions to be engaging, the topics chosen must be relevant and significant to the participants. Also, Hung, Tan, and Chen (2005) emphasized that topics should be sufficiently challenging and controversial to elicit diverse opinions from participants.

Reem (G.1) was the first who responded to Nadia’s post, as she said:

“Excellent point, Nadia... Just like the current situation of the COVID-19 crisis, this has had a profound and unexpected impact on the world in various fields. COVID-19, as a sudden and powerful factor, has forced many individuals to reconsider their

opinions and be open to various ideas as a solution, including the field of education.”
(Ph.3/E)

In this quote, Reem (G.1) shows her agreement with Nadia’s opinion, while also suggesting that the force behind the change could be unexpected and beyond human control. She implies that the magnitude of change may surpass human intervention. Hence, Reem’s post aligns with Phase 1 Operation B (Ph.1/B+C), as she expressed an agreement with Nadia’s post and corroborated an example to support her position, while also aligning with Phase 3 Operation E (Ph.3/E), as she proposed a new analogy or solution to the problem underneath the concept “resisting change”.

In response to Reem's message, Nadia restated her position on the issue of “resisting change” saying that individuals consistently seek methods to avoid the established system. Nadia said:

“Undoubtedly, those who resist change will eventually find themselves compelled to change due to a variety of circumstances. Conversely, individuals who are not driven by external factors will look to unconventional solutions within their comfort zones, altering from their usual practices, such as using social media platforms instead.”
(Ph.2/A+C).

In this discussion, Nadia claimed that even when significant pressure is made to urge teachers to use e-Learning platforms, people will still choose the most convenient methods such as particular social media applications, regardless of whether or not these methods produce the desired results. Nadia seems to slightly disagree with Reem, who argues that with enough authority, people will certainly adapt to technological advancements. Nadia’s post aligns with Phase 2, Operations

A and C (Ph.2/A+C), as she explicitly identifies areas of disagreement with Reem's opinion. Simultaneously, she restates her position, initially explained in her main post, and enhances the argument by referring to the widespread experience of technology application in schools.

Nawal (G.1) responded to Nadia's post by providing a new perspective and encouraging further discussion. She stated:

"Nadia, your point is thought-provoking and offers a solid foundation for discussion. It is clear that the area of e-learning has made little development, staying mostly limited to computer use for a long time. However, I have a question: What if educational institutions were required to integrate e-learning platforms as a fundamental part of the learning process in the future, rather than making it optional? How might this proactive strategy help to address and avoid present mistakes?"
(Ph.3/C+E)

Nawal's (G.1) criticism of educational practices in Saudi Arabia for not adopting e-learning earlier suggests that there was resistance to change within the system. She bases her criticism on her knowledge of the Ministry of Education's efforts to support e-learning in schools and universities. However, Nawal attributes the delay in implementing e-learning to the individuals themselves, whether teachers or administrators. Moreover, Nawal's comments implicitly indicate concerns regarding a possible return to conventional teaching methods following the pandemic.

She advocates for a deliberate effort to integrate e-learning as a fundamental part of educational practices. Nawal concludes her post by posing an open question to discuss the potential outcomes of her proposal. Therefore, Nawal's post is consistent with Phase 3 Operation C+E (Ph.3/C+E) as she recognises Nadia's contribution as a

foundation for more discussion, which is an essential element of collaborative knowledge construction. Through the recognition of Nadia's (G.1) new perspective, Nawal encourages more investigation and collaborative effort to find an effective solution to the problem.

Nadia (G.1) summarises the understanding she reached during the collaborative process and the co-constructed knowledge into a clear agreement statement.

"If educational institutions are mandated by the ministry to use e-learning, errors will gradually diminish with practice. Practice is instrumental in learning, especially in the presence of stimulating environments that push for change. This will contribute to reducing errors through the collective effort of everyone, God willing." (Ph.5/A+B)

In the post above, Nadia (G.3) agrees that implementing a new policy that mandates the use of online platforms for teaching and learning in schools and universities is the only solution to decreasing mistakes in the application. Nadia's message here aligns with Phase 5, Operations A and B (Ph.5/A+B)—summarization of agreement, and the application of new knowledge.

Nadia's role in this thread was extremely fundamental as she replied to her classmates' comments several times which helped in advance and focus the discussion. According to Zhang et al. (2017), participants can achieve effective interaction by carefully reading and reflecting on comments shared by their peers, and engaging proactively with the content. They should then elaborate on their own ideas and experiences while actively engaging with others. This process is described as dynamic, reciprocal, and iterative, with each interaction drawing from previous exchanges and contributing to subsequent ones (Hou, 2015).

In addition, Nadia's final message is crucial for understanding the process of collaborative knowledge construction for several reasons. First, she introduced the topic, initiated the discussion, and posted the initial contribution, which set the expectation for her to provide a concluding statement. Second, her message serves as the concluding post for the entire discussion, summarizing the outcomes and confirming agreement among all participants. Third, it involves reflection on how the learners' understandings have evolved throughout the discussion.

Reaching Phase 5 of collaborative knowledge construction had been noticed only once in Group (1) and it has not been achieved in other groups. This indicates that participants among the three groups faced challenges in reaching the highest level of collaborative engagement. This may be attributed to many factors, including the difficulty of the task, interpersonal relations within the group, time constraints, or varying degrees of commitment among participants.

Therefore, future studies to enhance our understanding and practices of group performance in similar settings are needed. Hence, in the following chapter, I investigated group dynamics through the lens of power relations.

5.3 Discussion of Findings on Knowledge Construction.

In this chapter, the primary objective was to present the findings from the analysis of discussions within the forum. The analysis was carried out using the IAM content analysis tool developed by Gunawardena et al. (1997). The results of this study

contribute significantly to the overall research question of, *how learners in the online discussion forum negotiate meaning and construct knowledge collaboratively*.

By examining phases of knowledge construction demonstrated by online learners in online learning discussion forums, I presented valuable insights into the process of knowledge construction within online discussions. The analysis revealed five aspects that contribute to understanding how learners were engaged in discussions that promote knowledge construction. Specifically, the findings showed the following:

First, the analysis revealed that learners actively engaged in all phases of knowledge construction as described in the IAM framework. However, Phases 1, 2, and 3 were addressed more extensively than Phases 4 and 5. In fact, Phase 4 appeared in only two or three threads, while Phase 5 appeared in just one thread, across all three groups.

This research outcome aligns with a number of studies that employed the IAM framework to assess knowledge constructions in online discussion forums, as they consistently reported a high frequency of messages in the initial three Phases and limited, or even absent, messages in Phases 4 and 5. For example, Judy et al., (2018) found that the majority of the online knowledge constructions observed among participants were at the level of sharing and comparing of knowledge and that there were limited interactions that built upon shared knowledge that led to a higher level of knowledge construction. Zhang et al. (2017) also found that a high ratio of Phase 1 indicated that knowledge construction in the online collaborative learning process was primarily focused on Phase 1, with minimal occurrences of

higher-level phases. Another example is found in Gunawardena et al.'s (2016) study. Their analysis of a discussion transcript revealed that knowledge construction remained within IAM-Phase 3. Notably, Phases 4 and 5, which involve testing knowledge and applying it to new contexts, were absent. Similarly, a study by Roselia and Umar (2015) revealed that most of the messages posted by participants (about 71.3%) were at the lower level of knowledge construction merely Phase 1, 2, and 3. Moore and Marra (2005) also observed that Phases 1-3 were the most common phases of knowledge construction that were demonstrated by participants, while there were no postings classified in Phase 5.

Even in studies that did not use the Interaction Analysis Model (IAM) framework, participants encountered difficulties in achieving higher levels of knowledge construction. For example, Aalst (2009) observed limited engagement in advanced cognitive and reflective processes in online discussion forums, while there was a notable increase in automatic processes like knowledge sharing. Another example is the study by Al-Ibrahim and Al-Khalifa (2014) who found that the messages posted by participants in the online discussion forums lacked depth and criticality, often consisting of consensus and simple contributions rather than meaningful discussions.

The results of these studies, along with the current study, highlight an important concern: learners face challenges in reaching a high level of knowledge construction. This could be attributed to various pedagogical and social factors, including the manner of response, group size, discussion topic, course context, cultural norms, teachers' skills and roles, and time constraints (Sing and Khine, 2006; Du, Zhang,

Olinzock, and Adams, 2008). Although many of these factors, that have been studying power relations between learners, are factors that are rarely addressed or researched.

Secondly, the analysis proved that the progression of knowledge construction in the online forum is due to the cumulative nature of discussions as they collaboratively develop while arguments and perspectives from multiple learners contribute to its development. According to Dillenbourg (1999), collaboration among individuals elicits cognitive activities such as interpretation, argumentation, and discussion about their learning. Wise and Chiu (2011), observed that the progress from lower to high mental activity in collaborative learning is interconnected. As one individual makes progress, he motivates other members of the group to improve as well. These notions are deeply rooted in Vygotsky's Socio-Culture Theory, which suggests that learning is inherently a social process. According to Vygotsky's Theory, the Zone of Proximal Development, learners can achieve cognitive outcomes collectively that might be challenging for them to achieve individually (Stahl, 2013).

Vygotsky's Socio-Culture Theory also highlights the role of technology in supporting collaborative learning. He claimed that individual actions and mental skills are mediated by tools and/or the knowledgeable other (Stahl, 2013). This also corresponds to the principles of the field of Computer-Supported Collaborative Learning (CSCL), particularly the emphasis on collaborative knowledge construction. As explained previously in Chapter Three, CSCL is a specific branch of collaborative learning research that examines how computer technology can enhance and support collaborative learning (Stahl, 2013). It utilises digital tools to facilitate student

collaboration, idea sharing, and online learning. The IAM framework is basically situated within the CSCL field as it provides a structured way to assess collaborative knowledge construction in computer-supported learning environments.

Online discussion forums are integral to many CSCL environments as they offer a space for individual and collective cognitive growth (De Wever, Van Keer, Schellens, and Valcke, 2007). The reason behind that is that asynchronous text-based discussions provide opportunities for learners to interact with each other within a relatively open time frame (Pena-Shaff and Nicholls, 2004). This helps the learners to search for extra information and to reflect upon their understandings (Pena-Shaff and Nicholls, 2004). Gunawardena et al. (1995) compared the process of knowledge construction in CSCL environments to the creation of a patchwork quilt. In this analogy, individual participants in a CSCL environment contribute unique insights comparable to individual pieces of a quilt. A cohesive pattern of shared knowledge emerges as they interact, mirroring a quilt's design. This interaction, which is fundamental to knowledge construction, is enhanced by technology, leading to a comprehensive matrix of collective understanding in digital learning spaces.

Third, the analysis showed evidence of more than one and sometimes three phases within a single message posted by one participant. This observation provides evidence of how individuals contribute toward the co-construction of knowledge by drawing from their own experiences and mental development. Developments in this area are considered from a constructivist perspective, specifically, in the theories of individual knowledge construction. Piaget (1926) is considered one of the most influential researchers of Constructivist Theory, especially with regard to the

concepts of individual constructing knowledge and cognitive development (Du and Durrington, 2013). Piaget's (1926) Constructivist Theory of cognitive development indicates that individuals actively build their knowledge and understanding through their experiences and interactions. Cognitive growth, as such, is an outcome of the interaction between individuals' pre-existing knowledge and the new experiences they encounter (Du and Durrington, 2013). Peer influence is crucial in this process, according to Piaget (1962), mainly because peers provide opportunities for cognitive conflict (O'Donnell and Hmelo-Silver, 2013). This becomes apparent in the context where power relations are equal, and everyone has opportunities to influence one another (O'Donnell and Hmelo-Silver, 2013). In such settings, learners are encouraged to challenge and discuss each other's ideas, leading to cognitive conflicts and the examination of existing beliefs (Hernández-Sellés, Muñoz-Carril, and González-Sanmamed, 2019). This process of cognitive conflict is essential for cognitive growth as it encourages learners to re-evaluate and modify their understanding of the world. Interactions with peers, such as engaging in discussions, problem-solving activities, experiments, or collaborative projects, can lead to new perspectives and understandings, thus helping foster mental development (Lim et al., 2020).

Piaget (1962) also highlighted the significance of power dynamics in educational settings. He pointed out that high-status children, determined by factors like perceived ability, popularity, gender, and race, can influence lower-status children. This influence, in turn, affects children's cognitive development (O'Donnell and Hmelo-Silver, 2013). Despite being a constructivist theorist, Piaget (1962) in his

theory of peer influence pointed out, not directly, the idea of power relations in education, a concept that is typically associated with a critical approach to understanding social phenomena.

Piaget's (1962) theories have generated ample discussion about their applicability to higher education. Despite this, many scholars, including Sutherland in 2010, have explored how these theories can inform adult education. Researchers such as Du and Durrington (2013) and Russell (2006) have also used Piaget's (1962) concepts to examine peer interactions and cognitive processes in online collaborative settings. Moreover, O'Donnell and Hmelo-Silver in 2013 highlighted that some foundational principles of Collaborative Learning Theory are based on Piaget's (1962) work.

This research focuses on female-only groups, a prevalent situation existing in online education in Saudi Arabia. The results indicate that the collaborative knowledge construction within these groups reflects the patterns identified in research on mixed-gender groups in other online learning environments. Hence, the research results align with the findings of Gunawardena et al. (1997), Oztok (2016), and Mara AND More (2005), who revealed that learners construct knowledge collaboratively at lower cognitive levels more than at higher levels.

While the primary objective of this study is not to compare various gender compositions, it is essential to acknowledge the prevalence of single-gender classes in Saudi Arabia. Emphasising this feature can provide significant insights, particularly given that this situation is internationally atypical and has rarely been examined. This

result adds a distinctive aspect to the study and may potentially have wider significance for comprehending gender dynamics in online learning contexts.

Fourth, another notable observation arising from the analysis is that when teachers offer constructive feedback, learners are motivated to refine their arguments and enhance their online communication skills. This, in turn, leads to meaningful online discussions that effectively foster the construction of knowledge. This finding aligns with Brookfield and Preskill's (2005) view on the instructor's role in online discussions. They emphasized the necessity for instructors to intervene when participation decreases, discussions lose focus, or when certain students dominate the conversation. Also, Kearsley (2000) noted that the degree to which instructors are involved is one component that significantly impacts the quantity of student engagement and participation. This notion is consistent with the principles of CSCL (Computer-Supported Collaborative Learning) and the Community of Practice (CoP) Theory, particularly regarding scaffolding, where teachers provide targeted support to help learners develop specific skills (O'Donnell and Hmelo-Silver, 2013). Likewise, Vygotsky's Sociocultural Theory underscores the importance of the "knowledgeable other", whether a teacher, parent, or peer, in facilitating learning (Stahl, 2013). On the other hand, Lehtinen, Kostiainen, and aykki (2023) found that excessive involvement from teachers in the discussion can overwhelm students and reduce their participation and their ability to engage effectively with their peers.

Fifth, an additional insight from observation emerged from the data relating to the main discussion question. When these questions are about unclear concepts that require a review of different perspectives, they stimulate meaningful online

discussions that promote knowledge construction. Palloff and Pratt (1999 p.119) illustrated that the emphasis in developing a good question lies not in offering right or wrong answers, but in providing an inquiry that initiates dialogue and empowers students to examine the subject matter from different angles.

Finally, Although the online collaborative discussion platform showed evidence of learners trying to construct knowledge collaboratively, there were some incidents where the learners failed to engage in constructive discussions. This includes using:

1. *Simple compliments without context*: In some discussions, the learners simply use phrases of praise such as: “*excellent example*”, “*great proposal*”, or “*well said*” without any extra comments or clarifications.
2. *Superficial participation*, such as agreeing or disagreeing without providing any context or supporting evidence in one's post. For example, “*I agree with you, my dear friend*”, and “*I totally agree with you*”.
3. *Limited interactions*: This theme manifested in two situations. Firstly, when learners create an initial post but do not actively participate in subsequent comments or contribute to the ongoing debate. Secondly, when a learner makes a post yet it receives no response from others. These observations indicate a deficiency in active participation and collaborative learning.

While the aforementioned negative themes do not align with the predefined framework of IAM, they provide useful insights about the incidents when online discussion failed to support collaborative engagement and knowledge construction.

Various pieces of literature on online collaborative learning revealed a set of reasons that contribute to the success of discussions in collaborative learning platforms. For example, Du et al. (2008) found that the manner of response, the size of the group, and the topic of discussion are important factors that determine the quality of online discussion. Sing and Khine (2006) found that the course context, the cultural norms, the teachers' skills and roles, and time constraints are factors that influence participants' in-depth knowledge construction. Du and Durrington (2013) found a connection between learners' productivity and trust in online collaborative discussion spaces.

Some studies also highlighted the role of social aspects and identity traits in the success of online learning interactions. For example, Gunn et al. (2003) stressed the importance of social structures and power relations in collaboration. He found that learners who hold more power within a particular social context might feel more empowered to engage actively, express their opinions, and thus influence the direction of discourse. On the other hand, those with less perceived power might hesitate to contribute, potentially resulting in passive participation or even withdrawal. Similarly, Charbonneau-Gowdy (2018) found that students whom the researcher called "marginalized participants" showed an unwillingness and hesitation to participate in online group activities. These reluctant participants forged weaker identities, which prevented them from gaining language competencies compared to their peers with more powerful identities. Oztok (2016) also found that identity unfolds a power structure that significantly influences collaboration with peers in the construction of knowledge within online learning environments.

The findings of this chapter significantly enhance both the theoretical and practical understanding of online collaborative learning. It provides an in-depth exploration of participants' progression in constructing knowledge through their participation in online discussion forums. Thus, it supports the Constructivist Theory in online collaborative learning and CSCL contexts. In addition, the study highlights an ongoing problem faced by the learners that has not been adequately addressed or resolved within the current body of research which is learners' minimal progress in higher levels of knowledge construction. This observation, even with the unique context of female-only participants, prompts further investigation and exploration of these specific phases in future research.

While previous studies have highlighted the role of social factors in e-learning environments, they often overlook the dynamics of power relations and their influence on knowledge construction. Within any society or social group, there are always unrecognized forces that can influence individuals' behaviours, interactions, attitudes, and perspectives. These social factors may include identity traits, social pressure, cultural norms, etc. Understanding these social factors can provide richer insights into the dynamics of learners' interactions within online environments, which will lead to ensuring a high-quality learning experience.

This chapter's analysis, grounded in the Constructivist Approach as previously discussed in Chapter 3, reveals gaps that necessitate further exploration from a critical perspective. This suggests an urgent need to deepen our investigation into how these power dynamics critically shape educational phenomena. According to Lupton (1992), social constructivist approaches analyse the surface meanings of an

action or a text and miss critical dimensions of reality. This creates room for a more critical approach to investigating power dynamics and taken-for-granted assumptions. Lee and Brett (2014) also called for the use of a critical approach alongside the constructivist approach to create a space for multiple views and discourses about online learning.

Incorporating the notion of power relations in the study of knowledge construction allows us to recognize that learning is intertwined with broader power structures. As such, understanding how power relations influence engagement and thus learning can provide valuable insights into how educators and institutions can create more inclusive and equitable learning environments, where all learners feel empowered to participate, share their perspectives, and construct knowledge collaboratively. The analysis's implications will offer instructional designers some insights into how to design the best learning conditions in online environments that promote knowledge construction and cognitive skills.

Consequently, following Oztok (2016) who called for examining power relations in online learning discussion environments to get a sense of the hidden forces that encourage the construction of an interactive online community, the following chapter will try to investigate the power relations strategies that participants performed upon each other and how these power relations strategies contributed to the learners' collaborative knowledge construction process.

Chapter 6: Key Findings of the Power Relations Techniques

6.1 Introduction

This chapter discusses the findings drawn from the interview data. The chapter is framed with regard to the second research question, addressing this subsequent question:

- *What are the power relations strategies imposed by female learners over one another in single-gender online discussion forums?*

The data of this chapter were approached using a predefined framework based on Gore (1995). This framework consists of eight techniques of power relations in educational settings, which are derived from Foucault's theory of power relations. The techniques are: surveillance, normalisation, exclusion, classification, distribution, individualisation, totalization, and regulation. Each represents a distinct aspect of power pertaining to individuals and the social context within which they interact. Consequently, the analysis was carried out deductively using these eight power relations techniques that functioned as the primary themes of the findings. However, an inductive approach was also applied to the data to determine the sub-themes underneath each main theme. Combined deductive and inductive methods of analysis will ensure a thorough understanding of the dataset.

This chapter presents six main findings from the analysis of power dynamics within an online learning forum. First, the analysis highlights that learners in online forums utilise eight specific power relations techniques, which are surveillance, normalisation, exclusion, distribution, totalization, individualization, classification, and regulation. Each technique encompasses distinct subthemes identified in the study's data. For instance, the individualisation technique includes four specific themes. These techniques serve various functions, including the definition of individual identities and the construction of knowledge.

This finding contradicts the common belief that online learning environments are inherently democratic and free from such power dynamics (Lee and Brett, 2014). Furthermore, despite the absence of male participants in this study, which typically removes a direct gender-based source of power dynamics (Gunn et al., 2003), the results indicate persistent power dynamics within these female-only forums. This observation underlines Foucault's (1983) broader assertion that power is omnipresent and operates in multiple directions, regardless of the specific social setting. This insight underscores the complexity of interactions within online educational forums, demonstrating that they are not immune to the power relations found in traditional educational environments.

Second, the eight techniques of power relations appear in many situations simultaneously and influence each other in complex ways. For example, totalization overlaps with categorisation. Learners were exposed to different forms of categorisation due to the dominant discourse and standardised knowledge system regarding the ideal student, grading criteria, and online discussion. Another example

is the intersection between three power techniques: normalisation, exclusion, and individualisation. There were incidents when some participants expressed their identities through discussion, yet they were excluded because they deviated from the norm in terms of learning styles and language proficiency. A third example was the intersection that occurred between surveillance and individualism, as individuals may modify their behaviours due to the monitoring system built into the online learning platform. A fourth example is that there was also an intersection between individualism and totalization. This happened when individuals were categorising and defining themselves, they were also trying to fit into larger systems or groups. Fifth, regulations and surveillance techniques also appeared together in the data. This is when the teacher tracks learners' activities, personal information, and grades using the online surveillance system in order to mentor their performance. Finally, normalisation and surveillance occur simultaneously in the data. This is when learners monitor each other's activities and participation in online social spaces such as chat and discussion boards as these tools are showcased to the entire class; some participants explained that they were sometimes hesitant to share their opinions or express doubts about a topic because the whole class and the teacher would judge them.

Third, the analysis unveiled that power relations affect the production of knowledge, both negatively and positively. For example, when regulations (standards) are imposed, the discussion quality increases; thereby, the process of knowledge construction is enhanced. That is, creating organised and controlled conditions allows for thorough testing and improvement of ideas, resulting in improving the

clarity and depth of the discussions. On the other hand, some cultural norms and exclusion appear to hinder critical thinking and complex debate. This is consistent with Foucault's (1980) ideas about the relationship between power, knowledge, and discourse. Foucault suggests that these elements are interdependent, each shaping and being shaped by the others.

In the section that follows, I outline the main themes of the findings and the related sub-themes. All of which were developed after a careful analysis of the dataset. Participants' voices and experiences will be highlighted throughout this section along with direct quotes, to maintain an authentic representation of the data. During the analysis, data saturation was reached when no new insights or themes emerged. Further explanation of how the data analysis was conducted is explained in Chapter 4, the Methodology.

6.2 Power Relations Techniques

6.2.1 Surveillance

Surveillance means the act of inspecting, monitoring, and controlling in which an individual is paying close attention to others' behaviours and is also aware of the fact that he or she is being observed by others (Gore, 1995). Surveillance is a central concept in Foucault's theory of power relations. However, Foucault viewed surveillance as a productive power rather than oppressive as it leads to behaviour modification and produces knowledge (Foucault, 1975; Foucault, 1983).

The inductive analysis of the interviews revealed that participants practiced several surveillance strategies while interacting with each other. These are: (a) Checking others' intellectual activities and messages, (b) Searching for others' backgrounds and personal information, and (c) Displaying one's personal information.

