

COMICS FOR INCLUSIVE, TECHNOLOGY-ENHANCED LANGUAGE LEARNING

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The visual language of comics is widely understood, and comics are now used for teaching and learning, for raising awareness and for dissemination. Comics offer a creative alternative for teaching that motivates and engages struggling and reluctant readers. How can foreign language teachers of English be supported to create inclusive, technology-enhanced teaching and learning with comics? This chapter synthesises literature from cognitive psychology, neuroscience of storytelling and education to better explain why comics are effective and can address the challenges of learners with specific learning difficulties such as dyslexia who may have a range of issues associated with reading, writing, memory, attention and motivation. Current teaching practices, including methods and resources, are reviewed to understand how teachers can be supported. A new perspective highlights the importance of narrative and emotions in comics and how multimodal and transmedia approaches, using web-comics, can be used to support inclusive foreign language teaching.

Keywords: Inclusive language learning, digital literacies, transmedia storytelling, edu-manga, emoji.

INTRODUCTION

Visual communication and visual technologies are becoming increasingly important in education and in society in general as can be seen in the widespread use of visual media in technology-enhanced learning. Many studies indicate the effectiveness of digital storytelling and comics in every-field of education (Krusemark, 2017; UN comics, 2019; Sousanis, 2015; Chute, 2017; Salehi, 2012). This chapter explores the role of visual communications and visual technologies in foreign language learning, specifically, examining how comics are being used by teachers for inclusive and technology-enhanced language learning.

Comics offer a creative alternative for inclusive, technology-enhanced language learning that can align with learning goals, stimulate emotions, increase motivation and develop new literacies. “Comics” can also be used as an umbrella term for several different types of sequential art, including cartoons, comic books, comic strips, and graphic novels’ (Cary, 2004, p. 10). This definition should be extended to include web-comics, animations and even augmented reality applications because new media are included in whiteboard software and books for teaching languages.

Many theories consider comics as a new medium with specific etiquette, and language (Wolk, 2007, Källvant, 2015, Cohn, 2013). McLuhan (1994) illustrates that ‘The

Medium is the Message' (p. 1). Comics can be considered as a unique way of seeing and thinking about the world (Sousanis, 2015). Nick Sousanis received his doctorate degree in Education at Teachers College, Columbia University in 2014. Unusually, his doctoral thesis was entirely written in comic form. In the published thesis entitled 'Unflattering', Sousanis argues for the importance of visual thinking in teaching and learning. The innovative and accessible format of the thesis led to it gaining many awards: the 2016 American Publishers Awards for Professional and Scholarly Excellence in Humanities; the Lynd Ward Prize for best Graphic Novel of 2015; and a nomination for an Eisner Award for Best Scholarly/Academic work.

This multimodal approach to content representation in comics, which combines two or more communication modes, needs a different pedagogy for teaching and new competences in teachers. This chapter reviews the research on comics and teaching methods and resources available to foreign language teachers. This is discussed from the perspective of how to provide inclusive teaching for learners with specific learning difficulties associated with reading and writing, e.g. dyslexia.

So, how are comics currently being used, and for what purposes? Comics are widely used for teaching and learning in every field and discipline in higher education, from physics to mathematics and engineering (e.g. at Northeastern University, USA; University of Adelaide, Australia; University of British Columbia, Canada); and in communication and dissemination of information. For example, comics are being used by the United Nations to communicate their 17 Sustainable Development Goals for 2030 (UN, 2019), by UNICEF to raise awareness and promote discussion of issues, e.g. violence in schools (UNICEF, 2018), and by the European Research Council to communicate policy and information about funded actions (ErcComics, 2019).

Another side of comics is promoting peace through Edu-Manga, by The Kyoto Seika University in Japan, which aims at contributing to world peace through manga. 'Manga is a universal language' says Keiko Takemiya (2019, para. 3), an artist and educator from the Faculty of Manga. She claims that manga is becoming a global communication tool as the visual grammar is understood worldwide, irrespective of cultural background (Damasio, 2000).

In 2015, the United Nations (UN) launched 17 Sustainable Development Goals to be achieved by 2030 (UN, 2019). These goals have been transformed into comics to make them widely accessible and easy to disseminate throughout the developed and developing world. The comics are translated into many languages and could be used by educators to raise awareness of these issues. UNICEF maintains that caring and empathy are teachable skills with the power to promote tolerance and inclusiveness in schools and communities.