In what follows, I present excerpts from participant interviews to illustrate these behaviours.

6.2.1.1 Checking Others' Intellectual Activities and Posts

This strategy suggests that participants were observing and actively reviewing their peers' academic contributions by reading and evaluating their posts in the online learning forum. Here is an example from Nawal (G.1) as she asserts that she regularly checks what Hend, her classmate, posts in the discussion forum. She views Hend's discussions as inspirational, motivating her to engage in deeper discussions. Below is an excerpt from Nawal's interview.:

"The Researcher: Do you often gain insights from your classmates' discussions?

Nawal: Not always, but I was particularly compelled by Hend's discussions. Whenever there is an announcement about a new discussion, I eagerly head to her input first. Across all discussions, the way she articulates and states her opinion impresses me. It's evident that she has a deep understanding of what she writes about. Her thoughts not only inspired me but also provoked new questions and perspectives. Sometimes, a single idea she presents triggers a whole new line of thought for me..."

In this quote, Nawal describes how Hend's posts were a source of inspiration and influenced her writing. This impact can be attributed to Hend's distinctive writing

skills, which set her apart from her peers. The quality of Hend's writing offered a certain influence over Nawal, who closely followed Hend's work. As a result, Nawal was able to learn from Hend's posts and draw inspiration from them. According to Foucault (1983), every power relation is generated by differences and, at the same time, is produced by these differences. These differences could be generated by economic, linguistic, cultural, and skill factors that induce individuals to exercise power over others. In Hend's case here, she gained her power through her excellence in writing skills.

Meanwhile, Hend wants to maintain high performance in the writing space because contributing to the writing space is graded. By maintaining a high performance in writing, Hend achieves her own goal of obtaining a high score on this course assignment. Although she was not realising it, Hend was gaining power over her colleagues.

The power relation between Nawal and Hend was supported by the online learning system, which allows peer-to-peer observation as students read, compare, and comment on each other's contributions. This power dynamic between the two is productive as it produces high-quality work. Albrechtslund (2008) argued that surveillance in the context of online social networking is mostly a reciprocal behaviour between users. He claimed that this form of surveillance is productive as it influences individual empowerment, identity construction, and knowledge sharing.

Another example is what Maha (G.1) expressed in the interview as she looked for classmates who had not fulfilled the requirement of answering the discussion

question and privately alerted them that they should speed up their response to meet the deadline. Here are Maha's words:

"The Researcher: So, do you feel different from your classmates in this regard (I meant the discussion capabilities)?

Maha: Well, there is a difference...

The Researcher: In what way?

Maha: Well, there is a difference between me and most of the class. I always complete tasks on time. Most of the class tend to procrastinate and only write just before the deadline... I usually alert other students to hurry up and participate in the discussion before the deadline passed."

It is also shown in the previous quote that Maha's behaviour resulted from her sense of distinctiveness as she implied that she is time-conscious as she accomplishes her task ahead of time. This feeling of difference gave Maha a sense of power that she imposed on her classmates. This confirms what Foucault (1983) said about the system of differentiation, that is, difference gives power to its owners. Maha's sense of power along with the panopticon effect that is brought by the online learning platforms, as shown in the example, allowed her to monitor her classmates as she stated that she checked on her classmates' activities to make sure that they participated in the writing space. She then alerted those who had not participated yet.

This quote also shows a power relations technique of classification which I will illustrate in the classification section.

A third example is from Renad (G.3). She also showed how she benefited from observing her peers' work through the shared online discussion platform.

"The researcher: In your opinion, which of your classmates excelled in class, and whom did you find particularly beneficial to learn from?"

Renad: At first, I noticed Ariam because she was clear and brief. She could explain everything in just two lines. Faaten was also great with words. Even if her ideas weren't always about the topic, they still made sense. Additionally, Jamila and Fadwa, being teachers, always knew the right things to write.

The researcher: I see.

Renad: Jamila and Fadwa always wrote the right things. They understood questions better than anyone, especially since they were teachers. They knew how to make things clear and brief. Some people can summarize without really getting the question, while others answer without understanding it. But Jamila and Fadwa did both well in their answers. After reading their posts, I'd check Ariam's page because she was good at explaining things shortly. Then, I'd look at Faaten for her good choice of words."

In this quote, Renad illustrated her learning experience through the online discussion platform. Her approach to observing and learning from her peers, such as Ariam, Faaten, Jamila, and Fadwa, who each possess distinctive qualities (for example, briefness, mental clarity, and word selection), demonstrates how peer surveillance can improve engagement with the course materials. By observing her classmates' writing processes and styles, Renad was able to get insight and ideas for her own work. The online environment facilitates different exposure since learners have more possibilities to view and contemplate one another's input, a situation that may be less possible in face-to-face classroom settings.

This surveillance system provides an opportunity for immediate feedback, either directly from peers or implicitly, through observing others' contributions. This can lead to a cycle of self-improvement, where students adjust their approach based on what they observe and learn from others. In fact, Renad explicitly acknowledges that participating in the online discussion forum enhanced her comprehension and writing skills. Here are Renad's words:

"The researcher: Renad, by the end of the course, do you think that participating in these online discussions has fostered the development of additional skills in you? I'm referring to skills that were not directly linked to the course material—perhaps unintended skills. What do you think?"

Renad: Absolutely, particularly in terms of expression and writing. Honestly, I've greatly improved in this area. In the next semester, when discussions are presented to us, God willing, I already know what to do. I know what to write, I know what words to use. I've also noticed that my vocabulary and terminology have evolved subconsciously."

Renad's acknowledgment of her writing and terminology developing unconsciously is a crucial element of acquiring knowledge via observation. It demonstrates that consistent exposure to diverse styles and ideas within an observable setting may result in acquiring new skills or constructing new knowledge.

Renad's words are crucial since she expressed dissatisfaction with the challenges that she faced in the beginning; challenges regarding writing in the discussion forum due to her background and learning experience.

"Renad: My major is Mathematics, so my ability to express myself is quite limited. For four years, our focus was entirely on numbers, with little to no writing or verbal expression involved. This made it challenging for me to

express my thoughts clearly, structure them coherently, or even decide what to write about... The language we commonly used focused on terms like 'prove' and 'demonstrate.' These were primarily mathematical terms, lacking in expressive or descriptive language. So, writing mistakes was the biggest problem for me."

Renad's early challenge in articulating her thoughts—stemming from her mathematical background and her subsequent progress—underscores the potential of online platforms to provide an alternative, and more liberating, environment for self-expression in contrast to conventional in-person education.

In the educational context, instructors and peers often participate in observation and assessment, a situation that may impact students' behaviour and their approach to learning. Hence, surveillance in educational environments serves not just as a means of exerting control, but also as a mechanism via which people may alter their behaviour due to their awareness of being watched.

In the context of online education, this awareness could potentially motivate students to actively and comprehensively participate in their learning, given that their participation is apparent to both instructors and fellow students. Additionally, it might also promote collaboration based on how students react to being monitored.

Another example of Marwah (G.2) indicates that online discussions are beneficial learning tools as they enable learners to be exposed to everybody's opinions in the class. Here are quotes from Marwah's interview:

“The researcher: ok, well, Marwah, the last question—do you think online discussions are important in online classes? I mean, do you think they should be an integral part of online classes?”

Marwah: Yes, very... very much.

The researcher: Why is that?

Marwah: Ah, because they enrich you—they foster critical thinking, broaden your horizons, and introduce you to the opinions of others, training you to accept diverse viewpoints... you learn to embrace others' perspectives and deepen your understanding... They enable you to understand the viewpoints of your peers in the course without directly interacting with them.”

In this quote, Marwah pointed out, although not directly, the surveillance features of online discussion platforms that enable her to view all her classmates' contributions and points of view in a very convenient way, a situation that enriches her learning experience.

Although being exposed to different points of view might be advantageous for learners in this setting, studies such as Robson (2015) indicate that online participants often experience unease when participating in online discussions and offering critiques of their colleagues' viewpoints. Their objective is to minimise the possibility of online conflict being linked to their identities, since this may potentially lead to complications in their future online engagements or wider professional endeavours.

6.2.1.2 Displaying One's Personal Information

The participants revealed personal information, including their interests and educational and work backgrounds, as part of the answer to a question posted by the teacher in the discussion forum at the beginning of the semester. Initially, before the discussions began, the teacher wanted to know her students better and also to create an intimate environment among them. Because sharing personal information with the public on the internet and social media programs is considered to be a universally accepted behaviour, the students responded well to the question, and each shared personal information about themselves. Nevertheless, participants vary in the degree of openness. Some were transparent, providing extensive details about themselves, others were more reserved. In the interview, I asked participants about their contribution to this and to what extent they were open. Below are some examples from the participants' answers. For example, Jamila (G.3) hesitated to answer the question, possibly because it was early in the course and she was not yet familiar with her classmates. Additionally, she was concerned about how the teacher would perceive her response and the teacher's presence in the discussion. Here is a quote from Jamila's interview:

"The researcher: OK, Jamila, there was a question in the first forum asking everyone to write about themselves, the 'Introduce Me' forum. To what extent were you transparent when writing about yourself? I mean, did you say everything or did you choose specific information?"

Jamila: Honestly, I chose specific information.

The researcher: Hmm... Why is that?

Jamila: I don't know. Maybe at the beginning, I was apprehensive. There might be things that might not interest the rest of the class (laughs), or why should they know certain things

about me? So, I wrote simple things like where I study, my specialisation, and stuff like that. I did not go into much detail.

The researcher: While making that post and writing about yourself, were you thinking about the class or about the professor?

Jamila: I wasn't thinking about anyone (laughs). I was thinking about myself, about how I wanted people to see me.

The researcher: Everyone, you mean...

Jamila: Yes, or how I wanted people to know me, like my name, my specialisation, my hobbies, what I like to do, and so on. That's what I touched upon.

The researcher: Hmm... I noticed that the girls varied; some elaborated a lot, while others were very reserved. That's why I asked you this question.

Jamila: Yes, I was reserved maybe because I was anxious at the beginning. Maybe if I could go back to the start now, I would be more elaborate. But initially, I was afraid that the professor might not want me to write certain things and then later ask me why I wrote all that, saying it wasn't necessary."

This excerpt showed evidence that Jamila's contribution to the 'Introduce Me²' forum is affected by both explicit and implicit forms of surveillance. She carefully chooses and presents what she thinks is acceptable to be displayed. Even though she claimed that she wasn't thinking about anyone specifically, her concern about sharing too much or too little indicates that she was aware of being watched and assessed by others in the forum. What Jamila implied when she said that she was thinking about how she wanted to be seen by everyone is that she was aware of how

² **Introduce Me** is a forum that is intended to give learners space to write about themselves and introduce themselves to the rest of the class.

her classmates would view her based on the information she provided about herself. This exhibits a power relations dynamic between the learners in the online forum. In addition, Jamila's wariness about her instructor's evaluation indicates a form of surveillance imposed by the instructor on the learners. Jamila's actions and motives are influenced by the power dynamics present in this context by the instructor, a panopticon effect. This observation fully aligns with Foucault's (1977) claims that said that those in positions of authority (such as the professor in this scenario) have the ability to influence behaviour and indirectly guide reactions. Here is Foucault's words:

"The success of disciplinary power derives no doubt from the use of simple instruments: hierarchical observation, normalising judgement, and their combination in a procedure that is specific to it, the examination (p.170)".

Another example of this second theme of surveillance is the example by Renad (G.3):

"The researcher: Okay, Renad, regarding the 'Introduce Me' question that you mentioned several times, to what extent were you transparent about yourself?

Renad: I talked about myself to the point where I later regretted it. I felt that I had shared too much about myself. Especially when I saw how other girls were just touching it, I wondered why I went to such an extent. Perhaps I misunderstood the question since it was my first time to online learning. Maybe something like that.

The researcher: All right, did it accurately represent you? I mean, was it the true Renad, or were you not entirely transparent?

Renad: No, I was very transparent. It did represent me, but I felt obligated to adhere more to the concept I wrote because I felt my answer had to be correct. Why should I write this if that's not truly who I am!!! I am aware that the professor will see what I

wrote, and if I wrote something that is not true, the professor will wonder why I wrote it...My perspective was as if I was writing to someone I knew... that's why I regretted it later."

In this script, Renad expressed her dissatisfaction with the fact that she shared much information about herself, which indicates that sharing personal information and self-presentation constitutes indirect pressure in online environments. Individual's sense of what is private and what is public tends to blur on digital platforms because digital platforms often urge users to reveal more about themselves (Waldman, 2020; Krasnova et al., 2010). Renad's regret shows evidence of self-surveillance as she was thinking about her online presence and the possible consequences of her openness. Her struggle between having to propose a certain image of herself (such as being a qualified student) and being open and honest highlights a major issue with online platforms. Similar to the previous example, this example also represents Foucault's (1977) argument about disciplinary power and the panopticon effect (p.249).

This script from Renad does not only reflect surveillance influence but also reflects techniques of normalisation, as Renad's comparison of her response to her classmates' responses made her feel that she revealed more than she should have. This indicates Renad's feeling of the importance of coping with the norms and societal standards that her classmate showed.

6.2.1.3 Searching for Others' Backgrounds and Personal Information

This sub-theme suggests that participants within online learning forums might actively look up or investigate the backgrounds and personal information of their peers that are displayed to the public, whether within the online learning system or outside the system, like in social media. Although this sub-theme was not common among participants, the analysis showed that two of the participants acknowledged using this technique while interacting with others. Here is an example from Faaten (G.3):

“The researcher: Is there anyone among your peers who catches your attention during discussions?”

Faaten: Yes, there is—Renad. I am always eager to read her posts, even though sometimes she writes every thought without filtering. Mashallah, she writes a lot. She's someone who thinks outside the box, providing unexpected answers. And since I often analyse my classmates' personalities, I sensed that Renad thinks outside the box from the first time I read her contributions... She even said that in the 'Introduce Me' forum...she wrote quite extensively about herself, consistent with her discussion style... She is quite transparent. Even there, I was right about my perception of her.

The researcher: Haha, yes, I get you. So, given that you read posts in the 'Introduce Me' forum have your discussions with the other classmates sparked enough curiosity to make you want to know them more? Have you, for example, checked their social media, seeing if they have accounts, or possibly researched them?

Faaten: Ah, no, I genuinely don't have the time to search, ha-ha.”

In this quotation, Faaten demonstrates that surveillance as a technique of power relations was evident in her interactions with her peers at the forum, specifically by closely monitoring and thereafter evaluating her colleague Renad's comments on the discussion board. Faaten pays close attention to Renad's posts, noticing her distinctive, unfiltered writing style and her tendency to think outside the box. She not

only observes but also analyses Renad's writing, forming a perception of her personality and thinking patterns. Faaten's attention to Renad's way of writing indicates a form of surveillance.

In addition, Faaten actively goes to another forum, the 'Introduce Me' forum, to learn more about Renad's background and potentially confirm her assumptions about Renad. This intentional seeking of additional information to validate or understand more about a person is a type of surveillance behaviour where information gathered from one context is verified in another context (Newell, 2023; Frampton and Fox, 2021).

This surveillance behaviour was not negative as it aids Faaten in her social interactions and engagements in the discussions. It helps Faaten in self-reflection and comparison that will potentially regulate her own behaviour.

6.2.1.4 Engaging in Corrective Training

This sub-theme shows that participants engaged in direct corrective comments to those who violated online discussion norms, whether in private messages or publicly on the forum. Here is an example from Maha (G.1):

"The Researcher: Have you ever written something wrong, and someone corrected you? How did you feel about it?"

Maha: Yes, one of my classmates told me that I understood the question wrong. I was happy that she alerted me; I mean, I am here to learn.

The Researcher: OK, have you ever encountered an opposite situation in which you noticed a mistake made by one of your classmates and alerted or corrected her?"

Maha: Yes, many times.

The Researcher: Do you think that correcting each other's mistakes is important in discussions?

Maha: Very important. What is the point of discussions at all if we do not point out some of our mistakes?

The Researcher: Do you do this in private or in public?

Maha: In public, so that everyone benefits.

The Researcher: Do you do this with all students, regardless of their personalities?

Maha: Yes, because this is something related to studying and it will benefit everyone, including me, not just the girl who made a mistake, but the whole class benefits from the discussion about mistakes. Nevertheless, some girls don't like to change, no matter how much you convince them to."

In this quote, Maha (G.1) stated that she preferred to make her corrective comments in public. She believed that corrective comments should be public so that everyone could see them and benefit from the correction. In doing so, Maha was trying to reinforce a norm among her classmates that she feels is necessary and correct. Maha's behaviour was supported by the surveillance system in online platforms, which enabled Maha to observe and evaluate her classmates' contributions to the forums. This reflects a form of power relations that learners in this environment may impose on each other.

Hend (G.1) also stressed the importance of alerting each other to the mistakes they made. However, she preferred to send her classmates private messages with corrective replies when they made mistakes or violated the norms instead of doing this publicly. She explained that she did not want to humiliate her classmates in public. Here is an excerpt from Hend's (G.1) interview:

“Researcher: Ok. Do you think that it is important, in online discussions, to tell your classmates about their mistakes or correct them?”

Hend: Actually, I appreciate it when someone corrects my mistakes.

Researcher: Have you had a similar experience?

Hend: Yes, a student came to me and told me that the example I used was wrong.

Researcher: How did you feel about it?

Hend: I thanked her.

Researcher: Okay. Do you like the corrective comments to be public or private?

Hend: I prefer it to be private.

Researcher: Why?

Hend: to avoid embarrassment in front of the whole group.”

When people engage in corrective behaviour, like in Hend's example, they monitor each other's work to spot and correct mistakes. This surveillance process was explained by Foucault (1977, pp.170-177) in his book "Discipline and Punish". He explored the concept of hierarchical observation as a mechanism of power within various disciplinary institutions like the military, schools, hospitals, and factories. Foucault describes how the architecture of these institutions plays a crucial role in exercising control and surveillance over individuals. He claims that in many systems, surveillance mechanisms are structured in such a way that everyone within the hierarchy is both observing others and being observed. Thus, the structure is designed to maximise visibility and minimise private spaces, which increases the power to monitor and control behaviour. Extending these concepts into the digital age, online platforms represent a modern version of Foucault's surveillance principles, enabling omnipresent observation in those virtual spaces (Marwick, 2012; Albrechtslund, 2008). This system of surveillance in online platforms creates a

network of control, which he calls disciplinary power, that shapes behaviour and thought in deep but indirect ways.

6.2.2 Classification

Classification means distinguishing one individual from another, categorising others, and categorising oneself (Gore, 1995). According to this definition, the practice of classification lies at the heart of the educational system structure, where there are always teachers in one category and students in another, and between these two categories, there are multiple power relations. This applies to both traditional face-to-face educational systems and online educational systems. Although many differences may distinguish students from one another and place them in certain ethnic, religious, or economic categories, it seems that the common distinguishing classification made between students is related to their academic level: the good students and the weak students.

In the data below, the classification practiced among students was related to their academic performance. Learners were classified as good students or poor students. In addition, they were categorised as experienced and inexperienced learners. These classifications were made by the students as they classified themselves and others. Here are some examples of classification as occurred in the data:

Maha (G.1) pointed out her role in motivating others and correcting their mistakes. Maha's words in this regard served to emphasise that she was significantly contributing to others' learning processes. Hence, Maha was classifying herself as a

good student and others as poor learners by making a simple reference to their contribution to the discussion forum. Here is a script of the interview with Maha:

“The Researcher: Did the discussions help you get to know your peers? I mean, did they play a role in your relationship with the rest of the class?”

Maha: Honestly, no. Because some of them just write a day before the deadline and that's it; their personality doesn't show through, it's just about fulfilling an obligation...Some girls act as if they're forced into graduate studies, and I keep repeating, "We came here by choice, wanting to learn, and we'll reap the fruits of our hard work later, God willing." Perhaps some of them need someone to point it out to them. People's levels of awareness differ, and there are those who need to be told about the benefits of learning. They might feel pressured everywhere, but it's not about pressure. Everything has a specific purpose.”

Based on Maha's talk, she is evidently classifying her classmates according to their level of engagement in learning and sincerity. She distinguishes between students like her, who are serious, prompt, and dedicated, and others who treat assignments as obligations. Her affirmative voice shows how she sees her approach as the “correct” or “useful” approach, which indicates a certain motivation or internal drive to learn. This behaviour is a form of power relations that Maha imposes on her classmates, although the relationship between them is horizontal. Maha’s feeling of superiority makes her act as if the relationship is hierarchical.

Another example of classification is the case of Nawal (G.1) as she also classified herself as an experienced student and her classmates as non-experienced. Here are excerpts from Nawal’s interview:

“The researcher: How do you feel about your experience discussing topics in this course compared to others?”

Nawal: Well, having worked in journalism as an editor, I feel I understand certain aspects more than anyone in the class. That does not mean I think better than them. For instance, during our 'Digital Leadership' lecture discussion, they presented good ideas, some even better than mine. Perhaps my understanding stems from my experience and exposure to various situations, which helped me polish my discussion techniques and writing skills. They might not have this experience. Yet, we all have our unique ideas, and as I've said, some of theirs might even surpass mine. Even with their limited experience in writing and discussion, they have showcased many intriguing thoughts."

Nawal here classified herself as an expert and her colleagues as non-experts because she sees herself as different in terms of the skills that she acquired through her practical experience as a journalist. As this classification relates to the student's capabilities and skills in a course setting, it impacts how they interact directly. This was evident when Nawal said: *"Well, maybe sometimes. I mean, when I read the girls' posts, I can't help but think how different it would sound if they just rephrased it"*. Here, Nawal distinguishes between her writing abilities and those of her classmates, indicating differences in their writing skills. Such distinctions could slightly establish power dynamics within the class.

Nevertheless, Nawal also recognises and appreciates the capabilities and potential of her colleagues. Therefore, Nawal's classification is not strictly hierarchical; she doesn't place herself above her peers. She recognises that despite what she perceives as their "limited experience in writing and discussion", they have unique insights that may even surpass her own. Thus, Nawal's classification is a form of hidden power relations.

Here is also another example of classification from Jamila (G.3):

"The researcher: Okay, so you told me that you like Israa's writings, right? Or that you like to interact with her?"

Jamila: Israa and Faaten.

The researcher: Israa and Faaten... Yes... Describe to me what distinguishes their writings. Why do you like reading their works?"

Jamila: Well, I feel that Israa is receptive. I sense that she understands and accepts different perspectives. She has a broad understanding, I mean, she seems well-informed. That's why I like reading what she writes. As for Faaten, I felt that she has a similar personality to mine, or at least close to mine. That's why I came to like reading what she writes, and she became, let's say, a friend of mine. But the friendship only formed after, let's say... when we sat and chatted... We have things in common. I like to be around people with whom I share common interests".

This excerpt showed how Jamila classifies her classmates, Israa and Faaten, based on their qualities. She described Israa as "receptive" and possessing a "broad understanding." She perceives Israa as being well-informed, which sets Israa apart from the rest of the class in Jamila's eyes. Faaten, on the other hand, is classified based on personal affinity. Jamila feels that Faaten has a personality similar to hers, and they share common interests. These factors not only influence Jamila's preference to read Faaten's writings but also lead to the formation of a friendship. Such classifications, while serving as an aid to facilitate interaction, also reflect broader power dynamics and group relations in the learning environment.

Lastly, here is an example of classification from Farah's interview (G.2):

"The Researcher: Alright, what I mean is, did the discussions help you get to know your classmates?"

Farah: It helped me understand their way and style of discussing. For instance, as I told you, I knew Marwa through her discussions. She's a well-read and informed person because she enriches the discussion with her answers. She doesn't just answer with a line or merely address the posed question; she provides references and cites where she got the information from. She even shares links. I really benefit from her posts... Through the discussions, I understood who really grasps what's being discussed and who's there to showcase their strength and knowledge. I also understood who's just there to earn marks; I mean, who's genuinely there to contribute and learn and who's just aiming to get grades... Honestly, I prefer someone who shows they understand... Everyone loves marks, no one likes to lose them. But if you gave me a choice between discussing with someone without getting grades or getting grades without a discussion? I'd say no, I'd rather discuss without getting grades. I love discussions."

There are several layers of classification evident in Farah's response:

Within the discussion participants, Farah distinguishes two distinct groups: those who are genuinely interested in contributing and learning, and those who are primarily provoked by grades. For example, Marwah, who was categorised with the first group, was described as someone who has a high level of knowledge and awareness, as seen by her extensive and insightful contributions to many discussions. Another learner, not named by Farah, who was characterised in the second group, seems to engage only for the sake of getting a grade without any genuine contribution. Farah's words indirectly indicate that she does not respect those who take discussions superficially just to get grades. On the contrary, she greatly respects those who provide thoughtful posts that bring new points of view to discussions. By emphasising the importance of discussing instead of only focusing on academic rewards, Farah not only classifies her classmates, but she differentiates herself from other students, too.

Farah's ability to critically assess her peers' participation suggests she might have prior experience or exposure to discussions or a certain level of expertise in the subject matter. This was clearly stated by Farah in the interview when she said:

“The Researcher: Do you choose the people you discuss with?”

Farah: Yes, when a discussion starts in online discussions, I look at the girls' answers and when I ask, I know what the response will be. For instance, if I ask Marwah, I know she'll provide a rich answer, so I must figure out what I don't understand. Honestly, she enriches the discussion. Suha is the same; she gives me a proper answer. But with Hana, I need to ask her a clear question, because she'll later come and ask me why I asked that, urging me to pose a clear, comprehensible question. So, I don't want to embarrass her and I ensure my question is clear so she can answer it.”

As shown in this quote, Farah has a sharp perspective on participation in discussions. She evaluates her peers' contributions and intentions, classifying them into categories based on depth, genuineness, and incentive.

What has been discussed in these examples is consistent with the Foucauldian concept of categorization, which says that power relations, identities, and norms are established within a specific environment (for example, an educational context) via a system of differentiations.

Foucault (1982, p.792) stated that:

“The system of differentiations which permits one to act upon the actions of others: differentiations determined by the law or by traditions of status and privilege; economic differences in the appropriation of riches and goods, shifts in the processes of production, linguistic or

cultural differences, differences in know-how and competence, and so forth. Every relationship of power puts into operation differentiations which are at the same time its conditions and its results.”

Throughout this quote, Foucault highlighted the significance of societal differentiation in shaping power structure. These differences may be attributed to legal frameworks, cultural norms, economic inequalities, linguistic and cultural diversity, or differences in expertise and knowledge. They serve as the foundation for individuals or collectives to exercise power or authority over one another and they are both the starting point and result of power dynamics. In the examples provided, the differences were attributed to the knowledge and expertise or, as Foucault describes them, “*differences in know-how and competence*” of some learners over others.

It is also important to say that the surveillance system in the e-learning management system facilitated the ease of the classification process because it allowed the students to compare their behaviour and performance with each other and then draw their own conclusions. Examination of these classification practices among students helps identify learning problems that result from categorisation, thus producing new knowledge about effective learning conditions. In this regard, Gore (1995, p.175) stated that “Examining micro-practices of classification may identify spaces in which to intervene in these problems.”

6.2.3 Normalisation

According to Gore (1995), normalisation is the process of enforcing, mandating, upholding, or adhering to particular standards. Social norms are a collection of

standards and behaviours that societies adhere to and embrace (Foucault, 1977, p.184; Lahno, 2009). Normalisation, in this sense, serves to enforce and validate these standards.

Based on this definition, the analysis of the interview transcripts unveiled several incidents of normalisation that are related to what is considered acceptable behaviours in Saudi culture and what is considered the norm in the educational system.

6.2.3.1 Cultural and Societal Norms

In Saudi culture, traits such as thoughtfulness and helpfulness are considered norms. As such, participants follow these norms in many of their interactions. Therefore, asking tricky and complex questions can be considered a violation of these norms. Following is an example of Farah (G.2):

"Farah: Yes, I mean, I don't like it when there's tension between me and another person on a topic, leading to a strained relationship, especially in class. I don't appreciate that."

The researcher: Can discussions lead to this?

Farah: They might, especially if someone's approach isn't good, or if it's abrasive, or, let's say, if they're not tactful. This can cause sensitivities and issues, especially since not everyone is receptive to criticism. Not everyone is open to it. For example, I'm okay if someone criticizes me, I don't have a problem with it. But some people aren't... Personalities differ, so responses can vary."

Farah's difficulty with tension and preference for avoiding unpleasant interactions suggest her adherence to a societal norm that values harmony over confrontation,

particularly in Saudi culture. Farah's praise for a good, non-rude, and polite tone in discussions represents some expectations about communication styles. While Farah accepts criticism personally, she admits that this is not a common attitude among people because individuals' personalities differ. From this script, we can conclude that there may be unspoken rules regarding how people should interact in discussions, but in practice, individuals' behaviour might challenge these assumptions.

Here is another example from Fadwa (G.3):

"The researcher: What were your expectations when the instructors first told you about the online discussions?"

Fadwa: It's just, as I told you, from the first time we were told that we have a discussion forum and it would be a requirement, the first thing we thought about was the sensitivity between us... This is the first thing... so we told each other it is only a discussion and no one should be upset about this... I mean, we told each other that we are beginners and that this is something that has to be evaluated, and we are forced to do it. I mean, that's it.

The researcher: What exactly were you afraid of?

Fadwa: we were concerned about our reactions. There's a term in Arabic, "Tahjeer"³ This is what we were afraid of. I remember one incident related to that, when I read a post for this one girl about Open-Source Learning and the Role of YouTube. I had many questions, so I asked her these questions about her post. She texted me then asking why I had approached her with this large number of questions. I immediately

³ Tahjeer means making someone feel trapped or pressured in a discussion.

apologised..Notice that this happened even though our instructor commented positively on our discussion, noting its depth.

The researcher: were you really sorry for asking such questions?

Fadwa: Yes, I felt she might have been overwhelmed by my questions. I was simply curious, wanting a detailed discussion on why YouTube is often chosen as a primary source for open resources.

The researcher: Did she accept your apologies?

Fadwa: She made a light comment, saying she was just glad the topic was YouTube and not something else (more complex).

The researcher: Aha, okay. Does this reaction make you a little more cautious in the next discussion?

Fadwa: Oh, I don't know... but it is... I expect it is possible... according to the people I will face later, and after what I told you, if we are not limited to something like an academic field or something that requires evaluation or grades, I expect I will be more comfortable in the discussion, so I won't worry about asking any questions because they do not affect anyone."

Fadwa's need to apologise for her excessive inquiry suggests that there is an unspoken standard for the acceptable level of curiosity in a discussion. Given the context of Saudi Arabia and its traditional emphasis on sensitivity to others and respect, especially among females, it is clear that cultural norms play a role in this normalisation process. Participants in these discussions follow a collective understanding of how women interact in this community (the Saudi community). Fadwa's use of the term (Tahjeer) is a good example of this social norm. The act of Tahjeer here refers to making someone look less intelligent by asking difficult or complicated questions. The fear of the (Tahjeer) here appears to be the standard or

social norm that was transferred to the classrooms and affected the depth and quality of discussions. The normalisation process here determines the acceptable behaviour or norms within the group, and deviations from this norm can lead to a feeling of discomfort or the need to correct the situation, or in the worst case, exclusion and criticism, and this seemed clear from Fadwa's colleague's response to her. By saying, *"I was just glad the topic was YouTube and not something else (more complex)"*, this classmate implies that she does not want Fadwa to ask her such questions again. Because of this, Fadwa is more careful about what she asks in the online discussions in the future.

Here is also an example from Hana (G.2):

"Hana: There's a girl in our group—I won't name names—but she really struggles to grasp concepts. She constantly asks me to explain things, like what the professor meant by various points.

The Researcher: Do you think the discussions were challenging for her?

Hana: Definitely. She often comes to me unsure about how to respond to the questions, saying things like, "Everyone answered like this, so what should I say?" I advise her to read the question carefully, formulate her own answer, and then compare it to ours to understand the different perspectives. She even asks me, "So, Hana, what should I be asking you?" I tell her that's not the right approach; she needs to focus on understanding the material herself. It's not just about the grades. Even if she makes mistakes, the professors won't penalize her. They're more interested in whether we understand the material or not."

In this quote from Hana's interview, the girl seems to expect that her classmates, especially Hana, will provide her with assistance when she struggles. This expectation reflects a belief in a supportive educational environment where peers

help each other understand complex material. Saudi culture, which is traditionally a collective, can be attributed to this.

The girl's reliance on Hana for explanations and validation of her answers points to a dynamic where Hana is seen not just as a peer but as a mentor or leader due to her qualifications. In Saudi culture, there is a strong respect for authority figures, such as teachers, and often for those who are perceived as more knowledgeable or competent. This could explain why the girl frequently turns to Hana for guidance, viewing her as an authoritative figure within their peer context.

6.2.3.2 Educational System Norms

The participants reiterated that they were unaccustomed to engaging in discussions during online courses. When asked about their prior experiences with online discussions, they explained that typically, their only requirement was to respond directly to the teacher's questions, not to interact with each other. As a result, they were not used to having discussions. Moreover, the discussions that did occur tended to involve only simple, superficial questions. Here are some quotes from participants across the three groups:

Maha (G.1): *"I assumed that discussions are all about answering simple questions similar to those in the face-to-face setting".*

Nawal (G.1): *"I wish in the future there would be more in-depth discussions in schools and not just universities. I feel that in school, it would be the most optimal time for discussion because it allows the teacher to understand his/her students more. It would make the teacher get a grasp on how the next generation thinks".*

Farah (G.2): *"Most discussions depended on the text itself, and we were only required to copy and paste what was in the books. It did not really add any value".*

Ranad (G.3): *"Honestly, most of us don't know the basics of expression or how to write, so we end up quoting someone else's words...if they had used discussions with us at a younger age, all students would have been able to express themselves".*

Fadwa (G.3): *"Well, I have experience teaching online, but my role was limited to delivering lessons. I didn't engage in much communication beyond that, such as discussions or dialogues. This kind of practice never happened in my teaching not even when I was a student".*

These quotes reflect an educational system that prioritises memorisation over critical thinking. They also reveal participants' frustration with this norm and their sense of pressure to conform to a top-down power structure. Despite this, there is a desire among them for the chance to engage in a more open learning environment.

Another example of normalisation that reflects both the cultural and the educational norms altogether can also be seen in Jamila's (G.3) words here:

"Jamila: We are not used to discussion in any educational settings... I mean, since when do we discuss anything with anyone? For instance, in schools, high schools, and even universities, if you had a discussion, would you say to the people you are debating that their viewpoint is wrong and you're right? Some people are like that, especially if the discussion is face-to-face. Some people just can't handle face-to-face discussions. They're not used to it. When you challenge them, they might feel attacked; they aren't open to debate at all..."

The researcher: Why do you think that is?

Jamila: I feel that it's because of general culture. This culture has influenced us to the point where we stopped discussing. But now, I sense a shift. I feel that people's perceptions have changed significantly. Now, I believe I can engage in a discussion

with anyone, any student, whether they're undergraduate or otherwise. It's not like before; I sense a slight shift in the culture now."

In Jamila's text, normalisation is shown to be strongly rooted in educational practices that rely on rote learning and memorisation. These practices usually marginalise other forms of intellectual engagement, such as critical thinking and debate.

Totalizing educational practices into only one form of learning creates a standard or norm that students and teachers are expected to follow. Any violation of this convention will result in rejection or exclusion from the teacher and, subsequently, other students in the class. Therefore, the role of instructors, as actors in the educational system, in upholding these standards is crucial. This approach not only reflects but also enforces a power dynamic where the teacher is the authority, and the student is the passive recipient. Jamila seemed frustrated because she believed that the problem was rooted in society, in the culture of Saudi Arabia, in families and personal relationships. She believed that it was normal for it to be transferred to the classrooms.

When Foucault (1977, p.184) discussed normalisation and norms, he described their connection to punishment and how disciplinary power constructs societal norms, whether in schools, the military, hospitals, or other institutions. He suggests that, in a modern society, the norm has become a powerful tool, similar to the law or tradition. He argues that the establishment of teachers' training colleges represents an example of how the norm has become institutionalised. These institutions aimed to standardize the training of teachers and, consequently, the education system itself, promoting a uniform curriculum and teaching methods. This may explain why most

participants, despite their different backgrounds, underwent educational norms that consolidated memorisation.

As for societal norms, the role of punishment in establishing the social norm that discourages and disregards discussion might not have been explicitly demonstrated. Nevertheless, it is evident that punishment manifested itself in subtle, non-physical forms. Society quietly penalised those who deviated from its customs and traditions, using methods like disapproval, exclusion, or verbal lectures.

6.2.4 Exclusion

One of the power relations strategies that emerged in the study was the strategy of exclusion. According to Gore (1995), Foucault used the concept of exclusion to establish the boundaries that would determine differentiation, mark limitations, and create distinct areas of knowledge. Meaning that exclusion is a method that establishes and imposes boundaries between the normal and the abnormal. Gore (1995) indicated that the technique of exclusion is common in education and that in her research, she sought to identify areas of exclusion in educational settings as well as areas of resistance to these exclusionary techniques. In the current research, participants showed two forms of exclusion: exclusion from others and self-exclusion.

6.2.4.1 Exclusion from Others

Exclusion from others is evident in the study when a learner is deliberately avoided and neglected by one or more of her classmates during discussions.

Here is an example of exclusion from Jamila (G.3):

"The researcher: Have there been times when you sensed certain individuals were sensitive, aside from the girl you mentioned?"

Jamila: There were instances, at the beginning, with some girls where misunderstandings arose. It wasn't necessarily a major conflict, but a slight miscommunication which led to a slight distancing between us.

The researcher: I see. Does this situation affect discussions?

Jamila: Not really. I mean, I still contribute to their posts, but perhaps I tend to be a bit more careful.

The researcher: What do you mean about being careful?

Jamila: Well, what I meant is that while I don't shy away from responding to those individuals on the discussion boards, they tend to be my last option when deciding whom to engage with."

Jamila's script implies exclusion, even though it is implicit. Jamila's statement on "slight distancing" from specific classmates due to misunderstandings implies that she avoids including them in her discussions. This was evident in Jamila's statements about responding to those individuals as a "last option". This avoiding/ranking in interaction impacts the dynamics of discussion, which leads to a form of exclusion.

Here is another example of Nawal's (G.1) interview:

"The researcher: Have you ever corrected something for your classmates in the discussions? Or taught them something they were unaware of?"

Nawal: No, I don't remember doing that, but I feel my questions in the discussions make them a bit uncomfortable. There's a girl who, every time I ask her something

trying to interact with her in the discussion forum, comes to me in private and says, 'Give me your answer'. It makes me feel like my question is too difficult.

The researcher: Does she come to you in private or in public?

Nawal: She asked me privately if I could give her an answer to the question I posed to her...

The researcher: Did you feel embarrassed when she approached you in private?

Nawal: Yes, it was once or twice, but when I saw that, she kept asking, 'Nawal, what is this question? I don't know how to answer it', I felt like, 'Okay, why am I asking her? Just let it go; why embarrass her again'."

In this excerpt, Nawal stated that she began to avoid interacting with one student in the class after that student approached Nawal twice in private, inquiring about Nawal's comments on her posts. According to Nawal, she sensed that her comments to her classmates made her uncomfortable and led her to interact with Nawal privately, which eventually caused Nawal to distance herself. Nawal's choice to avoid discussion with this specific classmate in order to avoid additional embarrassment is an act of exclusion. Even though she was not completely eliminated from the forum, this avoidance from Nawal resulted in her being partially excluded from engaging with challenging and critical questions that could improve her learning.

According to Foucault (1983), the act of social exclusion is when societies respond to individuals who do not fit within normative boundaries. Foucault's work mainly examines the historical process through which certain groups are systematically marginalized and excluded from mainstream society. If we consider online discussion standards to be norms, then Foucault's idea of social exclusion can be

applied here. Nawal may see her classmate's behaviour as diverging from the standards set by the teacher.

The online forum was designed to foster a learning community in which each post contributes to collective knowledge, and all participants benefit from the questions asked and the answers provided. Therefore, every student is obligated to enrich the discussion via posts and messages that reflect critical thinking and problem-solving skills. With these points in mind, Nawal may consider that her friend, who sends her a private message seeking a quick answer, has violated the main objective of the online discussion, which is to be public for everyone to see, benefit from, and build upon. Thus, every person has a responsibility to enrich the discussion with deep, meaningful questions and comments, as the learning process here is more important than just getting a direct answer. This classmate's failure to comply with these generally accepted standards in online discussions may have given Nawal the impression that her classmate had departed from the established norms of online educational discussions, or that she was avoiding the standards by looking for shortcuts that guarantee the grade without real benefits. It seemed that this upset Nawal and made her feel frustrated, which eventually made her decide not to interact with this student in future discussions.

This excerpt also shows a hidden power dynamic between Nawal and her classmate. On the one hand, Nawal's critical and complex questions cause discomfort to her colleague. This indicates that by asking this type of question, Nawal can exercise a form of intellectual power; such a question challenges her peers to participate in high-level cognitive thinking. This is confirmed by the reaction

of her colleague, who, by communicating with Nawal to help her solve the question, implicitly acknowledges Nawal's position of power as a reliable source of knowledge.

The excerpt also illustrates the power relations of normalisation. Nawal feels embarrassed as she believes she has subjected her colleague to discomfort due to her inquiries. Despite not explicitly stating it, Nawal was unconsciously trying to avoid violating Saudi Arabia's dominant cultural norm of social relations. This norm places a strong emphasis on avoiding practices that could embarrass or make others feel incompetent. Her classmate, on the other hand, assumes that Nawal will help her get the right answer. This can also be attributed to Saudi culture, in which helping others is a social norm. If this power dynamic persists, the entire debate forum may change. Nawal may start to simplify her questions to avoid making others uncomfortable, which might make learning less challenging and possibly affect the knowledge-construction process. This was also noticed in the study of Sing and Khine (2006) where the authors found that the depth of interaction and knowledge construction are affected by social conditions. Participants avoided asking critical questions as they believed that it was a culturally inappropriate behaviour to ask tricky questions. This is because such questions may be perceived as confrontational.

Additionally, the classmate's desire for privacy might also be affected by the fact that the online forum is monitored. Considering the possibility of being seen by others, including the teacher, she may choose to avoid the public exposure of her questions. Additionally, this showed the effect of surveillance on learners' learning processes and interactions in online learning settings.

Here is another example from Fadwa (G.3):

“Fadwa: But I feel it's necessary to ask certain questions professionally... and you know, these things might be sensitive for some, according to what people say. That's my viewpoint; I see it that way.

The researcher: Who among the girls in your class do you think could have been sensitive to this?

Fadwa: Well... for instance, my very good friend Jamila, I wouldn't get into lengthy discussions with her because she's my friend, ha-ha.

The researcher: Really? I would have thought it'd be the opposite.

Fadwa: No, it's possible that she might take it personally. You know how they say, she might feel as if I'm cornering her or implying that she doesn't know how to respond... One can't help but think about such questions... So, I try with those I'm merely colleagues with. I find more comfort there compared to asking a friend.

The researcher: Aha, so the closer the relationship...

Fadwa: The stronger it is, the more embarrassing it gets. Even though it's not professional, I believe that's not professional... but that's how I felt at the time.

The researcher: It's okay, these things happen...

Fadwa: To be honest, I would avoid doing that with her. I wouldn't ask her difficult questions, nor would I try to engage in a debate or discuss a particularly controversial point with her.”

This script shows how Fadwa chose not to engage deeply in the discussion with her close friend, Jamila, for fear of harming their friendship. Fadwa's decision led to Jamila being excluded from thorough discussions with her. Fadwa realized there was a risk that her friend would take the professional discussions personally, which could lead to a misunderstanding, thus affecting their friendship. This scenario reflects the complexity of interpersonal relationships and how individuals' decisions can be influenced by power dynamics. This situation may, in turn, affect the decisions about

who can be included in knowledge exchange and who cannot, which eventually influences the quality of the discussions in general.

In addition to exclusion, Fadwa's talk also illustrates the impact of normalization on her decision-making process in social relationships. Normalisation, in Foucault's terms, involves establishing standards of behaviour that are considered acceptable within a given social context. In this case, Fadwa's behaviour reflects her attempt to maintain acceptable standards of behaviour in society. These include not embarrassing her friend by not engaging in controversial topics that might cause disagreement or conflict. This indicates the prioritization of personal relationships over academic excellence. The idea that challenging discussions can harm interpersonal relationships is the standard that Fadwa seems to embrace, even in the learning environment. In short, the power relations resulting from normalisation in Fadwa's script have led to another form of power dynamic, which is exclusion.

6.2.4.2 Self-Exclusion

Self-exclusion is evident in the study when a learner avoids discussions due to personal obligations or constraints. Here is an example from Lubna (G.3):

“The researcher: Did the instructor give you feedback, for example, telling you where you made mistakes and where to improve?”

Lubna: Yes, even for the grades we lost in the projects, she would let us know what we missed. Honestly, she did not fall short with us and was very considerate, but eventually, she wanted to finish her responsibilities and the tasks required of her.

The researcher: But did she give you opportunities to revise?

Lubna: She did give us opportunities, but honestly, I didn't have time to grab the laptop and correct or revise my answers. I mean, I also have commitments at home. We even had to keep working until night-time! It's not logical to use the time allocated for other subjects to revise my discussions.

The researcher: Right, right...

Lubna: But this is difficult. As a student, I really wanted to withdraw, and the reason for this is the pressure I was going through... Even psychologically and health-wise, it's not good, you know."

This script demonstrates that the instructor exhibited supportiveness and inclusivity by offering constructive comments and opportunities for growth that fostered both learning and progress for all learners. Nevertheless, Lubna's situation, including limitations on time and other obligations, may create a sense of marginalisation. The reason is that she might have been unable to fully participate in the discussions to the extent she wished. This also shows the power of time distribution in which time allocation and responsibilities might prevent some students from fully getting benefits from these learning opportunities.

In addition, the psychological and physical pressures mentioned by Lubna may also create obstacles to involvement, leading to self-exclusion from the learning experiences. This suggests that further assistance may be required to guarantee that all learners benefit from the discussion forums. The example illustrates the challenges associated with achieving true inclusion, which must consider learners' different circumstances and offer sufficient assistance.

Here is another example from Renad (G.3):

“The researcher: can you tell me about some obstacles or issues you face in the online discussion?”

Renad: Since I'm from a mathematics background, my ability to express myself is very low. For four years, we didn't write anything or express anything; it was all numbers. So, it was difficult in terms of spelling errors, how to organize my words, what to write... Even studying mathematics was in English, not in Arabic, and completely devoid of any expression. Even my graduation project was all numbers, problems, and solutions. That was the hardest thing for me.

The researcher: So, you're saying that you faced difficulty in writing, let's say, a coherent, full paragraph because you were not used to it?

Renad: It was very difficult for me. I used to copy the page and paste it into Word to check for spelling errors, correct them, and then put it back on the main page... I even have a vision problem... I type quickly so I might add an extra letter or miss one... for me, in the beginning, it was a very unpleasant experience... I needed someone to explain things to me.”

In this example, Renad highlights areas of her education that were less inclusive, particularly regarding the development of discussion skills.

Renad here talks about her experience in the discussions and how she felt that her educational problems were not taken into account and that no one knew about them; these problems led to her poor performance and her feeling of marginalisation.

These problems are represented by her weak educational qualifications, poor eyesight, and the educational practices that she went through, which made her performance on the discussion platform weak. Renad felt that she was ignored by the teacher and the system as a whole. She asserted that students like her should be taken into account.

These above examples show that some form of exclusion has occurred at a micro-personal relationship level rather than at an institutional level. It appeared from the participants' interviews that many of them were practicing exclusionary practices against each other, most of which consisted of preferring discussion with a group of female students over others or excluding one or more colleagues as a result of previous negative attitudes toward them. However, in this process of exclusion, all the female students seemed to be acting according to the power dynamics resulting from adherence to the prevailing norms in society.

6.2.5 Totalization

Totalization is the process of defining groups in a way that encompasses a collective identity (Gore, 1995). This includes using the pronoun 'we' to express oneself. It also involves addressing entire groups of participants within the educational context or beyond. Moreover, totalization can be shown in the process in which discourse creates a dominant, unified system of meaning that eliminates any alternative interpretation of the meanings (Jorgensen and Phillips, 2002, pp.26-27).

The analysis of the data did not show that learners in any way tried to impose their ideology or their point of view on each other. Perhaps the reason for this is that they were limited by what the instructor instructed them to do and what was in the learning materials. However, the analysis showed that individuals did use collective language frequently when talking about personal opinions or incidents. Hence, this theme was not clearly shown in the analysis; instead, it was one of the weakest strategies of power that had been used by the participants.

Here is an example from Ariam (G.3) as she addressed herself collectively:

“Ariam: But our problem was the amount [of work], and that I have to, also, respond to every discussion. We must write a reply and also cite it with references, reply to two of your friends, and cite our reply with references. This was really a 'load' on us; we needed to search and cite, look for references, look for studies, which was time-consuming.”

In this script, Ariam expresses her feelings and perspectives, but at the same time, she uses a language that fluctuates between personal and collective expressions. For example, phrases like “our problem” and “load on us” suggest she’s speaking on behalf of the entire class even though she was referring to her personal experience. This is particularly obvious with her also using personal pronouns such as “I” and “your friends”. This totalizing language assumes everyone’s experience aligns with hers. By speaking in such a way, Ariam overshadows those students who might have different experiences.

Here is another example from Jamila (G.3):

“The Researcher: Suppose you've posted about a specific topic, and someone presents an argument that diverges from this topic. Is it still possible for you to continue the discussion, even if the topic shifts? Could the lecturer become irritated by such a diversion?”

Jamila: Actually, I realised Dr. (name) encouraged us to drift from the topic. After reviewing most of the group's feedback from various discussions, it became clear to me that she seemed to push for deeper exploration, open dialogues, and introducing alternative viewpoints. She endorsed this method. However, I think we often impose unnecessary limitations on ourselves.

The Researcher: Why do you think you impose such limitations?

Jamila: Well, I feel that, firstly, the workload on us was heavy initially, in the first term. So that was the issue. I don't expect all my colleagues to feel the same, but it could make us discuss things in a simplified manner... just to get some rest."

In this script, Jamilla used the pronouns "us" and "we" when she talked about her experience. She totalized her experience as the experience of the whole group.

Nawal (G.1) also used the same pronoun "us" when she talked about her opinion on the online discussions' pros:

"The Researcher: OK, what are the positives of online discussions?"

Nawal: Oh, as I mentioned, they motivate us to think creatively. They help us become more open-minded and teach us how to manage discussions intelligently."

Farah (G.2) also used the same language when she discussed her experience; notably, she employed the group pronoun "we" several times.

"The researcher: So, how was your first experience in online discussions?"

Farah: It was really nice, but we faced one issue: We wouldn't approach the professor with any problems or issues we encountered. To be honest, we were somewhat intimidated by her."

6.2.6 Individualisation

According to (Gore, 1995) Individualisation is a process in which individuals are identified by their unique characteristics or behaviours. This concept emphasises the importance of recognising and addressing the distinctive characteristics, experiences, or contributions of each individual in group activities, as these factors can significantly impact power dynamics and relationships.

Foucault (1983) uses this term to challenge the notion that the human subject has a fixed and stable essence or identity. According to Lee and Bret (2014), Foucault

shows how the concept of the “subject” is a product of various discourses and practices that shape and regulate human behaviour, such as the discourse in medicine, psychology, and education. Individuals, on the other hand, can resist or challenge these discourses and practices by creating new forms of subjectivity and self-expression. In his article *Subject and Power*, Foucault (1982) explained that individuality refers to the ways in which individuals are constructed and governed as autonomous and self-governing subjects.

Therefore, Individuality in online learning forums can be seen in the ways in which learners construct and maintain their own sense of identity and how they handle the contrast between their needs and those of the class and the learning system. The analysis of this technique of power revealed these sub-themes: (a) Defining and categorising oneself; (b) Resisting and negotiating categories and pressures; (c) Expressing opinions and points of view; (d) Narrating and reflecting on one's own life stories or experiences.

6.2.6.1 Self-Definition and Categorisation

The process of “Defining and Categorizing Oneself” addresses the incidents where participants’ identities and their independence from the dominant categorisation emerge within interaction in an online discussion forum. This includes detecting how learners align or deviate from the discussion forums' standards. In the following quote, we can see how Marwah (G.2) defines herself and how this influences her interaction in the discussion forum:

"The researcher: All right, Marwah. Do you choose specific girls to respond to? Are there any particular girls you like to interact with?"

Marwah: For me, I respond to everyone, honestly... I don't limit myself to just two responses as the teacher requested...I like to enrich the discussions and delve deeper. For example, if I generally liked my friend's contribution but found certain aspects unclear, I would research them. Then, I would nicely explain that her insights enlightened me, but my research led me to different conclusions. I would outline the points I agree with and those I disagree with, point by point. I love contributing to everyone's understanding, and I aim for everyone to benefit... Given my previous experience in the teaching field, where I both taught and trained, it likely had a significant impact on me. I bring more to the table than a diploma student with minimal or no experience..."

In this quote, Marwah is actively defining and categorizing herself in relation to her peers and the discussion environment, showing an interplay of power dynamics, personal agency, and knowledge construction. Initially, Marwah sets and categorizes herself as an active and more experienced individual in the discussions. She emphasizes her teaching and training experience, suggesting that her potential might surpass that of her peers. She claimed that her experience could greatly enrich the online discussion environment, which might put her in a position higher than her classmates. Saying this uncovered the possible influence of power dynamics in interactions. Nevertheless, Marwah stressed her continuous desire to help others and contribute meaningfully to the discussion platform. This highlights the fact that Marwah's identity is shown through her interaction with her peers, which also shows that knowledge is actively constructed through social interactions.

Here is another example from Nawal (G.1) showing categorisation and a representation of oneself:

"The researcher: Have you ever said something to your peers and felt that they learned from you or, for instance, you corrected them on something?"

Nawal: Well, honestly, I feel that my questions sometimes irritate them a bit. There's this one girl; every time I ask her something in the discussion forum, she messages me privately asking for my answer. Like, what do you want me to say to you? The way she approaches me makes me feel that she finds my questions challenging... I think my job has influenced me to ask complex questions.

The researcher: What is your job?

Nawal: I'm a journalist.

The researcher: Really? well, that's an advantage.

Nawal: Yeh, in a way, but sometimes I feel guilty, and I tell myself: Nawal, why do you keep asking her? Just stop bothering her.

The researcher: Why do you feel guilty?

Nawal: I don't know. Especially with this girl, I fear that I might be making her feel inadequate or that she doesn't understand (my questions)."

This excerpt offers insight into Nawal's individuality in relation to her professional background and her interactions within the discussion forum. Nawal describes herself as a journalist; thus, the way she engages in the forum seems to be influenced by this identity. Given the critical character of journalism and her professional training, she is probably well-prepared to provide insightful and critical inquiries. Nawal was aware of this quality that she had and the effect of this on her interactions, particularly when her classmate messaged her privately, seeking Nawal's help to answer Nawal's question. This, for Nawal, underscores the impact of her questions and makes her reflect on her behaviour.

In addition, Nawal's self-reflection on her actions (Why do you keep asking her, Nawal? Just stop bothering her) shows a power relations dynamics in which Nawal's

background and critical questions position her as more knowledgeable or experienced than her classmate.

Besides individualism as a technique of power relations, the script also shows acts of normalisation, surveillance, and regulations as forms of power relations in this environment. For example, the feeling of guilt Nawal expresses reflects the normalisation effect of society's norms as she does not want to make others feel less or inadequate. Another example that exemplifies the power of surveillance and regulation simultaneously is when Nawal's peer messages her privately to help her answer her question. It appears that Nawal's classmate was concerned about the instructor's evaluation and how it might affect her grades. Because online discussion forums are monitored spaces by the instructor and other peers, this imposes pressure on learners in these environments. In addition, an act of exclusion is apparent when Nawal stated later that she began to avoid interacting with this learner because she did not want to embarrass her anymore. Here, Nawal unconsciously excluded her classmates from her discussions.

Israa (G.3) also shared some of her individuality in the interview, showing distinct characteristics that set her apart from her classmates. Here are quotes from Israa's interview:

"The researcher: So, Israa, do you have any hobbies that you engage in regularly?"

Israa: I really enjoy listening to podcasts in a variety of fields, there's no specific genre that I stick to... sometimes I delve into topics that attract my interest or I inquire about them. I'm not shy to ask questions, thankfully, I've been blessed with the confidence to inquire anyone, no matter how trivial the question might seem, you know? I love exploring; it's just part of who I am.

The researcher: Hmm... earlier, you mentioned that you asked people about their opinions about you...so what was their response to you?

Israa: Some said I am sometimes adventurous... I do take risks, but not in every aspect of life. I mean, I genuinely cherish exploring new things... Also, they said I possess leadership skills... I'm thankful that I sometimes take charge, whether it's managing household matters or handling responsibilities outside...I've developed this trait from a young age, so it has become ingrained in my personality, and sometimes, I find it hard to detach from it."

In this script, Israa's individuality is apparent through how she defines and categorises herself. She enjoys learning through different podcasts. She is confident to the extent that she is not shy to keep asking questions, no matter how simple they are. This aligns with what she has been described as an adventurous and risk-taking person. Israa's characteristics are very likely to contribute to her being seen as a respected and important participant in discussion groups. This was clearly stated by Israa when I asked about her writing styles and her approach to discussions. Here is a quote from this conversation:

"The researcher: Okay, Israa, when you write, do you try to write a perfect answer? I mean, in a way that it could serve as a model for your peers?

Israa: To be honest, yes, I write an answer that I try to make comprehensive... and at the same time, it shows that I really worked hard on it and it's not just any random words.

The researcher: Then, do you evaluate your peers' answers while you're reading their posts?

Israa: Yes, yes.

The researcher: Why?

Israa: Because, for instance, some answers might haven't adequately address the question, you know? So, I would think, why would someone write it this way in

general, like, it seems they were just winging it, you know...? Honestly, it wasn't nice because it doesn't reflect the person's level, you know?

The researcher: Did it bother you?

Israa: No, it didn't bother me, but I mean, I would say that it was supposed to be better."

This part of the interview reflects Israa's leadership qualities and sense of responsibility. Her inclination to assess others' contributions demonstrates an agency as well as an exercise of power that could indirectly influence the learning outcomes of her peers.

6.2.6.2 Resistance and Negotiation

This sub-theme includes forms of tension between individual agency and external forces that contribute to identity formation. The online discussion forums of the current research show how participants resisted external forces in some incidents by asserting their individuality and independence from the dominant narrative. Foucault (1983) believes that this process is not only about personal agency but is also a reflection of complex power relations, where individualism becomes a product of power structures and responds to them either by agreement or by resistance.

Here is an example from Hiba's (G.3):

"The researcher: Hiba, another question. Now, if the teacher sets a question for discussion, how do you begin your answer? Do you, for instance, compare your response to your peers'? Do you first read their responses and then start searching for an answer?"

Hiba: "No, I don't like reading other girls' opinions or discussions before answering the question... because I would feel restricted, or I would unconsciously mimic them... I always write first.

The researcher: Are you usually the first one to respond to the instructor's question?

Hiba: Well, there are other students, but maybe just one or two...

The researcher: Ah, I see.

Hiba: " Honestly, at first, I used to read the first two discussions, but then I felt I needed to mimic them, I mean, if they made a table, then I should also make one like theirs.

The researcher: Ah, I see.

Hiba: Like that... Later on, I wondered why I should imitate them. Honestly, I was right because all the girls were copying each other. So, it turned out my method was right when I decided I didn't want to mimic inadvertently."

In this quote, Heba's decision to avoid reading her peers' responses to maintain her unique perspective and voice highlights the process of individualisation. She's actively making an effort to ensure her responses are distinct and individualised, not influenced by what others have said. The fact that she initially read her peers' responses but then decided not to because she felt pressured to mimic them underscores her resistance to following others and her desire for individual expression. Foucault (1975, p.95) explained resistance by saying: "*Power is everywhere and is always accompanied by resistance; therefore, resistance is everywhere. Where there is power, there is resistance, and yet, or rather consequently, this resistance is never in a position of exteriority in relation to power*". Peer pressure is a kind of power relation, while resisting this pressure is also another type of power relations that come from the other side.

The notion of students mimicking each other's format, such as using tables, suggests a kind of totalization. There seems to be a collective, dominant way of responding that many students feel compelled to adopt. Heba's observation that "all the girls were copying each other" further emphasises this totalising effect. Heba's two feelings: maintaining her individual voice (individualisation) while also being influenced by a prevailing attitude (totalization), reflect how students might experience these power dynamics in educational settings.

Here is another example from Fadwa (G.2):

"Fadwa: There are girls who come to me and say, 'Fadwa, go and ask us this question'. They specified the questions I should ask them so they could answer them on the discussion board. They came to me and said, 'Fadwa, ask me this particular question because I don't want you to ask me something difficult'. They think when I come to ask, it's as if I'm trying to trick them or show the professor that they aren't participating or understanding. But in truth, I only ask about things I myself don't understand. It's not about scoring points... it's about understanding."

This script shows Fadwa's strong commitment to learning and intellectual growth, setting her apart from her peers who prefer minimal effort. This difference creates tension between her and some girls in her class. Those girls often ask her for specific questions to post on the discussion board, showing their reluctance to engage deeply with academic topics. They do this to avoid seeming unprepared or not interested. This behaviour weakens the value of online discussions and knowledge building.

6.2.6.3 The Articulation of Personal Viewpoints

According to Legg (2018), expressing an opinion, from Foucault's point of view, includes three things: a reflection of individual subjectivity, a reinforcement of dominant discourses, or a challenge and resistance to these dominant discourses. These three things appeared clearly in the participants' interviews, as their views reflected their relationship with themselves and the power relationships in the learning community, including domination or resistance. Here is an example from Jamila (G.3):

"The researcher: Are you open to constructive criticism or feedback from your peers on your writing style, viewpoints, or even the accuracy of your content?"

Jamila: I have received comments of that nature. But I addressed them without much concern.

The researcher: by whom?

Jamila: Israa. But honestly, her comments didn't upset me.

The researcher: Can you share what happened?

Jamila: Once, during one of the discussions, I chose not to enumerate my ideas. I felt that the clarity of my argument didn't necessitate a bullet-point style. I believed it appeared more rational without the constraints of bulleted points.

The researcher: I see.

Jamila: Israa, however, felt differently. She proposed that I should clarify my thoughts, suggesting breaking them into bullet points.

The researcher: Did she comment on your writing privately or publicly in the forum?

Jamila: She voiced it openly, during the discussion.

The researcher: Understood.

Jamila: I replied within that same forum and told her that I found my way clearer. My stance remained unchanged, and I didn't change my opinion or make a list or anything. I'm a bit stubborn, ha-ha. The only person likely to shift my perspective is

the instructor, and even when she comments on my writing style, I might reconsider, but hesitantly.

The researcher: Hmm.

Jamila: But it's okay, you know. I explained to her why I chose to write in paragraph form instead of bullet points. I told her that, in my opinion, this is a discussion, and making it into a list makes it seem more like an assignment rather than a conversation. That's just how I see it."

This script offers a rich exploration of power dynamics between online learners. First, the quote shows two different perspectives of two learners. Israa prefers bullet points, whereas Jamila chooses to write her views in paragraphs. These differences in approach show different understandings of what makes a clear and well-organized writing. Second, the script demonstrates the presence of power relations that operate both vertically (by the instructor) and horizontally (by the peers) within the educational setting.

Peer feedback is fundamental in constructivist learning theories, as I explained in the previous chapter. Hence, this dynamic between Jamila and Israa is vital in the constructive environment of the discussion platforms.

Another insight in Jamila's script is that she said the only person who will change her perception is the instructor, an indication of the hierarchical power dynamics at play in educational settings. This shows how instructors are considered more authoritative than peers. This power of the instructor determines what is considered accepted knowledge and what is not.

Renad also illustrated the dynamic between learners on discussion platforms and how she perceives and interacts with different viewpoints. She said:

"The Researcher: Okay, let's say: you disagreed with one of your classmates on a certain viewpoint and felt that your classmate didn't accept it, would you stop?"

Renad: Yes, because these are just opinions at the end of the day. I see it as my opinion, and her opinion might differ, but it's not necessarily that we shouldn't talk to each other or... it's okay.

The Researcher: Certainly, I didn't mean to suggest it should cause a problem between you, but I meant, does this prevent you from continuing the discussion?

Renad: If I presented all my ideas and she still disagreed, then I see it as enough; I don't have more ideas to offer, but I personally stick to my opinion... It's my personality to stick to it."

In this script from Renad, she explained her approach to discussions when she encountered an opposing viewpoint. She primarily will strictly adhere to her point of view and will not try hard to convince her classmate about her standpoint. This behaviour from Renad reflects the power relation of individuality in which she showed her personality through her opinion and through sticking to her opinion no matter what. It also reflects a power relation between learners in which each proves her academic dependency.

6.2.6.4 Reflection on Personal Narratives

People create their personalities and identities by discussing and thinking about their life stories. They implicitly communicate the dominant discourse and set themselves up to agree or disagree. Sharing one's story might demonstrate the power relations in the group as well as in individual interactions. Additionally, these anecdotes might

illuminate the political and social context in which they occur. The following is an example from Jamila (G.3), in which she shares a life experience she went through when she was young:

“Jamila: We are not used to discussion in any educational setting as I told you. I had such an incident in university once. It was quite unpleasant. My professor just shut me down.

The researcher: Tell me about it.

Jamila: It was in the early days of university. It was a course on literary culture or something like that. I don't remember. It was a secondary-level course. The professor presented an idea, and it was very strict. Honestly, I don't remember my response to her, but she didn't like it. She felt like, "Who are you to correct me? Or your response isn't good". She believed her opinion was right and mine was wrong. It wasn't like basic math, where one plus one equals two. Honestly, I don't remember the exact question, but I remember my feelings and her reaction. It made me go silent. At first, I felt I might even fail the course.

The researcher: Well, not to this extent.

Jamila: Seriously, she was very aggressive in her approach, which was unnecessary. Most of the girls agreed with me, but I was the first one to voice my opinion. So, the attack was on me.

The researcher: So, did this experience make you say you'd never start such discussions again?

Jamila: Honestly, we never discussed anymore. There wasn't room for it.

The researcher: I see.”

In the above dialogue, Jamila's narration of her early university experience uncovered the complex interaction of power relations and individuality within the context of educational institutions. The professor is in a position of power, and she utilises it to suppress and dismiss Jamila's alternative point of view. Jamila

maintained her individuality despite this power dynamic. She understood her position within such power structures, yet she upheld her individuality against them.

Here is another example from Nawal (G.1):

“Nawal: ...I had more experience in this area than others because I’ve encountered people who were very resistant to change.

The researcher: Can you recall a specific incident?

Nawal: I remember when I first started working, there were people who had been there six months before me, yet there were things I had learned that they didn't know at work. They refused to learn from me. In my mind, I thought, ‘So what if they came before me by six months? We could still learn from each other.’ But they would say no, just for the sake of saying no; I was newer than them, so how could I teach them!”.

This script shows Nawal's individualism by reflecting on a story of her work. Nawal showed that she has faith in her skills and is ready to question the status quo by suggesting that everyone can and should learn, no matter what their situation is. Her frustration with her coworkers, who didn't want to learn from her because she was newer to the company, shows that she thinks individual value and input are more important than traditional hierarchy.

6.2.7 Distribution

Gore (1995) defined distribution as a power technique in which individuals are deliberately being organised, placed, and managed within specific spaces and

structures, including social and physical ones. These distributive techniques are used in the classrooms to control and discipline learners. Some examples of distribution from Gore's study include teachers allocating rooms, physically rearranging pupils, and assigning study groups. According to Foucault (1977, pp.141-142), this act of distribution reflects the underlying power dynamics and is used as a tool to shape behaviour, establish power relations, and influence interactions. In his book *Discipline and Punish: The Birth of the Prison*, Foucault introduced the concept of distribution as a strategy of power relations under the section titled "Docile Bodies: The Art of Distribution". In this section, Foucault investigates the ways in which space is organised and managed to enforce discipline. Foucault pointed out that enclosing persons inside designated spaces, such as educational institutions, industrial facilities, or military camps, is often necessary for the exercise of disciplinary power. These institutions are characterised by their isolation and distinctiveness from the broader community, hence fostering an environment appropriate to the enforcement of discipline. He underscores the need to partition and arrange physical spaces into smaller entities, similar to prison cells or school workstations, to enhance individuals' supervision and regulation. He also examines the significance of architectural design in the establishment of functional spaces that facilitate disciplinary practices (please see surveillance in the literature review sections). As a final point, he discusses how individuals are classified by their statuses and positions within a disciplinary setting. Thus, this power manipulates people's conduct and cognition without force or violence (Foucault, 1982).

In online learning settings, the entire educational process is virtual; thus, the physical aspects of distribution, such as buildings and classes, are absent. Therefore, distribution as a power relations technique/ or disciplinary power may look different.

For example, differences in accessing technology, or what many scholars call the “digital divide”, is one aspect of the power of distribution in online learning classes.

The “digital divide” includes the capacity to use digital platforms and access technological resources (Wessels, 2013). The accessibility of certain online resources might empower some students while putting others at a disadvantage, based on their technical proficiency and available resources. These factors may impact the perception and implementation of power in the online classroom.

Likewise, the technological design and functioning of online spaces have a substantial impact on shaping user interaction, power relations, and the construction of professional identities. According to Robson (2015), Facebook's focus on positive affirmation influenced the development of a professional persona that is less confrontational. Within the forum, the capacity to participate in vigorous discussions, even in the face of disagreement, played a significant role in shaping a professional identity focused on the ability to manage and engage in public debates.

Also, the forum's structure and how subjects are displayed are other factors of nonphysical design aspects that influence online discussions. According to Salter and Conneely (2015), the level at which online discussion forums are structured and presented can influence how students engage in the activity. Similarly, Moore and

Marra (2005) suggested that the way discussion topics are brought up has a notable impact on the level of engagement and the depth of discussions reached.

Another example of a non-physical element of distribution in online learning is the distribution of time. Meyer (2003) asserted that the efficiency of managing time is essential for promoting profound learning in online learning environments. Time allocation includes how learners allocate time for discussions, and how teachers allocate their time to assigning homework including deadlines and feedback (Abawajy and Kim, 2011). This kind of allocation, which functions as a type of disciplinary power, may indirectly impact learners' engagement and involvement. Moreover, adult learners often have the challenge of balancing several commitments, including employment and family obligations, which may also have an impact on their capacity to engage in educational pursuits (Shepherd and Nelson, 2012).

In sum, the non-physical aspects of distribution in online learning include accessing technology, the technological design, the organization and structure of forums, the allocation and distribution of time, and how students' varying levels of accessibility and responsibility affect their engagement.

In the interview scripts, participants complained about the timing allocated by the instructor for each discussion assignment, their ability to access technology, their different responsibilities, and the distribution of tasks required to fulfill the assignment. Here are two examples from Heba and Ariam (G.3), both are working students.

Heba (G.3) mentioned that she faced difficulties balancing her duty as a student and other job commitments.

“Heba: By God, I was really stressed out this term, very stressed... I have other commitments besides the diploma and the discussions... I have [Qiyas] for six hours!! Why six hours, it's too much, from eight to one... And my life isn't going to be all about studying.

The Researcher: Hmm, what do you do in [Qiyas]?

Heba: Its requirements are that we read for five hours, and then there's a practical part where we apply what we have read... But even so, can the mind really absorb six hours of continuous learning!?”

Heba expressed stress about a test called Qiyas, a standard test required for promotion, which she was taking concurrently with her course. Although it was not part of the course curriculum, the test was mandated for the teachers. Her struggle with time duration can be seen as a form of resistance to this distribution of time and effort. It also shows Heba's struggle between her other responsibilities and the course. This reflects Foucault's (1983) notion that power relations are not one-sided; they are always accompanied by forms of resistance.

Ariam (G.3) also highlighted issues of time and holding other responsibilities:

“The Researcher: Ah, so there was a difference. How did your experience in the previous course differ from this one?

Ariam: Well, honestly, the load of discussions is different... I don't have an issue with the discussion itself, not at all. My problem is with the quantity of it; it was just too much, you know... The time was really tight... It was a huge load on us. We had to research and cite, find references, and look for studies, so it was time-consuming... We were also crunched for time with projects and submissions, so it was quite exhausting.

The Researcher: You're already working, right?

Ariam: Yes, I work. So, if I have free time, I go and complete my administrative tasks, ha-ha.

The Researcher: Is the pressure because of work or do you also have responsibilities at home?

Ariam: Yes, of course, I'm a mother of two daughters.

The Researcher: May God bless them for you.

Ariam: Amen, thank you. So, I'm an employee, student, wife, and mother, ha-ha... I was really under pressure."

In this script, Ariam illustrated the intricate dynamics between responsibilities and pressures encountered by adult learners in online settings. She highlighted the overwhelming quantity of discussions and assignments and the distributed time and effort allocated for them. She felt pressured to meet various academic requirements while trying to manage other responsibilities. This aligns with Foucault's (2020, p.142) idea of how institutions (like universities) can exert control over individuals by structuring their time and activities. This underscores the need for educational institutions to take into account the varied living situations of their students, especially in online learning programs that usually constitute adult learners.

The following example is a quote from Hind's (G.1) interview, highlighting the difficulty she faced in the discussion forum due to a lack of accessing technology and other issues.

"The Researcher: Do you interact with all the comments on your posts, or do you limit yourself to responding to only two messages as required?"

Hind: Actually, sometimes I miss comments on my posts. It's not that I don't want to respond; I just don't see them. Occasionally, someone comments late, right before the deadline or after I've moved on to the next discussion, so I miss their reply.

The Researcher: Don't you receive notifications on your email or phone?

Hind: No, I don't get notifications on my phone. I didn't install Blackboard on it because my old phone didn't have enough space (thank God I have a new phone now). I do check on my laptop, but it's not feasible to check it every minute."

In this quote, Hind expresses her annoyance with students who submit comments on the forum after the deadline, which hinders her ability to answer promptly. She points out a major obstacle to communication: the inability to see these recent replies because of not having a mobile device that is compatible with downloading Blackboard. In this context, Hind sheds light on a technical accessibility problem that, in line with Foucault's concepts, represents a kind of power distribution. Access to technology has a vital role in distributing resources among people, which in turn shapes and maintains power structure.

Another example is by Farah (G.2) when I asked her about the constraint that she faced in the discussion

"The Researcher: Did you encounter any obstacles in participating in the discussions?

Farah: Yes, occasionally, Blackboard would freeze, which was challenging. We were given a week by the instructor, but the internet at the accommodation was very unreliable. It would frequently disconnect, especially right after we accessed the questions, causing Blackboard to freeze. Honestly, the main issues for me were the unreliable internet and the technical problems with Blackboard."

In the excerpt, Farah underscores the technical difficulties she encountered with Blackboard. She points out issues with internet stability and speed at her accommodation, which significantly impacted her ability to access Blackboard and participate in discussions.

While the problem of accessing technology was not widespread among learners, a reasonable number still complained about it. This issue highlights differences in resource ownership, which in turn affects the power structure among learners. Those with reliable internet connections and the capability to install Blackboard on their devices are more likely to contribute effectively to discussion forums and interact promptly with their peers. On the contrary, learners with limited access to technology have fewer opportunities to contribute and interact in these forums. Foucault (1982) emphasized that power relations are established by differences, which are simultaneously created and maintained by every system of power. These differences often stem from legal or social norms and their associated advantages. The distribution of resources, between those with and those without access to technology, creates and reinforces power dynamics among learners

6.2.8 Regulation

Regulation as a Foucauldian power technique was defined by Gore (1995) as the way rules, guidelines, restrictions, rewards, sanctions, and punishments are utilized in classrooms, and their impact on students' behaviours and decisions. In addition to the consequences of failing to adhere to them. Gore (1995) also explained that although all of the preceding power techniques could be viewed as having regulatory

effects, this category was used to designate incidents in which regulation was explicit. Gore indicated that these types of instances, which occur in both school and broader social settings, might provide insights into the interplay of power, knowledge, and discourse and the influence of rules and regulations in shaping behaviour. Accordingly, regulations focus on how power relations use knowledge to manage and control individuals, how people utilize self-regulation to adhere to the dominant rules and regulations, and how these regulations shape behaviours.

Hence, in the current research, several regulative techniques were noticed during participants' interviews. They functioned as sub-themes for the power of regulation: (a) Self-regulation and adhering to the instructor's rules; (b) Perceived consequences; (c) Regulation of others.

6.2.8.1 Self-Regulation and Adhering to The Instructor's Rules

Within this sub-theme, participants exhibit compliance with regulations by adhering to the rules and standards established by the teacher. By doing so, they avoid punishment (losing grades, in this context) and adopt the educational norms, wherein the teacher is the primary legislator of class rules and instructions. Foucault (2020, p.133) described individuals subjected to these rules and regulations as "docile bodies" that fit into the institution's demands.

Below is an extensive example provided by Jamila (G.3) in response to my inquiry on the equitable chance for all individuals to engage in the discussion forum. I have included this lengthy conversation between me and Jamila because it illustrates many critical power dynamics that need attention.

“The researcher: Do you feel that there was equality in the opportunities to express and participate in the discussion forum? I mean, does everyone have the same opportunity to express their point of view?”

Jamila: Absolutely, everyone has the same opportunity to express their viewpoint and speak freely, but...

The researcher: Go on, please continue.

Jamila: But often, the scope of the discussion is typically constrained by the posed questions. We don't stray outside the topic; we just try to answer the given question and don't bring in external examples or expand on the ideas like in any normal discussion. For instance, when I share my opinion and delve into a topic, like Cloud Computing, the instructor (name) had specified only the advantages. So, I only had to touch upon that particular point and not cover the whole topic.

The researcher: Did the professor prevent you from digressing?

Jamila: No, no, no, but because the question is narrow. For example, if the question is solely about the advantages of Cloud Computing, I can't bring up the disadvantages and advantages of something else related to computing. I'm not sure if it's okay to discuss other related topics. Maybe I should, but mentally, I feel it's wrong to deviate from what's specified in the question. I feel I need to stick only to what's asked (like only the advantages, and not answer more generally)... Also, I think we limit ourselves due to time constraints and responsibilities.

The research: And perhaps because of the grades?

Jamila: To get the grades, honestly, yes. I feel that this is a bit of a negative point. But that's just how it is, ha-ha.”

This script provides several key insights. First of all, this script shows how regulations shape and limit discussions, whether they are explicit or implicit. Jamila said that the scope of the discussion is constrained by the questions presented. This shows the boundaries that shape what can and cannot be discussed. Even though the instructor hasn't explicitly prevented them from broadening their discussions, Jamila feels that it's inappropriate to navigate outside the scope of the question. This

self-regulation demonstrates the power of implicit regulation, which might be caused by the learning norms that Jamila used to be subjected to and/or the instructor's assumptions.

Second, the grade acts as a form of regulation. Jamila indicates that to obtain a good grade, she believes she needs to answer the question strictly as it's presented without delving into broader related topics. The grade thus becomes a mechanism to ensure compliance with the perceived boundaries of the discussion that the instructor enforces.

Third, time constraints and responsibilities are also mentioned by Jamila as possible barriers to expanding discussions, which can be seen as another form of power relations that combines the power of distribution and the power of regulations.

Donnelly, McGarr, and O'Reilly (2014) describe this type of power relation as an indirect technique in which instructors set time frames during inquiry to keep learners focused on their tasks.

Fifth, the script illustrates how the instructor's power and the educational system norms shaped learners' behaviours and thinking. This power dynamic between the learners, instructor, learning, and teaching norms significantly influences how knowledge is co-constructed, shared, and validated. The instructor, by determining the discussion topic, time limit, and other course tasks, controls what is acceptable to be discussed and what is not acceptable. In addition, the educational norms that learners were used to be subjected to shape learners in a way that they do not go beyond what they were asked to do. This highlights Foucault's (2020, p.133) notion

of individuals being "docile bodies" by the institution's power system of punishment and discipline.

On the other hand, the students, as subjects, are shaped by the power-knowledge dynamic in this context, as their knowledge construction and expression are managed by the power structure inherent in the system.

Jamila's use of the word "but..." could suggest a form of resistance. Jamila realizes that even in discussions that are presented as unrestricted, there are often underlying limitations. These restrictions are due to the standards that the professor sets and imposes by her authority over the class. Jamila believes that this could affect and restrict genuine dialogue. Thus, her words suggest perhaps a critique of the dominant power that can control or direct discussions, even when they are claimed to be free of such influences.

The script from Jamila's interview is very important as it reflects how knowledge, power, and subjectivity are interconnected and co-constructed within social dialogues and educational structures. The subjects (students) in this structure may realise these dynamics (as shown by Jamila), however, challenging these power structures can be complex.

The idea of how power generates knowledge is also shown in Suha's (G.2) interview:

"The Researcher: Alright, Suha, do you find the discussion standards set by the instructor (Name) important or not?"

Suha: Umm, they are very important, I believe.

Researcher: Why?

Suha: I mean, it taught me how to open my mind and how to add something valuable. And that my response to my peers shouldn't just be a regular reply; it should be an addition that opens up new horizons."

In this quote, Suha underscores the benefit of the discussion standards set by the instructor in improving discussions. She acknowledges how the instructor's standards pushed her to think more critically and make valuable contributions rather than just offer superficial responses.

This showed the interrelation between power (as represented by the instructor's standard) and knowledge (in the form of enriched discussion). When Suha says, "It taught me how to open my mind and how to add something valuable", she's indicating that the instructor's standards (a form of power) led her to a more enriched and insightful participation (knowledge production). This relationship aligns with Foucault's theory about how power structures can encourage and produce knowledge.

Here is a third example from Ariam (G.3):

"The researcher: Okay, Ariam, did you, for example, learn something new from the discussions? Did any of your ideas change after participating?"

Ariam: Yes, definitely. First of all, I've gained a lot, just as I mentioned before. I've developed my style and improved my writing. I'm currently working on Dr. (name)'s project, for which I wrote the introduction. This has even influenced my speaking style. The "text" was particularly impactful because Dr. (name) pushed us to adopt the writing style of graduate students.

The researcher: Okay, good.

Ariam: So, the discussions were genuinely beneficial and honestly quite enlightening. I gained a lot from them, including insights from my friends. Even when they disagreed with me, I found their perspectives valuable. Additionally, I've been using Modern Standard Arabic and advanced writing techniques, which have been instrumental in my development."

In this script, Ariam has shown self-regulation by changing her behaviour in response to academic requirements and the instructor's guidance. First, her adoption of a graduate student writing style, influenced by her instructor, indicates her ability to conform to higher academic norms and expectations. Second, Ariam's discussion of her process of refining her own style and enhancing her writing skills shows self-awareness of her own advancement and a commitment to improving her abilities in accordance with academic standards and personal objectives. Lastly, Ariam's recognition of the viewpoints of her friends, even those that diverged from her own, demonstrates a positive attitude towards acquiring knowledge and improving oneself. This demonstrates a willingness to receive input from other sources, which also is a crucial element of knowledge construction in a collaborative educational setting.

6.2.8.2 Perceived Consequences

This sub-theme means the estimated outcomes that an individual anticipates will happen as a result of his actions. Thus, these anticipated results are based on subjectivity and individual understanding.

The interviewees' responses revealed that their participation in the discussion forum was sometimes influenced by their perception of potential consequences, such as the grades and the instructor's potential reactions (for example, criticism or displeasure). This highlights the significance of "perceived consequences" in shaping

online discussions. In addition, it underscores the power relations between the instructor and the learners. The following is an example from Fadwa (G.3):

"The researcher: So, to what extent do you feel there's a difference in the discussion experience on free social media platforms compared to the online course?"

Fadwa: Well, of course, the discussions in (teacher's name) class are graded, ha-ha. So naturally, we all wanted to give our best. I was careful, linguistically speaking, in expressing my opinion, clarifying my views, and even accepting my peers' opinions. At first, during our initial discussions, we felt shy and hesitant about commenting on each other's posts or something like that. But later, I felt it was okay. I mean, if you look at our discussions, our last discussion was more flexible than the first.

The researcher: The first one, you mean...

Fadwa: Indeed, our discussions matured over time. We began to think more creatively and unconventionally. And (instructor name) would actively engage with us, often remarking: "This is quite good; I'd like you to delve deeper... further explore this particular point". I sensed our growth in these discussions, especially compared to her feedback on our initial discussions. She seemed completely choked up by our responses at the time, ha-ha.

The researcher: It's understandable. Perhaps the structured nature of the environment makes you feel less relaxed at the start.

Fadwa: Maybe, but, basically, anything we're doing now on Blackboard is for grades. So, we try to be knowledgeable about everything to get the full mark, ha-ha. The goal is to get the grade. Yes, we improve, but the grade has the priority."

In this quote, the concept of Regulation as a technique of power relations is evident in multiple layers, specifically, in terms of perceived consequences, which can be seen in two things: the grades and the feedback from the teacher.

First, Fadwa explains the role of grades in shaping her and her colleagues' behaviours, saying, "*The discussions in (teacher's name) class are graded, ha-ha. So naturally, we all wanted to give our best*". She also said, "*Anything we do now on Blackboard is for grades*" ...and "*the grade has priority*". All of these statements underscore the regulative power of grades. Grades made students feel forced to perform in a certain way (for example, "be knowledgeable about everything") to achieve a particular outcome (a good grade), and the perceived consequence of not complying with these standards means not obtaining the required grade.

Second, Fadwa also mentions that the discussions became more "flexible" over time and that the teacher was more involved in providing feedback, which led to their performance improving significantly. This suggests an implicit form of regulation where participants adapted their behaviour based on the teacher's feedback. This is confirmed by Fadwa's observation of the teacher's initial reaction to their discussions (she seemed completely choked up by our responses at the time). The teacher's comments and reactions therefore served as a regulatory mechanism.

Third, Fadwa's response also highlights that the structured platform they're using, Blackboard, is primarily for grades, which inherently makes it different from casual discussions on social media. Fadwa suggests that the primary motivation in these structured online debates is to achieve a good grade, emphasising the regulated nature and different priorities in this environment compared to social media.

Again, this script reflects the complex interplay between power and knowledge. Foucault (2020, p.140) suggested that power is not only repressive but also productive, shaping the way knowledge is constructed, disseminated, and adopted. In the context of a discussion, the grading system and teacher feedback function as institutional devices that control what is considered valid or appropriate contributions. By adopting what grades and the instructor's feedback tell them, students become an obeying subject, "docile bodies", as Foucault (2020, pp.149-148) describes them.

Another example of this theme can be seen in this quote from Lubna (G.3):

"The Researcher: Could you list the weaknesses of the online debate you participated in?"

Lubna: The standards for debate are overly rigorous. It would be beneficial to reduce them from what's currently required.

The Researcher: Do you think the quality of debate would be the same without these standards?

Lubna: Honestly, I don't think so.

The Researcher: So, the adherence is primarily because of...

Lubna: It's primarily due to the grades, honestly.

The Researcher: The instructor might argue that these standards act as a rubric to help students improve their debating skills.

Lubna: Right now, we adhere to the standards just for the grades.

The Researcher: So, you don't believe that the rubric has helped you develop your debate skills?

Lubna: Look, we've definitely acquired many skills since starting the diploma. My field isn't education—I entered this program by chance and was initially sceptical. But it has genuinely enriched me, a lot more than I expected.

The Researcher: What about the discussion platforms?

Lubna: I found them beneficial mainly because they helped improve my grades. I was just meeting the requirements."

In this conversation, Lubna highlights the crucial role of grades in influencing her contributions to the discussion forum. Although she openly expresses her unhappiness with the strict standards outlined in the rubric, she consistently adheres to these norms with great diligence, primarily motivated by the grading system. This commitment shows the significant impact of perceived consequences on the regulation of behaviour, a concept that Michel Foucault explores within the context of "Docile Bodies".

According to Foucault's (2020, p.171) theory, organizations—such as educational systems—use indirect power structures to regulate and normalise behaviour. For Lubna, the rubric serves as an instrument of discipline, shaping her behaviour to meet an outside standard in return for high grades. This dynamic serves as an example of how grading systems in educational settings may be used to cautiously push students into behavioural patterns that may not be in line with their intellectual or personal preferences but are yet seen to be essential for academic achievement.

This observation aligns with Alghamdi's (2013) study which found that Saudi online learners lack motivation to engage in discussion boards unless they are graded. Similarly, Al-Jarf (2005) found that students in the Saudi context prefer to

participate in activities that offer direct grades, as opposed to those that primarily focus on skill development without directly impacting their grades.

Hence, grades and expected outcomes serve as positive power in this context, as they contribute to motivating learners to participate and shaping their behaviour in specific ways.

6.2.8.3 Regulation of Others

In the current research context, the concept of “regulating others” refers to the ways in which participants impose certain rules and standards on one another during online discussions. The theme essentially underscores the mutual expectations that participants set for one another regardless of where the rules originate—from instructors, the broader educational system, or societal norms. In the following excerpt, Marwah (G.2) showed how she implicitly regulates her classmates in order to fulfil the instructor’s standards:

“The Researcher: Alright, Marwah, what are the discussions or contributions, let's say, that might bother you?”

Marwah: The discussions that I feel are incomplete and don't cover the entire topic.

The Researcher: can you explain more?

Marwah: I mean, for instance, the professor laid out three points for us to discuss. A student might only address one point, and the rest, either she ignored them or briefly mentioned them... So, here I felt I needed to help her. I mean, enrich her topic more.

The Researcher: Why do you want to help her? Do you feel a responsibility towards her?

Marwah: It's not a matter of responsibility. But I didn't want the discussion to be just 'Well done, may God bless you' or 'I liked your discussion'... I mean, A good

discussion allows the instructor to give us all good grades. So, I responded to her, and she responded to me, and I felt we enriched the topic and genuinely achieved this standard."

In this quote, it appears that Marwah observes the shortcomings of her colleagues and then actively participates in enriching these shortcomings. Determining deficiency, from Marwah's point of view, depends on the extent to which her colleagues' contributions conform to the standards set by the teacher. Marwah's behaviour here, although it appears supportive, reflects Marwah's indirect way of imposing expected standards on her colleagues. Marwah's motives here are not limited to supporting and helping her colleagues, as she mentioned, but also her primary concern was for the discussion to appear in a high-quality manner and thus ensure better grades for everyone.

In short, Marwah's behaviour exemplifies how members of a community (in this example, an online discussion forum) may adopt certain standards and then enforce them among their peers. This dynamic is strongly rooted in Foucauldian conceptions of power and regulation, in which power may be exerted not just top-down but also horizontally among peers.

Here is another example from Renad (G.3):

"The Researcher: So, if it's not a matter of opinion, for instance, if it's a factual error and your friend made a mistake, or if she violates the standard of discussions, would you tell her she was wrong?"

Ranad: Yes of course... I would definitely talk to her but privately. I might say something like, "You made a mistake in this discussion; the professor didn't mean it that way".

In this conversation, Renad confirms her responsibility for regulating her peers' posts by privately addressing their errors and referencing the instructor's intentions and regulations in this exchange. This attitude from Renad demonstrates a form of power relations in action, in which she holds a moderating influence over her peers by interpreting the teacher's guidelines. Renad's act here reinforces power relations through peer-to-peer interactions.

Fadwa (G.3) also stated that she regulates her friends' contributions or posts in the discussion forum. When I asked her about whether or not she modifies her classmates' errors, she said:

“Indeed, I prefer to point out if there is a mistake in the discussion or if something is incorrect because, as I told you, it’s not just one person who reads this answer—several people do. I might notice the mistake, but someone else might take that information and spread it or understand it in that way... I must point out mistakes so that others who don’t know it’s incorrect will know and understand that what was presented is incorrect.”

In this quote, Fadwa also confirms her responsibility in correcting her classmates and regulating their contributions to the discussions. The quote reflects Fadwa’s awareness of the effect of participating in group discussions. She is concerned not only about the classmate who made the mistake but also about the entire class, anyone who might see what her friend wrote, and those who may not be aware of the error.

From a regulatory standpoint, Fadwa's act marks a self-imposed obligation in which she feels driven to fix mistakes for the sake of society. It shows a kind of peer regulation, where members of a community ensure the reliability of the information being discussed. This is crucial in such a collaborative learning environment.

On the contrary, Ariam (G.3) pointed out that she does not like to correct her classmates' mistakes. Here is the conversation with Ariam:

"The researcher: Ariam, if you noticed a classmate violating the standards or writing something incorrect, would you correct her?"

Ariam: No, because I'm unsure how the recipient might react.

The researcher: So, even when you notice a clear mistake, you tend to ignore it?

Ariam: Yes, because I'm unsure about their mental state. I don't know if they would welcome my correction or feel offended by my intervention. However, I've received numerous notifications about my own mistakes, and I've always been okay with accepting them.

The researcher: Really? Were these corrections made in private or in public?

Ariam: I believe it was in private. I can't recall exactly, but Jamila mentioned during a discussion that it was a mistake, and Israa also pointed out in one of my posts that it was incorrect and unclear. I was fine with making the corrections.

The researcher: Did any of this bother you?

Ariam: No, not at all. As I've said, I greatly benefit from my friends and learn a lot from them."

In this quote, Ariam discusses her personal experiences with receiving feedback from her classmates on mistakes in her posts. She acknowledges that she accepted this feedback openly and made adjustments to her posts based on their suggestions. This behaviour demonstrates power dynamics rooted in the ability to regulate others' behaviour, as students monitor each other's adherence to forum rules, correcting

errors and deviations from the guidelines set by the instructor to uphold the forum's standards.

While Ariam welcomed her classmates' corrections, she refused to correct others' mistakes or deviations from norms. This shows that some students exercise influence on others, while others do not, which also demonstrates the unequal distribution of power among learners.

The script also reveals power techniques related to normalization. Ariam's cautious approach to interacting with others is evident as she avoids correcting others' mistakes, whether they relate to factual facts or forum participation rules. Her avoidance stems from a sensitivity to social norms and a concern about how others might perceive and accept criticism.

Furthermore, the script touches on power relations linked to surveillance. The open nature of the discussion forum facilitates the exchange of guidance and corrections among all students, representing a form of monitoring that is typical in online discussion environments.

6.3 Conclusion and Discussions of the Findings on Power Relations Techniques

In this chapter, the main objective is to present the findings from the analysis conducted on the semi-structured interviews. The analysis was carried out using the Power Relations Techniques Framework developed by Gore (1995). The results in this chapter aim to address the sub-research question:

What are the power relations strategies imposed by female learners over one another in single-gender online discussion forums?

In general, there are six main findings of the analysis in this chapter. In essence, the passage emphasizes that power dynamics are an inherent part of educational settings, regardless of the pedagogical approach. Applying Gore's (1995) framework, I conducted a deductive thematic analysis of the data. The use of these techniques is essential in order to get a more thorough comprehension of the power dynamics within this educational setting, as it enables the methodical analysis of subjects based on a well-established theoretical framework.

Initially, the research revealed that participants in the study used the eight power relations strategies introduced by Gore (1995): surveillance, normalization, exclusion, distribution, totalization, individualisation, classification, and regulations—to one another throughout their interactions in the online learning forum. Multiple subthemes underlie some of the techniques identified in the data (please, see Table 2). For example, there are four categories under the technique of individualization. These techniques accomplish a variety of purposes, including knowledge construction and the establishment of personal identities. As with any face-to-face classroom, this finding shows that online learning spaces also encompass power relations strategies. Therefore, it contradicts the widely held belief that online learning environments are intrinsically democratic spheres (Lee and Brett, 2014). It underscores Foucault's (1982) notion that power relations are everywhere in relational contexts and, as he said, a society devoid of power relations can only be considered an abstraction.

Second, the eight techniques of power relations sometimes overlap and influence each other in complex ways. For example, totality and classification overlap. In many incidents, learners were subjected to various forms of classification because of the dominant discourse and the unified system of knowledge regarding the ideal student, grading, and online discussion standards. Another example is the overlap between normalisation, exclusion, and individuality. There were incidents when some participants expressed their identities through discourse and practices and, thus, were excluded as they deviated from the norm (learning style, language proficiency, and cultural background). Also, there is an overlap between surveillance and individualisation in the sense that individuals may adjust their behaviours because of the surveillance system in the online learning environment.

Third, among the three groups, there was a lower incidence of totalization and classification compared to other techniques. However, the use of surveillance and regulation was more prevalent. This finding contradicts Gore's (1995) results, which indicated significantly fewer incidents of regulation and surveillance across all sites compared to other techniques. This difference in result between my findings and Gore's can be attributed to the structural nature of online education platforms. In online platforms, the system incorporates various monitoring methods and technologies, thereby facilitating a greater use of surveillance than what is typically seen in face-to-face settings. In addition, the absence of physical interaction between students and teachers in online education may necessitate a stronger dependence on clear and explicit rules to govern the learning process. Thereby, the power of regulation becomes stronger in online settings. Saying this, it might also be

important to point out the role of the instructor's involvement in supporting discussions. The results also showed that while the instructor represents a higher authority in the classroom, his comments, feedback, and regulations positively influence learners' discussions and learning processes in online discussion forums. This result agrees with Kearsley (2000) who indicated that the amount of instructor involvement in the discussion forum increases student involvement and participation in a course. Also, it agrees with Ertmer et al. (2007), who found that feedback from the instructor was perceived as being more important by participants. On the other hand, this result contradicts the study of Mazzolini and Maddison (2007), which reported that the more the teacher intervenes, the less the students participate in the discussion.

Fourth, the investigation revealed that power dynamics impact the production of knowledge, exerting both negative and positive influences. For instance, the implementation of regulations has been shown to enhance the quality of discussions. Equally, cultural norms and exclusionary practises hinder critical thinking and nuanced discourse. Furthermore, monitoring systems implemented in online platforms have been shown to have a positive impact on learners' writing patterns and facilitate peer feedback, both of which contribute significantly to collaborative knowledge construction.

This result is consistent with Foucault's ideas about the relationship between power, knowledge, and discourse. Foucault suggests that these elements are interdependent, each shaping and being shaped by the others. In his book *Discipline and Punish: The Birth of the Prison* (2020), Foucault contends that power and

knowledge are intrinsically linked; there is no power without the corresponding establishment of a knowledge domain, nor is there any knowledge that does not simultaneously presuppose and consolidate power. This perspective is further agreed upon by numerous studies in the field such as (Cutri, Whiting, and Bybee, 2020; Barker and Quennerstedt, 2017; Lee and Bret, 2014; and Abrams, 2013). These studies, while not always explicitly focusing on power dynamics, provide implicit evidence of the impact of power relations on knowledge construction. The relationship between power dynamics and knowledge construction is further explained in the seventh chapter of this thesis.

Fifth, the findings revealed that certain power dynamics led to participants becoming docile bodies, with their behaviour being regulated in accordance with prevailing regulations, expectations, and standards. Foucault (2020, pp.133-139) proposes the notion of the 'docile body', which is the body that is subjected to and modified by the disciplinary authority in order to function effectively and reliably in a variety of tasks. This concept goes beyond physical control to how people behave and interact inside structured systems (such as schools, armies, and industries).

Despite the aims of disciplinary power to make bodies docile, some power relations prompted resistance, with participants actively opposing these forces. Foucault (1982; 2020, pp.46,133) argues that, despite attempts to regulate how individuals act, people's bodies inherently resist and behave in their own distinct ways. This resistance demonstrates that control has limitations, and there is a perpetual conflict between attempting to control people and how they naturally behave.

Sixth, the study showed that power is not limited to overt and formal structures but may also manifest itself in implicit and ordinary ways. Instances of power that may not appear explicitly include: cultural norms, self-exclusion, and individuality traits (such as expressing opinions and points of view), all reflect the nuanced and everywhere nature of power.

Lastly, the findings indicated a significant presence of many of Foucault's concepts within the study. While these concepts have been previously introduced, they are reiterated here to provide a comprehensive overview of all the Foucauldian elements identified. These concepts include the following:

- **Docile Bodies:** The study identified the concept of "docile bodies", where individuals are conditioned to conform and behave in ways that are controlled and predictable.
- **Panopticon Effect:** The presence of surveillance, as a means of monitoring and regulating behaviour, was a significant concept in the study.
- **Knowledge and Power:** The interplay between knowledge and power was significantly featured, highlighting how knowledge is used as a tool of power and how power produces knowledge.
- **Power as Positive:** The data revealed that power could have positive effects and is not always oppressive or negative. However, for Foucault (1983), the term "productive" does not imply that the outcomes must always be positive. Instead, it refers to the capacity to generate behaviours, structures, or events, which can be either beneficial or negative (Bourke, Lidstone, and Ryan, 2015).

- Resistance: The notion of resistance against power structures was highlighted as an important aspect of the findings, particularly when participants were practicing their individuality.
- Omnipresence of Power: Power was shown to be omnipresent, existing in all relationships and interactions.
- Power Dynamics: The study also emphasized that power operates not only in a top-down manner but also in bottom-up and horizontal ways.

Chapter 7: Discussion and Conclusion

7.1 Introduction

This chapter examines the interplay between power relations and knowledge construction and the consequences of the findings, situating them within the framework of prior research. The aim is to understand the findings in relation to the research questions and current literature. In doing so, I will try to answer the main research question by connecting the two sets of findings in this chapter.

How do power relations techniques influence collaborative knowledge construction in single-gender online learning forums?

To answer this question, I draw upon the findings of Chapter 5 and Chapter 6. The aim is to unpack the situations where power relations techniques contributed to the process of collaborative knowledge construction as well as the situations where power relations techniques hindered the process of collaborative knowledge construction.

In Chapter 5, the results showed that female participants actively engaged in every phase of knowledge construction as delineated by the IAM framework. Nonetheless, Phases 1, 2, and 3 were frequently reached more than Phases 4 and 5. In fact,

across all three groups, Phase 4 appeared in just two threads, while Phase 5 was present in only one. This indicates the need for more investigation on the conditions where learners can/cannot reach a high level of knowledge construction.

In Chapter 6, the data showed that learners demonstrated eight power relations techniques over each other, as explained by Gore's (1995) Power Relations Framework. These techniques are: surveillance, normalisation, exclusion, distribution, totalization, individualisation, classification, and regulations.

Nevertheless, the results showed that only five techniques of power relations have a direct impact on knowledge construction: surveillance, normalisation, exclusion, individualisation, and regulations. In this chapter, I explain these techniques and how they relate to knowledge construction.

First, I try to explain the interplay between knowledge and power. Then, I discuss the five power relations techniques and how they influence collaborative knowledge construction in the online learning discussion environment, situating them within the framework of prior research.

Finally, I introduce research contributions to knowledge, limitations, and future research.

7.2 The Interplay of Knowledge Construction and Power Relations

I begin by discussing the construction of knowledge within the two principal theoretical frameworks of this research: Foucault's Theories and Constructivist Theories.

In general, both perspectives agree that knowledge is not discovered, but rather socially constructed. However, they differ in their emphases and the scope of the knowledge construction process.

Foucault (1982; 2002; 2020) emphasises the intrinsic relationship between power and knowledge, suggesting that knowledge is always enacted and constructed within a context of power dynamics. He often analysed the role of institutions such as hospitals, prisons, and educational establishments, together with practices like medical treatment and surveillance, in the creation and enforcement of certain forms of knowledge (Foucault, 2020, p.171). Hence, the generation of knowledge is interconnected with power dynamics and discourse (Lee, 2020).

On the other hand, Constructivists view prioritising individual, subjective experiences as fundamental to the process of knowledge construction (Du and Durrington, 2013). It focuses on the role of experience and active learning in constructing knowledge (Doolan, 2011). Therefore, Constructivism attributes significant importance to the agency of the learner in the process of knowledge construction; that is, learners participate actively in creating their own meaning from their experiences (O'Donnell

and Hmelo-Silver, 2013). Two branches of Constructivism exist: Cognitive Constructivism places an emphasis on the importance of the individual's thoughts and reasoning in the construction of knowledge, while Social Constructivism places an emphasis on the significance of group dynamics and cultural norms (Wertsch and Rupert, 1993; O'Donnell and Hmelo-Silver, 2013). The idea of Social Constructivism, as such, seems more connected to Foucault's idea as it puts great emphasis on society, culture, and collective understanding.

In this research, my aim is to provide new insight into the relationship between the construction of knowledge and the power structure in the online learning discussion environment. The data showed that such relations exist, and power relations impact how learners collaborate and construct knowledge in the online learning environment. The results in Chapter 5 and Chapter 6 revealed that power relations affect collaborative knowledge construction through five lenses: the lens of surveillance, the lens of social norms and cultural practices, the lens of social exclusion, the lens of individuality and identity, and the lens of regulations. This will be further explained in the following:

7.2.1 The Learning Lens of Surveillance

In this study's findings, I found that surveillance as a power relations strategy influenced learners' collaborative knowledge construction in different ways. Surveillance systems such as those in online learning, by their very nature, create a structured environment where learners are aware of the constant potential for their contributions to be observed and evaluated by peers and instructors (Abram, 2013).

This awareness could lead to deeper cognitive engagement with the learning content since learners are encouraged to offer well-thought-out arguments and views (Bayne and Land, 2013). In addition, this awareness could foster a culture of peer learning and collaboration since each individual's contributions are displayed to the whole learning community (Dawson, Burnett, and McArdle, 2005). In the following, I demonstrate how surveillance dynamics in online forums facilitate a peer learning culture that supports collaborative knowledge construction through observation, imitation, and feedback.

7.2.1.1 Enabling Conditions of Peer Observations and Learning by Examples

Peer observation and learning by examples, facilitated by the surveillance inherent in online forums, emerge in this study as a central learning strategy. Participants critically engage with content and peers and imitate their peer writing styles, fostering cognitive growth and skills enhancement. Nawal, for example, who engaged with Hend's contributions (her classmate), not only enhanced her cognitive and writing skills but also broadened her conceptual perspectives. Here are Nawal's words, talking about her classmates' posts on the discussion platforms:

"I was particularly compelled by Hend's discussions. Whenever there is an announcement about a new discussion, I eagerly head to her input first. Across all discussions, the way she articulates and states her opinion impresses me. It's evident that she has a deep understanding of what she writes about. Her thoughts not only inspired me but also provoked new questions and perspectives. Sometimes, a single idea she presents triggers a whole new line of thought for me..."

Another example is demonstrated by Renad, who acknowledged that her writing skills and expression abilities have progressed due to peer observation and learning by example in the online discussion forum. Renad stated that:

“After reading their (referring to Jamila and Fadwa’s) posts, I’d check Ariam’s page because she was good at explaining things shortly. Then, I’d look at Faaten for her good choice of words...”

When she was asked about her skills improvement, she stated:

“Absolutely, particularly in terms of expression and writing. Honestly, I’ve greatly improved in this area... I have also noticed that my vocabulary and terminology have evolved subconsciously.”

Renad's experience with the online discussion platform demonstrates how peer observation and learning through examples significantly impacted her skills and her overall educational journey. Aalst (2009) and Gunawardena et al. (1997) both highlighted the foundational role of knowledge sharing in learning processes, emphasizing that the initial phase of knowledge construction often involves the sharing and comparing of information, including observations and opinions, which aligns with the concept of learning through observation as individuals share their insights and experiences to address specific needs or goals.

This finding aligns with the theoretical underpinnings proposed by Bandura's Social Learning Theory and is further supported by the empirical evidence provided by Andrew, Wallace, and Sambell (2021), Roelle et al. (2017), Renkl (2014), Sundset and Sandvoll's (2022), and Walker (2015). These studies found that example-based

learning and observational learning enhance learner's skills and the overall learning journey.

7.2.1.2 Enabling Conditions for Peer Feedback and the Exchange of Ideas

The role of peer feedback, as evidenced in this study, confirms the constructivist perspective on knowledge construction within online learning environments. The spontaneous peer-to-peer correction and feedback mechanisms, highlighted by instances of learners engaging in mutual critique and enhancement of writing, confirm the positive effect of surveillance that supports such learning activities. Maha, for example, stated that she appreciates peer feedback and considers it constructive relations in the online learning discussion platform. Here are Maha's words:

"The Researcher: Have you ever written something wrong, and someone corrected you? How did you feel about it?"

Maha: Yes, one of my colleagues told me that I understood the question wrong. I was happy that she alerted me, I mean I'm here to learn.

The Researcher: OK, have you ever encountered an opposite situation where you noticed a mistake from one of your classmates and alerted or corrected her?"

Maha: Yes, many times.

The Researcher: Do you think that correcting each other's mistakes is important in discussions?"

Maha: Very important. What is the point of discussions at all if we do not point out some of our mistakes?"

The Researcher: Do you do this in private or in public?"

Maha: In public, so that everyone benefits.”

Another example provided by Hend (G.1) showed how she preferred to send her classmates private messages with corrective replies instead of public ones. She explained that she preferred private messages because she did not want to humiliate her classmates in public. Here are Hend's words:

“Researcher: ...Do you like the corrective comments to be public or private?

Hend: I prefer them to be private.

Researcher: Why?

Hend: To avoid embarrassment in front of the whole group.”

This script by Hend highlights the delicate balance between offering critical feedback and fostering a supportive community. Similarly, Farah (G.2) noted the dual nature of peer feedback, which is both informative and reflective of a supportive environment.

“Farah: The way the girls pose questions on my posts is really helpful; it clarifies things for me as I rethink my views and sometimes, I search more.

The Researcher: Okay, what about the reverse situation?

Farah: Yes, well, for example, if I read something and didn't grasp it initially, and then I ask one of the girls about her comment in the discussion and what she intended by it, her response often helps me begin to understand. Some girls explain things very effectively, making it clear by saying, "I mean this and this". However, others simply repeat what was written exactly.”

This finding aligns with the theoretical underpinnings proposed by Vygotsky Social Constructive Theory and is further supported and articulated by previous studies such as Lim et al. (2020), who found that peer learning considerably improves students' problem-solving skills, establishing objectives, and planning instruction. It also aligns with Costley et al.'s (2023) study, which found that peer editing practices, such as comments and track changes, on the quality of student academic writing on the Google Docs platform has a positive connection to learners' writing proficiency and had a detrimental impact on students' writing.

Effective knowledge construction requires an environment where learners feel safe to express their ideas and take risks (Scardamalia and Bereiter, 1996). The mechanisms of surveillance facilitate a continuous exchange of feedback among learners, enabling the refinement and evolution of ideas. This process is central to knowledge construction as it allows learners to challenge, reconsider, and expand their understanding based on peer inputs (Gunawardena et al. 1997; Scardamalia and Bereiter, 1996; Pea, 1993). The iterative nature of this process ensures that knowledge construction is not an isolated attempt but a communal activity (Aalst, 2009).

Many studies support the current research on the role of surveillance systems in educational digital platforms in enhancing learning. For example, Dawson, Burnett, and McArdle (2005) found that the university's surveillance system of online learning platforms has a positive influence on students' writing skills. Similarly, Deranek et al. (2015), agreed that surveillance systems in online learning controlled undesirable behaviours. Although the research results provide important positive new insights

about surveillance, a number of opposing points of view lead to a more nuanced perspective. For example, Hamamra et al. (2022) highlighted how surveillance can suppress free expression and critical thinking and transform learners into passive recipients of knowledge rather than active producers. Similar to Hamamra et al. (2022), the study by Donnelly, McGarr, and O'Reilly (2014), although conducted in face-to-face settings, viewed the constant monitoring of students by teachers as a manifestation of "ever-present" hierarchical power relations within the classroom. While the researchers recognized that such surveillance can be advantageous if it remains moderate, they warned that excessive monitoring can limit students' creativity and academic freedom. In the same vein, York's (2021) study viewed surveillance in online learning platforms as a suppressive mechanism that raises numerous concerns regarding ethics, privacy, access, and control.

In addition, several studies, like the study undertaken by Ertmer et al. (2007), dispute the effectiveness of peer feedback and indicate a preference for instructor input. The researcher discovered that students valued instructor input more than feedback from peers throughout a semester due to its quality and dependability. Students were worried that peer feedback might be biased, time-consuming, and ineffective. Similarly, the study conducted by Lee et al. (2012) found that learners were not generally satisfied with group learning in online learning. Also, communication between students with each other deteriorated during online learning during the Pandemic. The researchers attributed this to the lack of physical contact. So, despite the success of online learning in supporting individual learning for students, the study

found that teachers could not effectively facilitate collaborative learning for students during the Pandemic.

In sum, surveillance, when thoughtfully implemented, can create a dynamic space for cognitive engagement, collaborative learning, and the iterative exchange of ideas—essential components of effective knowledge construction. However, the ethical considerations surrounding surveillance necessitate a careful and deliberate approach to its use in educational settings. Addressing these ethical considerations is crucial to ensuring that surveillance serves as a positive force in the knowledge construction process.

7.2.2 The Influence of Social Norms and Cultural Factors on Online Knowledge Construction

Results presented in Chapter Five indicate that the normalization processes within participants' online interactions have a deep effect on their engagement in online discussion forums. These outcomes uncover a multifaceted interaction among cultural norms, social harmony, and the obstacles posed by these norms to collaborative knowledge creation in online learning contexts. Detailed insights follow below.

7.2.2.1 Preservation of Social Harmony and Avoidance of Complex Questions

A notable finding is the frequent avoidance of complex and critical questions by participants, which poses a significant obstacle to the core processes of collaborative

knowledge construction. In the following example, Farah (G.2) expressed her hesitation about confronting her classmates in class. Here is what she said:

"Farah: Yes, I mean, I don't like it when there's tension between me and another person on a topic, leading to a strained relationship, especially in class... not everyone is receptive to criticism. Not everyone is open to it. For example, I'm okay if someone criticises me, I don't have a problem with it. But some people aren't... Personalities differ, so responses can vary."

Farah's difficulty with handling tension and her inclination to avoid unpleasant interactions indicate her adherence to a societal norm that prioritises harmony over confrontation, a behaviour that is common in the Saudi community (Luppiciani and Walabe, 2021). This tendency restricts the opportunity to question current ideas and explore new areas of knowledge, thereby limiting the extent and range of collective knowledge that may be developed in these forums. The unwillingness to participate in complicated questions, which stems mostly from the need to preserve social harmony, highlights a crucial obstacle to productive online collaboration of knowledge construction. One of the cultural words that reflect this practice of avoiding complex questions to preserve harmony is the word "Tahjeer," which means making someone feel less competent. This was said by Fadwa (G.3):

"Fadwa: It's just, as I told you, from the first time we were told that we have a discussion forum and it would be a requirement, the first thing we thought about was the sensitivity between us... we were concerned about our reactions. There's a term in Arabic, "Tahjeer" (making someone feel trapped or pressured in a discussion). This is what we were afraid of."

This word emerged as a significant factor affecting online interactions. The avoidance of "Tahjeer" aligns with the broader theme of maintaining harmony and comfort within the learning environment, which, as participants stated, negatively affects the process of collaborative knowledge construction.

The process of knowledge production relies heavily on the interchange of critical inquiries, constructive criticism, and innovative thinking, as it creates an atmosphere that encourages not only challenging ideas but also expanding them beyond established social margins. According to Aalst (2009), encouraging knowledge-building discourse in collaborative learning environments involves fostering a culture of deep inquiry, critical evaluation, and collective knowledge construction. It requires careful consideration of pedagogical approaches, integration with classroom practices, and the thoughtful use of technology to support collaborative learning dynamics. Similarly, Gunawardena et al.'s 1997 IAM framework suggests that one of the stages of collaborative knowledge construction (specifically, the second stage) is the discovery and exploration of dissonance or inconsistency between ideas, concepts, or statements. The processes that occur in this stage include: (A) Identifying and explaining areas of disagreement; (B) Asking and answering questions to clarify the source and extent of the disagreement; (C) Restating the participant's position, and possibly advancing arguments or considerations in its support by references to the participant's experience, literature, formal data collected, or proposal of relevant metaphor or analogy to illustrate a point of view.

Avoiding exploring certain cognitive processes—such as critical questioning and innovative ideas in discussions due to fears of violating societal norms—reveals

underlying power dynamics that play a pivotal role in educational settings. The act of avoidance not only serves to highlight the implicit impact of social norms on educational communication, but it also implies that these power dynamics define the limits of what is considered acceptable in the transmission of knowledge. If this power dynamic persists, the entire debate forum may change. Participants may start simplifying their input to avoid making others uncomfortable, which might make learning less challenging and may affect the knowledge-construction process. Aalst (2009) asserted the importance of considering the social context in which knowledge creation occurs, particularly in educational settings. He suggested that an understanding of the social infrastructure and practices surrounding knowledge creation can enhance educational strategies and encourage the advancement of collective knowledge.

This finding about learners' cultural orientations towards maintaining harmony in online discussions aligns with the study of Yang, Olesova, and Richardson (2010) regarding communication styles within Asian contexts. The authors underscored the impact of cultural sensitivities on communication styles and the engagement level in critical discussions within online educational forums. This cultural effect was also noticed by the study of Sing and Khine (2006) in, also an Asian context, Singapore, who found that cultural norms that value kindness and avoid confrontation in the classroom discourage critical involvement and restrict constructive feedback among teachers. The results of Roseli and Umar (2015) also support this observation, indicating that students mostly abstained from critically commenting on and analysing their peers' postings in order to prevent confrontations, which arose from a

tendency to be excessively polite towards one another. Lucas et al. (2014) study evaluated the effectiveness of the Interactive Analysis Model (IAM) in asynchronous online learning by reviewing 15 studies. They noted the model's limitations in capturing incidents of knowledge co-construction, attributing some of these shortcomings to cultural factors. Specifically, they highlighted low engagement in discussions involving disagreement in studies from Taiwan and Singapore, suggesting a cultural reluctance to debate. Hutchison's (2006) discussion of cultural paradigms in education also emphasises the broader role of culture in educational standards and how avoiding conflict and promoting a peaceful online atmosphere are influenced by cultural inclinations.

7.2.2.2 Saudi Educational Practices (Norms) for Knowledge Construction/ Cultural Practices in Education

One finding of this study revealed that in the Saudi Arabian educational context, there are inclinations towards memorisation rather than critical thinking, a situation that creates challenges to collaborative knowledge building. It suggests a possible gap between the cultural and educational methods utilised in Saudi Arabian educational institutions and the requirements for successful collaborative online learning. In the following example of Jamila (G.3), she addresses some of the problems of this educational system.

“Jamila: ...since when do we discuss anything with anyone? For instance, in schools, high schools, and even universities, if you had a discussion, would you say to the people you are debating with that their viewpoint is wrong and

you're right? Some people just can't handle face-to-face discussions. When you challenge them, they might feel attacked; they aren't open to debate at all... We are not used to discussion in any educational setting, as I told you. I had such an incident at university once. It was quite unpleasant. My professor just shut me down...The professor presented an idea, and it was very strict. Honestly, I don't remember my response to her, but she didn't like it. She felt like, "Who are you to correct me? Or your response isn't good." She believed her opinion was right and mine was wrong. It wasn't like basic math, where one plus one equals two. Honestly, I don't remember the exact question, but I remember my feelings and her reaction. It made me go silent."

Jamila's words mirror an educational problem connected to the educational practices in the Saudi context, that is, enforcing a didactic approach to teaching, in which the instructor's point of view is accepted as the only valid viewpoint and other opinions are inappropriate. These practices often exclude other types of intellectual involvement, such as critical thinking and discussion. Learners, such as Jamila, in this climate would be reluctant to voice their views or challenge existing notions. This approach is rooted in a pedagogy of memorisation and repetition in which power distance relations are what relate teachers to students. The teacher in this relationship is an authority figure, and the students are passive observers.

Besides Jamila, other participants also expressed their lack of familiarity with participating in discussions that required critical thinking. Their prior experience in both online and in-person courses consisted primarily of straightforward, brief

question-driven discussions. For example, when I asked Maha (G.1) about her expectations toward discussion assignments, she said:

“Maha: I assumed that discussions are all about answering simple questions similar to those in the face-to-face setting.”

Nawal also hoped to see more in-depth conversations in schools as she experienced in the online diploma. She said:

“Nawal: I wish in the future there would be more in-depth discussions in schools and not just universities. I feel that in school, it would be the most optimal time for discussion because it allows the teacher to understand his/her students more. It would make the teacher get a grasp on how the next generation thinks.”

Saying that, Nawal also expressed her anger toward the system that ignored her desires and ambitions when she was young.

“Nawal: No one would ever ask what our future outlook is or what we would like to be in the future, so it made us feel lost. No one guided us on the types of paths we could take and the best steps to take to reach that path. It would have saved us a lot of time and guided us in the right direction.”

Farah (G.2) also indicated that her experience with previous discussion assignments had no value added because it depended on straightforward questions pulled from the course texts.

“Farah: Most discussions depended on the text itself, and we were only required to copy and paste what was in the books. It did not really add any value.”

Suha (G.2) also highlighted the change in learning by expressing her struggles with the new participation standards that required high-level cognitive thinking skills.

“Suha: ...I felt that there are things I need to consider in discussions; I need to think deeply and analyse what is written, and things like that. That is the standard I have to follow.”

Renad (G.3) also complained about her poor expression and writing skills, attributing this to her weak foundation in K-12 education, as writing and expression skills are typically taught and mastered during the early academic stages of a student's life.

“Renad: Discussions were difficult for me because my ability to express myself is very low; I mean, I can't express myself at all... I don't know how to organise my thoughts... I don't even know how to write, even in terms of spelling mistakes... Honestly, most of us don't know the basics of expression or how to write, so we end up quoting someone else's words...If they had used discussions with us at a younger age, all students would have been able to express themselves.”

Fadwa (G.3) also stated that dialogue and discussions were not options in her experience as a teacher or as a student. This mirrors the traditional way of teaching that depends on delivering the content to a passive learner.

“Fadwa: Well, I have experience teaching online, but my role was limited to delivering lessons. I didn't engage in much communication beyond that, such as discussions or dialogues. This kind of practice never happened in my teaching not even when I was a student.”

Although not directly related to the discussion forums, Farah (G.2) pointed out the power distance they felt with one of the professors in the diploma. She described it as an issue that affected their learning. Farah's words described the overall climate of relations in Saudi educational institutions.

“Farah: We felt a certain respect towards Professor (name), which made us hesitant to approach her directly. Instead of emailing her or initiating discussions during lectures when we encountered issues or had questions about assignments, we would turn to each other for answers. This approach led us to make significant mistakes in our assignments. The professor was frustrated by our reluctance to ask for her help, but we were intimidated by the thought of reaching out to her.”

All these quotes from participants fall into the system that honour memorisation and rote learning over critical thinking and knowledge construction. This system reinforces power distances between learners and teachers and produces passive learners. This picture shows teaching and learning practices that have long dominated the educational system in Saudi Arabia. Accordingly, participants' struggles to reach high phases of knowledge construction can be attributed to the educational system that normalises memorisation and repetition.

This finding corresponds with several previous studies about the Saudi Educational system. For example, Luppiciani and Walabe (2021) found that the class in the Saudi context is teacher-centered and characterised by the power distance between learners and instructors. Learners in this situation are often reluctant to query or challenge instructors due to the pervasive societal expectations. Another example is the study of Elyas and Al-Ghamdi (2018), who reported a critique of Saudi Arabia's

educational practices for their reliance on didactic rote-learning methods. This remark further aligns with Eissa's (2020) research, which noted that the instructor-learner relationship in Saudi Arabia followed Paulo Freire's banking model, in which education is essentially a narrative process. Educators, as such, hold a high status and power that hinders the adaptation of student-centered pedagogies. Yang, Olesova, and Richardson (2010) claimed that the preference for rote learning, influenced by cultural norms, presents a barrier to engaging deeply with content and building effective relationships in online settings. This culture of passing knowledge rather than fostering dialogue hinders collaborative learning and knowledge construction (Eissa, 2020).

7.2.3 Exclusion in Collaborative Knowledge Processes

Data analysis revealed evidence of learners' exclusion in these settings. The form of exclusion that occurred in this research was at a micro-personal relationship level rather than at an institutional level. Two forms of learner exclusion related to the construction of knowledge were identified.

7.2.3.1 Exclusion Based on Emotional Sensitivity and its Affect on Peer Dynamics

The results suggest that learners demonstrated sensitivity to one another, leading them to avoid certain interactions. This avoidance unconsciously excluded some classmates from discussions. Jamila (G.3), for example, admitted that she distanced herself from her classmate with whom she had misunderstanding issues.

"Jamila: There were instances, in the beginning, with some girls where misunderstandings arose. It wasn't necessarily a major conflict, but a slight miscommunication that led to a slight distancing between us... I don't shy away from responding to those individuals on the discussion boards, but they tend to be my last option..."

Nawal (G.1) also experienced a similar situation when she marginalised one of her classmates due to their lower qualifications.

"Nawal: There's a girl who, every time I ask her something trying to interact with her in the discussion forum, she comes to me in private and says, 'Give me your answer'. It makes me feel like my question is too difficult... She asked me privately if I could give her an answer to the question I posed to her...sometimes I feel guilty, like, 'Nawal, why do you ask her such a question? Just let it go, don't ask her again'."

In these two scripts, Jamila and Nawal's avoidance behaviours resulted from emotional sensitivity between learners and how they deal with conflict. Even though this avoidance did not completely eliminate those learners from the forum, it excluded them from engaging with challenging and critical questions that are crucial for collaborative knowledge building. Hence, the online discussion forum as an online collaborative tool did not prevent any emotional issues between learners from occurring, nor did it prevent conflict from emerging. This emotional sensitivity among learners creates an obstacle for effective collaboration in online learning discussion forums.

These findings are consistent with those of Edwards (2013). He found that members of online discussion forums interacted and agreed more often with those who had

similar beliefs, while avoiding those who held opposing views. Similarly, Ozturk and Hodgson (2017) found that conflicts impacted by power dynamics in virtual learning communities usually end in favour of the more powerful or authoritative members. This dominance influences the learning process, as other members often passively accept the interpretations and ideas given by those in control. This dynamic results in a sort of exclusion, in which not all participants' perspectives are equally reflected or respected throughout the discussion.

Correspondingly, the result further validates the findings of Ella et al. (2007), which suggest that women in single-gender online groups experience a higher frequency of conflict compared to male groups or mixed-gender groups in asynchronous online learning settings. However, a key difference from the current study is that Ella et al. found that these conflicts were primarily related to goal-oriented activities, rather than interpersonal issues.

On the other hand, this result contradicts the findings of Herring et al. (1995), which indicated that women feel more comfortable and empowered in women-centered or women-only groups, suggesting that such communities—compared to mix-gender communities—are democratic spaces free from conflict and marginalization.

Likewise, this finding contradicts the finding of Chan et al.'s (2006) study. The authors found that females tend to avoid conflict compared to males who prefer dominance in mixed-gender environments.

The aforementioned observations reveal that online learning communities are not free from bias and inequality despite different contexts. Indeed, these practices

significantly impact the learning process and inherently influence the collaborative construction of knowledge.

7.2.3.2 Trust as an Obstacle to Knowledge Construction

One interesting observation in this study is the role of trust in knowledge construction. One participant reported that she usually avoids discussions with her best friend in the class because she does not want their relations to be negatively affected.

“Fadwa: Well... for instance, my very good friend Jamila, I wouldn't get into lengthy discussions with her because... It's possible that she might take it personally... She might feel as if I'm cornering her or implying that she doesn't know how to respond.”

Interestingly, Fadwa's quote showed that trust discouraged her from challenging her friend's ideas or introducing different points of view. In this context, trust seems to be associated with adherence to social norms in which critical inquiry threatens the harmony and conformity of relationships.

This finding contradicts previous studies that highlighted the role that trust plays in enhancing collaboration. For example, Sundset and Sandvoll (2022) concluded that trust is vital in fostering effective collaboration in several contexts, including peer feedback and peer observation. Participants stressed the importance of collaborating with a trustworthy individual with whom they felt at ease. Walker (2015) found that trust between individuals is essential for the delivery of critical feedback and open discussion.

This contradiction between my findings and the previous study adds a new dimension to trust in collaboration by suggesting that people may avoid particular topics to retain personal relationships. In order to better understand trust in different collaborative learning contexts, particularly in collective cultures, further research is needed.

These scenarios of exclusion reflect the complexity of interpersonal relationships. Exclusion as a power relations strategy can affect the decisions about who can be included in knowledge exchange and who cannot, which eventually influences the quality of the discussions in general and the process of knowledge construction. When learners limit themselves to a specific group of people with whom they interact, the opportunity to benefit from the diversity of viewpoints is very limited, affecting collaborative knowledge construction. According to constructivist understanding, collaborative knowledge construction necessitates group interaction as knowledge is socially constructed (Gunawardena et al., 1997). To elaborate more on this social process, Gunawardena et al. (1997, pp.411- 415) presented the metaphor of a “*patchwork quilt*”. The authors explained this metaphor by saying:

“A quilt block is built up by the application, one after another, of small pieces of cloth, which, when assembled, form a bright and colourful pattern. The pieces, according to this analogy, are the contributions of individual participants. Each participant contributes to the whole his or her own texture and color of thought, just as every scrap of fabric forms a distinctive element in the overall pattern....”

The *patchwork quilt* metaphor indicates the importance of the learning community in creating an environment that supports collaborative knowledge construction. The

interaction between a group of individuals with diverse perceptions and opinions on various topics creates new knowledge and develops broad and more profound knowledge. Thus, exclusionary practices limit the diversity of perspectives and experiences; hence, they can significantly hinder the collaborative knowledge construction process.

7.2.4 Individuality in Online Collaborative Learning Environments and Its Impact on Knowledge Construction

In this study, the concept of individuality plays a crucial role in power dynamics among learners, influencing their level of involvement and the development of their identity within online learning discussion platforms. The findings show the complex ways in which learners discover and express their own identities within the online collaborative environment, hence influencing the entire learning process and the way they construct knowledge.

Central to this exploration are the sub-themes identified in the analysis: self-definition and categorisation, the dynamics of resistance and negotiation, the articulation of personal viewpoints, and the reflection on personal narratives.

7.2.4.1 Identity and Knowledge Construction

The data revealed that participants' identities had a substantial impact on the construction of knowledge. Participants who were committed and accountable were more likely to enhance discussions and elevate the quality of the argument. For example, Marwah (G.2) demonstrated an active responsible identity when she

interacted with her peers in forums. She emphasised her ongoing ambition to assist others and make a meaningful contribution to the forum. Here is Marwah's quote:

"Marwah: For me, I respond to everyone honestly... I don't limit myself to just two responses as the teacher requested...I like to enrich the discussions and delve deeper. For example, if I generally liked my friend's contribution but found certain aspects unclear, I would research them. Then, I would nicely explain that her insights enlightened me, but my research led me to different conclusions. I would outline the points I agree with and those I disagree with, point by point. I love contributing to everyone's understanding, and I aim for everyone to benefit... Given my previous experience in the teaching field, where I both taught and trained, it likely had a significant impact on me. I bring more to the table than a diploma student with minimal or no experience..."

The script clearly illustrates how Marwah's personality and experiences—which contribute to her identity—greatly impact her approach to learning and interactions with her classmates.

Israa provided another example of a learner's identification. She expressed her enthusiasm for acquiring knowledge, asking questions, and persistently pursuing learning.

"Israa: ...I really enjoy listening to podcasts in a variety of fields, there's no specific genre that I stick to... sometimes I delve into topics that attract my interest or I inquire about them. I'm not shy to ask questions, thankfully, I've been blessed with the confidence to inquire anyone, no matter how trivial the question might seem, you know? I love exploring; it's just part of who I am.

The researcher: Hmm... earlier, you mentioned that you asked people about their opinions about you... so what was their response to you?

Israa: Some said I am sometimes adventurous... I do take risks, but not in every aspect of life. I mean, I genuinely cherish exploring new things... Also, they said I possess leadership skills... I'm thankful that I sometimes take charge, whether it's managing household matters or handling responsibilities outside...I've developed this trait from a young age, so it has become ingrained in my personality, and sometimes, I find it hard to detach from it."

Israa's qualities have earned her a reputation as a respected and influential participant in discussion groups, as clearly stated by her classmates. Her contributions in the forums also reflect this; she did not limit herself to the required responses but instead responded to almost the entire class.

Below is another quotation extracted from Israa's interview, which reflects her leadership qualities and sense of responsibility. Her tendency to value the contributions of others demonstrates her ability to act and exercise power that may indirectly affect the learning outcomes of her peers.

"The researcher: Okay, Israa, when you write, do you try to write a perfect answer? I mean, in a way that it could serve as a model for your peers?"

Israa: To be honest...I write an answer that I try to make comprehensive... and at the same time, it shows that I really worked hard on it and it's not just any random words.

The researcher: Then, do you evaluate your peers' answers while you're reading their posts?

Israa: Yes, yes... because, for instance, some answers didn't adequately address the question, you know? So, I would think, why would someone write it this way in general, like, it seems they were just winging it, you know...? Honestly, it wasn't nice because it doesn't reflect the person's level, you know?

The text highlights Israa's contribution to creating an intellectually enriching environment that facilitates the development of shared knowledge. Israa demonstrates active participation in her classmates' forum contributions by analysing, categorising, and assessing them. These processes are high cognitive activities that have been proven in research that they improve learning. Using these cognitive skills in discussion forums will enhance the quality of discussions. This, in turn, moves the group toward building more meaningful knowledge, as rich discussions foster better understanding and generate new ideas.

These two examples of Marwah and Israa underscore the intricate interplay between personal identity and knowledge construction. This finding aligns with Oztok's (2016) study, which argued that identification and personal experience foster a sense of community and support the collaborative process of knowledge construction. Similarly, Arvaja (2012) advocates benefiting from personal experiences as essential learning resources to enhance student agency. Also, the work cited in Ke et al. (2011) explored the relationship between identity presence, content, and learners' participation in online discussions and knowledge construction. The authors found a positive connection between identity and knowledge construction.

According to these results, the literature has generally agreed that identity and knowledge construction are related. This relationship is widely acknowledged in research; it cannot be disputed. However, connecting identity to power relations in the context of collaborative knowledge constructions is an area of research that

needs more investigation.

7.2.4.2 Resistance as an Obstruction to Knowledge Construction

The findings revealed that students exhibited resistance against numerous pressures, from classmates, instructors, and the educational institution. In the following example, Fadwa (G.2) expressed her annoyance with the pressure from some classmates who urged her to ask only simple, direct questions to avoid embarrassment or grade reductions that could result from more challenging inquiries.

"Fadwa: There are girls who come to me and say, 'Fadwa, go and ask us this question'. They specified the questions I should ask them so they could answer them on the discussion board. They came to me and said, 'Fadwa, ask me this particular question because I don't want you to ask me something difficult'. They think when I come to ask, it's as if I'm trying to trick them or show the professor that they aren't participating or understanding. But in truth, I only ask about things I myself don't understand. It's not about scoring points... It's about understanding".

The script showed resistance from some of Fadwa's classmates against critical, thought-provoking, and constructive questions. As a result, the value of online debate and the potential of constructing knowledge would be reduced.

Another example from Jamila (G.3), also demonstrated how she resisted her classmate—Israa's comments:

“Jamila: Once, during one of the discussions, I chose not to enumerate my ideas. I felt that the clarity of my argument didn't necessitate a bullet-point style. I believed it appeared more rational without the constraints of bulleted points... Israa, however, felt differently. She proposed that I should clarify my thoughts, suggesting breaking them into bullet points... I replied within that same forum and told her that I found my way clearer. My stance remained unchanged, and I didn't change my opinion or make a list or anything. I'm a bit stubborn... The only person likely to shift my perspective is the instructor, and even when she comments on my writing style, I might reconsider, but hesitantly.”

This script shows the interplay between power and knowledge construction. The exchange of feedback between Jamila and Israa as well as the feedback from the instructor, demonstrates the presence of power relations that operate both vertically and horizontally.

Critical thinking can be enhanced by engaging with diverse perspectives. However, a collaborative knowledge construction process may be hindered if students don't take the input of their peers seriously or if certain power relations restrict free speech. In the script, we can see how Jamila decided to maintain her original writing style despite her classmate's feedback. This can also reflect a form of resistance against peer pressure and certain norms. Jamila's reaction to Israa's feedback and her subsequent response by standing for her point of view reveals her sense of individuality. This was clear when she said (I'm a bit stubborn). Thus, the resistance here may yield two opposite results: on the one hand, it may hinder the construction of knowledge. On the other hand, it can be productive as it may enrich the knowledge construction process by introducing an alternative viewpoint of expression.

Dissonance and questioning in the development of knowledge have been increasingly acknowledged as crucial elements of debate in research (for example, Lorencová et al., 2019; Gunawardena et al., 1997). The contradictory concepts and viewpoints serve as an encouragement for deeper investigation and analytical reasoning, which are essential processes in the acquisition of new perspectives. Likewise, questioning plays a crucial role in the process of building knowledge by creating an environment where ideas are constantly questioned and reassessed. Nevertheless, neglecting or resisting these aspects by disregarding contradictory perspectives or by ignoring difficult enquiries might result in an inadequate comprehension of topics, which will eventually obstruct the development of new ideas. According to Scardamalia and Bereiter (2010), concepts become more valuable when they are compared, distinguished, and combined.

7.2.5 Regulations for Shaping Online Collaborative Knowledge Construction

This study's findings underscore the significant role that regulation plays in the dynamics of online educational discussions. Regulations, which can be thought of as the ways that power is used, set the limits of what posts (discussions) are accepted. They affect both the content and the way individuals communicate with each other in the online communities. These regulations manifest themselves through various boundaries such as grading criteria, acceptable types of inquiries, instructors' guidelines, time constraints, and discussion standards. The findings showed

connections between these regulations and the collaborative knowledge construction in the online discussion environment.

The findings showed that the obligation to regulations encourages deeper cognitive engagement by encouraging learners to think critically and contribute meaningfully. Standards, that were set by the instructor, helped learners craft their posts and responses in the online discussion platforms. Suha (G.2) acknowledges this positive effect of regulations (online standards) on her writing, saying:

“Suha: It taught me how to open my mind and how to add something valuable. And that my response to my peers shouldn't just be a regular reply; it should be an addition that opens up new horizons.”

Fadwa (G.3) also emphasises the role the grading system plays in enhancing the quality of discussions

“Fadwa: ...Well, of course, the discussions in (teacher's name) class were graded... So naturally, we all wanted to give our best. I was careful—linguistically speaking—in expressing my opinion, clarifying my views, and even accepting my peers' opinions... And (instructor's name) would actively engage with us, often remarking, “This is quite good; I'd like you to delve deeper... further explore this particular point” ... but, basically, anything we're doing now on Blackboard is for grades. So, we try to be knowledgeable about everything to get the full mark...”

Marwah (G.2) showed how she implicitly regulates her classmates in order to fulfill the instructor's standards:

“Marwah: A student might only address one point, and the rest, she either ignored or briefly mentioned... So here, I felt I needed to help her—I mean, enrich her topic more... I didn't want the discussion to be just, 'Well done, may God bless you' or 'I liked your discussion'. A good discussion allows the instructor to give us all good grades. So, I responded to her, and she responded to me, and I felt we enriched the topic and genuinely achieved this standard.”

As these examples show, institutional mechanisms such as standards, grading systems, and instructor feedback serve not only as means of control but also as guiding structures that enhance the depth of student contributions. By aligning their efforts with these evaluative criteria, students engage more with the material, leading to more opportunities to construct knowledge.

This result further validates the findings of Gunawardena et al. (1997), who found that a structured approach to online conferences—with clear tasks, timelines, and roles—facilitated the co-creation of knowledge. Similarly, the findings of this study resonate with Fuller's (2023) study which concluded that the ISTE Standards for students' performance in online learning environments enhance learners' performance. It also aligns with the study of Artino and Ioannou (2008) who underlined the need for online learners to be motivated and self-regulated to stay engaged and achieve academic success. Finally, this finding also is inconsistent with previous research such as Mazzolini and Maddison (2007), Khoshnevisan and Alipour 2021, and Brookfield and Preskill (2005) that underscored the role of instructors in facilitating and guiding collaborative knowledge construction in online environments.

On the other hand, these findings contrast with the findings of Rezaei, Jafari, and Rahmani's (2024), which identified a significant negative association between various sources of teachers' power, such as incentives, policies and coercive power, and student outcomes. They specifically underlined that these power dynamics may raise student dissatisfaction, lower motivation and negatively impact the classroom's overall climate. Likewise, the study of Delgado and McGill (2023) suggests that instructors inherently possess power, such as control over incentives and penalties, selecting tasks, control over grades, issuing recommendation or reference letters for students, determining the inclusion or exclusion of content, and overseeing classroom dynamics. Therefore, the way teachers decide to use or abuse this power may have a substantial effect on students' motivation and overall learning experience.

In sum, the relationship between regulation, power, and knowledge within online discussion forums is complex and multifaceted. While regulations can constrain, the finding of this research found that regulations play a pivotal role in enhancing learners' contributions to discussion platforms and facilitating the co-construction of knowledge.

7.3 Contribution to Knowledge

This research will make contributions to three distinct strands of the field:

First, this study significantly enriches the field of Educational Technology and Technology-Enhanced Learning. It extends the existing literature on Computer-Supported Collaborative Learning (CSCL), Online Learning, E-Learning, and Digital

Learning, drawing on leading studies by scholars such as Guanwardena et al. (1997, 2014, 2016), Aalst (2009), Scardamalia (2002), Oztok (2016), Post and Ruelle (2021), and Pan (2023). Specifically, this research deepens our understanding of how learners engage with and construct knowledge in online environments. By providing empirical evidence on learner engagement, this study informs the development of more effective online educational practices and pedagogies.

Secondly, this research contributes to the field of Instructional Design and Educational Practices (Du, Pate, and Harvard, 2008; Harris and Greer, 2017; Lock and Redmond, 2021). It provides valuable insights for instructional designers and educators in creating equitable online learning environments that foster collaboration. By exploring power dynamics in online discussions, the research can guide the design of more inclusive and effective platforms. Additionally, the findings offer important implications for educational researchers and policymakers, helping to shape informed guidelines, standards, and ethical considerations that promote equality and inclusivity in online education based on empirical data and comprehensive analysis.

Thirdly, this research offers both methodological and theoretical contributions by demonstrating how Constructivism and Critical Theory can be effectively integrated to explore the intersection of collaborative knowledge construction and power relations within online learning environments. Building on the work of scholars such as Lupton (1992), who highlighted the social construction of meaning, Khan and MacEachen (2012), who emphasized the importance of interrogating power dynamics, and Bogna, Raineri, and Dell (2020), who advocated for combining critical

and constructivist approaches, this study advances a pluralistic framework suited to capturing the complexities of online educational contexts. By adopting this interdisciplinary lens, the research encourages future studies to move beyond single-paradigm analyses, offering a pathway to uncover both the interpersonal processes of meaning-making and the structural forces that shape them. This contribution not only enriches theoretical discourse within the Philosophy of Education but also informs the development of critically aware pedagogical practices in digital learning spaces.

Fourth, this study is among the few in-depth investigations of female-only online classes, providing a unique contribution to the field. The study's uniqueness lies in both its focus and context, presenting new insights that extend existing understandings of gender in online learning. As such, the findings are expected to contribute meaningfully to the broader discourse on gender, education, and digital learning, offering insights that can inform more inclusive and context-sensitive online pedagogical practices.

7.4 Limitations

This study set out to explore the impact of power relations on knowledge construction in online educational settings. While it provided valuable insights, several limitations constrained the extent to which the study could fully meet its aims.

First, the analytical focus was largely directed at specific excerpts and thematic elements within posts. While this approach provided in-depth insights into specific peer-to-peer interactions and content characteristics, it constrained the ability to

observe broader patterns across the dataset. A macro-level quantitative or structural analysis of total posts and threads (such as the flow of threads, the volume of posts, or post frequency across participants) might allow patterns to become more visible. This limitation suggests that future research could benefit from incorporating both micro- and macro-level analyses to provide a more comprehensive understanding of the data.

Second, while the research touched on participants' identities in some ways, it did not systematically address how demographic variables, such as gender, age, geographical location, or cultural background, may influence participation, interpretation of discussions, or positioning within power dynamics. This demographic limitation narrows the ability to explore how power and knowledge construction might vary across different demographic factors.

Third, this study applied Gore's (1995) framework to effectively identify and interpret various power techniques in online learning discussions. A key finding of this research was the identification and discussion of instances in which these techniques overlapped, such as examples of "surveillance" and "normalization." This overlap provided a deeper understanding of how multiple power techniques can operate simultaneously in online learning environments. However, one limitation of this research is that the analysis primarily focused on examining each power technique in isolation. Consequently, although intersections between techniques were noted as they emerged, a detailed and systematic investigation of how these techniques interact across the dataset could offer a more comprehensive understanding of power dynamics than what was presented. This limitation,

therefore, highlights an opportunity for future research, where a more targeted analysis of these interrelationships may yield deeper insights into the complexity of power in online learning discussions.

Fourth, this study examined participant engagement within a specific type of online environment, an asynchronous discussion forum hosted on a university learning management system (Blackboard). The linear and temporally structured nature of this platform may have shaped patterns of interaction in ways that were not fully explored within this study.

Fifth, while this study deliberately focused on a single platform to provide an in-depth understanding of engagement within that context, it is important to acknowledge that different online learning environments offer varied designs and interaction modalities. Platforms such as Moodle, Canvas, Coursera, synchronous chat-based tools, social media groups, or MOOCs structure discussions and social interactions differently. As such, the findings of this study are context-specific and may not directly translate to other online educational settings. Future research may explore a broader range of platforms to investigate how differing technological and interactional designs influence social engagement, thereby contributing to a more comprehensive understanding of online learning experiences.

7.5 Future Research

To further explore collaborative knowledge building and power dynamics among learners, researchers could use other methodologies that may enhance and build upon the results of this research. For example, comparative case studies that allow the analysis and comparisons of various online learning settings could provide more comprehensive viewpoints about knowledge and power in online learning settings. Furthermore, longitudinal research may provide useful insights into how power dynamics and collaborative learning processes change over an extended period of time. Further investigation may also consider integrating quantitative measures into research methodologies, such as employing a mixed-methods approach. Within this approach, researchers may get measurable insights into collaboration and participation dynamics by combining learning analytics, such as social network analysis, with qualitative assessments. Simultaneously, qualitative approaches may uncover the contextual and thematic characteristics of these dynamics. Integrating the two analyses would allow for a better comprehension of how students co-construct knowledge. In addition, this dual approach could improve the generalisability of the results.

Future investigations might also examine the ways in which various demographic cohorts (such as cultural backgrounds, different age groups, and socioeconomic statuses) participate and build knowledge within digital platforms. This would allow us to identify the power dynamics that exist among these communities.

Future studies might explore alternate or complementary frameworks to the IAM framework that could uncover new dimensions and distinct viewpoints on online collaborative learning and debate. Some examples of these frameworks are the Model of Henri (1992), the Model of Newman (1995), and the Community of Inquiry (COL) Framework by Garrison, Anderson, and Archer (2001).

Building on the findings gained by using Foucault's Theory of Power Relations to comprehend the dynamics of online learning settings, future studies might utilise an interdisciplinary approach that incorporates different theoretical views. For example, Norman Fairclough's Critical Discourse Analysis (CDA) can provide a vigorous framework for examining how language and online interaction exhibit and enact power relations. Fairclough's (1993) framework focuses on linguistic and discursive structures in which power is exercised. Using this framework could help reveal the hidden ways through which power is negotiated and opposed through dialogue and discourse.

Moreover, future research could consider the contribution of a moderator or an instructor in facilitating or supporting discussions toward knowledge construction and the power relation pertaining to this process. Expanding the study focus to include both the horizontal and vertical dimensions of power (power relations between learners, teachers, and other stakeholders) will result in a more comprehensive view that connects the instructor's pedagogical authority and learner agency in online educational contexts.

Finally, future research could be conducted using other types of online collaborative workspaces featuring distinct specifications, which could introduce an additional facet to the construction of knowledge and power dynamics.

7.6 Challenges and Reflection

At this stage, I would like to reflect on my research journey, which involved navigating several challenges. One of the primary difficulties was identifying a suitable class for fieldwork and data collection. In Saudi Arabia, prevailing teaching practices, particularly in the social sciences, tend to emphasise memorisation and rote learning. As a result, it was challenging to find courses that incorporated online discussion boards aimed at promoting critical thinking and reflection, which were central to my research objectives. After reaching out to several universities across the country, I found that only a limited number appeared to offer such courses. Gaining access was not straightforward, but I eventually secured permission to conduct my study within a diploma course, chosen primarily because access was relatively easier to obtain.

Second, from the outset of my doctoral studies, I adopted a constructivist approach to exploring collaborative knowledge construction. My decision to apply Vygotsky's sociocultural theory and to use the AIM model for analysing discussions was clear and grounded in my prior knowledge and experience with constructivist frameworks.

However, engaging with critical theory, particularly in relation to power dynamics, presented a significant challenge, as I had not previously worked with this theoretical lens. Selecting an appropriate framework to examine power relations within the specific context of my study, online discussions in a course offered exclusively to female students, was particularly difficult.

During my pilot study, I attempted to analyze interview data to explore how power was enacted and experienced. Yet, I struggled to identify themes that resonated with my conceptual understanding of power or that adequately addressed my research questions. This difficulty led me to undertake a comprehensive literature review in search of a theoretical perspective on power that aligned with both my research context and objectives.

Through this process, I found that Foucauldian concepts of multidirectional power dynamics offered a fitting lens, particularly given the horizontal nature of learner interactions in the study. Nonetheless, I initially hesitated to adopt Foucauldian theory for two main reasons. First, as Lee (2020) notes, most educational research employing Foucauldian perspectives has concentrated on the genealogy of discourse. This emphasis often overshadows the investigation of how power operates at the micro-level in both traditional and online learning contexts.

It is important to distinguish between these two approaches: genealogical studies focus on the emergence and dominance of particular discourses and the tensions between them, while micro-level analyses aim to uncover how power is negotiated, exchanged, and enacted in specific settings (Gore, 1995; Donnelly, McGarr, & O'Reilly, 2014). The latter also seeks to expose the subtle sociocultural forces shaping these interactions (Buzzelli & Johnston, 2001). The relative scarcity of research focusing on micro-level power relations posed an additional challenge for me, as it offered few established examples to guide my analysis.

Ultimately, I found Gore's (1995) framework of power relation techniques to be particularly instrumental, as it provided a clear and practical structure for analyzing power dynamics at the micro-level. Rooted in Foucault's theory of power relations, Gore's framework offered the detailed guidance I needed to address the complexities of my research context. It effectively filled the gaps left by earlier studies, enabling a more nuanced and context-sensitive exploration of power dynamics within educational settings.

Third, I faced an additional challenge in attempting to bring together Foucault's theory of power relations and a social constructivist approach to collaborative knowledge construction, grounded in the work of Vygotsky. While Foucault's framework is rooted in critical theory, Vygotsky's contributions to constructivist thought emphasise the social nature of learning and the co-construction of knowledge through interaction. Educational researchers often view these two theoretical traditions as fundamentally distinct in their philosophical foundations and analytical focus, and are therefore rarely integrated within a single study. This prevailing view posed a challenge, as I recognised that each perspective offered unique strengths that could meaningfully complement the other.

To address this, I adopted a sequential approach rather than applying both theories to the same dataset. Specifically, I used the Interaction Analysis Model (IAM) developed by Gunawardena et al. (1997), which is grounded in Vygotskian principles, to analyse the discussion threads and examine how learners collaboratively constructed knowledge. For the interview data, I applied Gore's (1995) framework of power relation techniques, which is derived from Foucauldian

theory, to explore how power was perceived, negotiated, and experienced by participants. This approach was informed by scholarly calls to bridge constructivist and critical paradigms in order to achieve a more comprehensive understanding of social phenomena in educational settings.

Fourth, during the second year of my Ph.D. programme, the COVID-19 Pandemic emerged globally. The Pandemic was an extraordinary event globally, resulting in exceptional disruptions across every aspect of society. One important outcome is that universities moved to online education.

For me, the Pandemic introduced a new set of challenges. Adjusting to remote work was initially difficult, and collaboration with peers and supervisors became more complex due to the limitations of virtual-only meetings. However, this shift aligned closely with my research, as I was investigating online learning. The rapid move to virtual environments made my research more relevant than ever, and I embraced the increased focus on digital platforms. In fact, I enjoyed the transition to remote settings, which provided valuable real-world insights into the area I was studying.

Despite this, there were personal challenges. I had to stay away from home for four months due to lockdowns and travel restrictions, which took a mental toll. The isolation, uncertainty, and stress of the global crisis affected my productivity at times. However, I found resilience in adapting to these changes. Online resources, webinars, and virtual academic conferences opened new doors for networking and learning, offering opportunities that had not been as accessible before the Pandemic.

These challenges improved my problem-solving skills, and throughout this process, I gained significant insights into qualitative research and qualitative analysis techniques. This has profoundly influenced my professional growth, which I intend to carry forward in future projects. I am eager to see how these findings will be received and applied to other researchers, educators, and instructional designers, and I am committed to contributing further to this area of study.

7.7 Conclusion

This research contributes valuable insights into the field of online learning, with specific implications for instructional designers, developers, and educational policymakers in Saudi Arabia. The findings suggest that certain power relations strategies impact collaborative knowledge construction in both positive and negative ways. First of all, among these strategies is surveillance, which has proven to be a positive power relations technique that enables peer observation, learning by example, peer feedback, and the exchange of ideas among online learners. The Panopticon effect inherent in the surveillance systems of online learning platforms was crucial for the adoption of these learning strategies. The ability for learners to observe and interact with each other's intellectual outcomes helped learners engage collaboratively to construct knowledge.

Another strategy includes the influence of social norms and dominant educational culture. The research findings showed that social and cultural norms in Saudi Arabia negatively affect collaborative knowledge construction. This is because learners tend to avoid complex questions on the discussion board to maintain social harmony. In

addition, learners often adopt practices from their educational experiences in Saudi schools, such as reliance on memorization and rote learning over critical thinking.

Thirdly, exclusion has been shown to negatively affect learners' participation and collaborative knowledge construction. The data showed that learners imposed certain exclusion techniques on each other at a micro-personal level. This exclusion was based on emotional sensitivity as well as trust.

Fourth, individuality showed a dual effect (negative and positive) on collaborative knowledge construction. Participants with strong identities made meaningful contributions to the forums and demonstrated supportive behavior toward others, and those with weaker identities showed less engagement and support.

Resistance has also proven to be a negative trait that hinders learning and the construction of collaborative knowledge. Some participants exhibited unexplained resistance to the pressures imposed by teachers and peers to engage in critical thinking.

Finally, regulations have proven to positively influence collaborative knowledge construction. These regulations manifest themselves through various boundaries such as grading criteria, instructors' guidelines, time constraints, and discussion standards. The results indicated that adherence to regulations enhanced cognitive engagement by fostering critical thinking and meaningful contributions from learners.

In sum, three power relations techniques, surveillance, individuality, and regulations, positively influence collaborative knowledge construction in the female-only online

discussion forums. Conversely, three techniques, normalization, exclusion, and individuality, negatively affect collaborative knowledge construction. These findings can be used by instructional designers and developers to enhance the online learning experience. For instance, educators may place greater emphasis on the regulations and standards governing online discussions and participation to promote critical thinking and problem-solving skills. Additionally, these results can inform future policies or practices in K-12 education in Saudi Arabia to implement more critical approaches to teaching and learning, potentially encouraging learners to adopt these skills in their early years.

As for my personal teaching practices, I intend to make online group discussions a central activity in my virtual lectures, aligning with evidence that shows that online discussions enhance collaborative knowledge construction. My plan will consider power dynamics in this environment, as this research highlighted that certain power strategies can both positively and negatively impact collaborative learning.

For example, surveillance has proven to be a beneficial power strategy, enabling peer observation, learning by example, peer feedback, and the exchange of ideas among online learners. I intend to leverage the monitoring features available in virtual platforms to enrich the learning process, allowing students to benefit from one another through mutual feedback, idea-sharing, and showcasing their contributions.

Another positive example is the use of regulations to support collaborative knowledge construction. These regulations include elements such as grading criteria, teacher guidelines, time limits, and discussion protocols. In my teaching, I

will ensure that students understand the criteria they must follow and will provide structured feedback and support throughout the discussion process, without affecting learners' agencies and autonomies.

On the other hand, research has also identified three power strategies that hinder collaborative knowledge construction. To address these challenges in my teaching, I will adopt a gradual approach to introducing critical questions in discussion tasks, starting with simpler inquiries and progressively increasing their complexity. This method acknowledges that students may be unfamiliar with discussion-based learning, particularly if their previous educational experiences in K-12 or university settings did not emphasize this approach.

Additionally, I will encourage students to pose critical questions to one another and incorporate this practice into the evaluation rubric. By fostering an environment where students feel comfortable challenging social norms that discourage confrontation, I aim to help them become more open to diverse perspectives and engage in deeper, more meaningful discussions.

Word Length

The word length of the thesis is 83.360 words.

Appendix One: Ethics Approval



7th May 2020

Dear Alyaa Aljared,

Thank you for submitting your ethics application and additional information for ***Identity, power, knowledge construction in online learning environment***.

The information you provided has been reviewed by Dr Murat Oztok and I can confirm that approval has been granted for this project.

As principal investigator your responsibilities include:

- ensuring that (where applicable) all the necessary legal and regulatory requirements in order to conduct the research are met, and the necessary licenses and approvals have been obtained;
- reporting any ethics-related issues that occur during the course of the research or arising from the research (e.g. unforeseen ethical issues, complaints about the conduct of the research, adverse reactions such as extreme distress) to the Research Ethics Officer (Dr Murat Oztok or Dr Natasa Lackovic).
- submitting details of proposed substantive amendments to the protocol to Dr Murat Oztok (spvr) for approval.

Please do not hesitate to contact your supervisor if you require further information about this.

Kind regards,

Alison Sedgwick

Programme Administrator
Doctoral Programme in Educational Research

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Appendix Two: Interview Guide

Participants Interview Questions

- Have you ever had any previous experience with online discussions in previous courses, or is this your first experience?
- Do you have other experiences in discussions on social media platforms?
- Does the experience of online discussion on social media differ from that in online courses? How? Explain to me the differences.
- If I asked you to describe or define an online discussion forum in words, what would you say?
- How was your experience in the online discussion of the online course? Was it a pleasant experience or not a good one, and why do you think so?
- Does the experience of discussion in a face-to-face classroom differ from remote discussion? Which one is better, and why? Describe both experiences.
- When you were asked to contribute to the online discussion, what were your expectations about the discussion? And was reality similar to your expectations? How was it similar and how was it different?
- Describe the discussion forum in terms of equality and freedom of speech.
- Do you remember a discussion where you learned a new concept or idea? When? Tell me the story.
- Have you ever felt that discussions in the course were unhelpful and a waste of time and that nothing could be learned from them? When? Tell me the story.
- Did you ever feel oppressed or embarrassed in expressing your ideas? When and why? Describe your feelings.
- Can you tell me about the best discussion you participated in? Why was it the best? What things or factors motivated you to engage in this particular discussion?
- Can you tell me about the worst discussion you participated in? Why was it the worst? What factors contributed to this particular discussion that made it bad?

- Have you ever expressed your frustration or anger in online discussions? Why and when?
- Have you ever felt embarrassed to express your ideas? When and why? Describe your feelings.
- Do you think that it is important to tell people they are wrong in online discussions? ...Why do you think that is? ...And have you ever had the same experience?
- Tell me about a situation in the online discussions where you wrote something wrong, and someone corrected your mistakes. How did you feel about it?
- Have you ever encountered a situation where you felt it was difficult to participate in the discussion? Tell me about the situation.
- Have you ever felt disappointed because of a response from one of your peers or the instructor? Describe the situation.
- Have you ever felt different from your classmates in the course in terms of your ability to discuss? ...When did this happen? ...And what was the difference? ... Tell me about specific incidents, if possible.
- Describe your feelings and emotions at the time, when you felt excited about participating in the discussions. Why do you think you felt that way?
- Do you think this tool (discussion forums in online classes) is important? And why?
- Are there any specific obstacles or barriers you faced when wanting to participate in the discussion? What are these obstacles and why do you think they existed?
- If you were given the opportunity to enhance the online discussion strategy as a process and tool, what changes or additions would you consider? What types of support do you believe are essential for effective discussions?
- Any final words you would like to add about online discussions?

Appendix Three: PIC



Participant information sheet

Dear Participants:

I am Alyaa Aljared, a Ph.D. student in the Department of Educational Research at Lancaster University. I would like to invite you to take part in a research study about: Power Dynamics and Collaborative Knowledge Construction in Single-Gender Online Learning Forums. Please, take some time to read the following information carefully before you decide whether you wish to take part.

What is the study about?

This study aims to explore the impact of power dynamics among students on collaborative knowledge construction within single-gender online discussion forums. It seeks to uncover the underlying forces that influence student behaviours and the nature of power relationships in these settings. The primary research question is: 'How do power dynamics affect collaborative knowledge construction in single-gender online learning forums?' The research will thoroughly examine both the advantaged and those marginalized within this context.

Why have I been invited?

I am contacting you based on your involvement in a single-gender online course that incorporates online discussions as a fundamental element of its curriculum. Your involvement with these debates puts you in a unique position to provide vital insights into my research. This research seeks to investigate the collaborative construction of knowledge by students in online discussion boards and the impact of power dynamics on this process. I kindly request your participation in this research, as it would be very helpful and much appreciated.

What will I be asked to do if I take part?

If you decided to take part, this would involve the following:

- i) Your discussions in the online forum will be collected as the main data in the study and will be analysed and interpreted by the researcher.
- ii) Participating in an interview, which will take about 40-60 minutes. You will be given open-ended questions, which will guide the interview moderated by the researcher. The interview will be totally online, and audio recorded. It will also be transcribed and anonymised.
- iii) Your data will be interpreted by the researcher and you could be asked to confirm the researcher's interpretation. Depending on the circumstances, a follow-up interview can take place to clarify, elaborate, or understand what you meant during the interview.

What are the possible benefits of taking part?

There is no direct benefit of the study on you when you take part, however, if you take part in this study, your insights will contribute to our understanding of the nature and factors that contribute to designing a successful learning experience in online classes.

Do I have to take part?

No. It's completely up to you to decide whether you take part. Your participation is voluntary. Therefore, if you decide not to take part in this study, this will not affect your studies and the way you are assessed on your course.

What if I change my mind?

If you change your mind, you are free to withdraw at any time during your participation in this study. If you want to withdraw, 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. Therefore, you can only withdraw up to 2 weeks after taking part in the study.

What are the possible disadvantages and risks of taking part?

It is unlikely that there will be any disadvantages to taking part.

Will my data be identifiable?

After data collection through discussions and interviews, only I—the researcher conducting this study—and my supervisor will have access to the ideas you share with me. In addition, a professional transcriber/translator who will listen to the recordings and produce a written record of what you have said may also access the data. The transcriber will sign a confidentiality agreement.

I will keep all personal information about you (for example, 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 information from the written record of your contribution. All reasonable steps will be taken to protect the anonymity of the participants involved in this project.

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 in the following ways: I will use it for research purposes only. This will include my Ph.D. 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 (for example, from my interview with you) so that although I will use your exact words, all reasonable steps will be taken to protect your anonymity in our 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 (for example, your views on a specific topic). In accordance with university guidelines, I will securely keep the data 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:

Alyaa Aljared
Aljared@lancaster.ac.uk

Alyaajared@gmail.com

00966504150579

0447365892995

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 paul.ashwin@lancaster.ac.uk; +44 (0)1524 594443;

Educational Research; County South; Lancaster University
Lancaster
United Kingdom
LA1 4YD

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.

Appendix Four: Consent Form

CONSENT FORM



Project Title: Power Dynamics and Collaborative Knowledge Construction in Single-Gender Online Learning Forums.

Name of Researchers: Alyaa Aljared

Email: Aljared@lancaster.ac.uk

Please tick each box

| | |
|--|--------------------------|
| 1.I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions, and have had these answered satisfactorily | <input type="checkbox"/> |
| 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 2 weeks after I took part in the study, without giving any reason. If I withdraw within 2 weeks of taking part in the study my data will be removed. | <input type="checkbox"/> |
| 3.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. | <input type="checkbox"/> |
| 4.I understand that my name/my organisation's name will not appear in any reports, articles, or presentations without my consent. | <input type="checkbox"/> |
| 5.I understand that any interviews or focus groups will be audio-recorded and transcribed and this data will be protected on encrypted devices and kept secure. | <input type="checkbox"/> |
| 6.I understand that data will be kept according to university guidelines for a minimum of 10 years after the end of the study. | <input type="checkbox"/> |
| 7.I agree to take part in the above study. | <input type="checkbox"/> |

Name of Participant

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** _____

Day/month/year

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 Five: Translator Confidentiality Agreement

Transcriber and Translator Confidentiality Agreement

Name of Transcriber/Translator: **Bisan Alyazuri**

To: **Alyaa Aljared**

A. I am aware that in the course of any assignment by **Alyaa Aljared** as a transcriber or translator, I may have access to customers' health, financial, legal, and other personal and business confidential information; and other secret and proprietary information; and in order for **Alyaa Aljared** to maintain the confidential information safe, any such information must be kept in confidence by me and used only in connection with the work assigned to me by **Alyaa Aljared**.

Therefore, in consideration of my engagement as a transcriber/translator by

Alyaa Aljared, I agree:

1. I will hold in strict confidence, and will not use, assist others to use, or disclose to anyone, without the prior express written authorization of **Alyaa Aljared**, any information concerning such proprietary information and any secret or confidential matter, except as such use or disclosure may be required in order to carry out any transcription/translation assignment scheduled for me by **Alyaa Aljared**.
2. I shall not derive any personal profit or advantage from any confidential information that I may acquire during my transcription/translation services assigned to me by **Alyaa Aljared**.
3. That translated documents remain the property of the owner of the original documents and/or the requester of my services at all times.
4. At the time I terminate my relationship with **Alyaa Aljared**, for any reason, I will deliver to **Alyaa Aljared** all documents related to the business and to the secret and propriety information referred to above, and I will not retain any such

information for myself, including any and all means from which the information can be recovered or reproduced in any form.

5. That individually identifiable data is confidential and is protected by various laws.

6. That confidential data includes all personal information (e.g., name, birth date, social security number) which may, in any manner, identify the individual.

7. That confidential data may be used only for purposes directly related to the operation of the contractor's program(s).

8. That any personal use of confidential data is strictly prohibited.

B. It is understood that with the exception of A-4 above, there is no time limit on any of the obligations under paragraphs A-1 through A-8, above.

C. I understand that my relationship with **Alyaa Aljared** as a transcriber/translator is that of an independent contractor unless specified otherwise in a separate document signed by **Alyaa Aljared** and me. And that this document is not intended, nor shall it be construed as, changing, in any way, my status as an independent contractor for any past or future work assigned to me by **Alyaa Aljared**.

D. I certify that I have read and understand the foregoing Agreement.

01/02/2023

Transcriber/Translator Signature

Date

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