European projects, such as COMMIX (2018), provide tools and teaching materials for students and instructors to use critically. One of the most successful is Captain Euro that is published on a weekly basis. The comic strips from Europe's Superhero, Captain Euro, aim to create a "stronger European identity" (para. 3), reduce euroscepticism and explain the role of the European Union in the world in a 'fun, more accessible and entertaining way' (Brand EU, 2018, para. 1).

Biancarelli et al. (2014) discuss how comics aimed at youngsters are being used to explain the European Union's regional and urban policy. The comics showcase EU-funded projects to illustrate their contribution to the policy, e.g. by reducing differences in standards of living and supporting underdeveloped regions. Similarly, ErcComics

(2019) uses web-comics to promote and explain the achievements of ERC-funded research projects.

LITERATURE REVIEW

This literature review has been undertaken as part of a research and development project called “Comics for Inclusive English Language Learning” (CIELL, 2019) which is a collaboration between comic artists, language teachers, and learning technology researchers to create innovative open educational resources that enrich teaching practices and include dyslexic learners. It is an extension of the Visual Literacies project that aimed to improve the visual literacies of educators, making learning more visual through visual technologies (Visual Literacies, 2018).

This mapping review explores existing literature and teaching practices (Grant & Booth, 2009). It seeks to answer two questions: “Why should comics be used for inclusive foreign language teaching and learning?” and “How are comics currently being used in foreign language, technology-enhanced, teaching and learning?”

The first question is answered by critically reviewing cognitive psychology literature on memory and emotion; neuroscience literature on storytelling, emotions and brain activity; and educational research on literacy and learning with comics. These areas of focus have been chosen as they are appropriate to supporting inclusive language learning as dyslexic learners may have difficulties with motivation, memory and literacy. The aim is to assess what is already known about the issue.

Dyslexia is a specific learning difficulty that is characterized by difficulties with word decoding, spelling, handwriting, reading, memory and attention span which affects around 10% of the population (BDA, 2019). Dyslexic-type difficulties also cause challenges in writing in another language, which is often assessed in high-stakes testing contexts and is an essential skill in higher education across Europe. Therefore, there is a strong need for new tools and raising teachers’ awareness of inclusive practices in teaching second language writing to dyslexic students.

The second question is answered by identifying current practices around technology-enhanced teaching and learning in the foreign language classroom to assess the resources, technologies and methods currently available to teachers. The aim is to identify existing practices and resources.

Browsing the Erasmus+ project results platform reveals 225 initiatives with the keyword “comics” that have been funded by the European Union with varying purposes and aimed at different audiences, but all projects provide open access to their content, tools and courses so that they may be shared and reused by others (ERASMUS+ Project Results, 2019).

Comics for literacy

Källvant (2015, p. 4) suggests that comics enhance ‘multiliteracy, motivation, content learning, and language learning’. Many studies show that students experience higher motivation and improved attitudes towards reading (Cimermanová, 2015); even those students that initially claim that they do not like comics, later acknowledge their importance as a motivational tool for language learning (Jones, 2010). Popa & Tarabuzan (2015) linked regular exposure to comics over eight weeks with significant reduction in test anxiety of students. An approach focused on the use of web-comics

to teach student composition and grammatical points showed positive impact on learning (Kılıçkaya & Krasjka, 2012).

Another important finding relates to incidental learning. 'Incidental learning refers to any learning that is unplanned or unintended. It develops while engaging in a task or activity and may also arise as a by-product of planned learning' (Kelly, 2012, p. 683). As students read more and more comics, similar lexical items help vocabulary acquisition (Karap, 2017) and better inference of unknown words. Sellars (2017) supports this view and explains how comics can be used to build reading comprehension and literary analysis in class.

Visuals are everywhere (Chute, 2017) - online and offline - and the popularity of emoji is an example of how people try to communicate emotions visually. A strong element of comics is emotions and 'Emotionally loaded pauses and breathing breaks can also be indicated in comics to bring the reading experience even closer to that of real-life speech' (Williams, 1995 as cited in Karap, 2017, p. 244).

Many researchers maintain that graphic novels and comics should be considered an innovative teaching method with great potential for all levels of education (Rocamora-Pérez et al. 2017; Deligianni & Pouroutidi, 2016).

Shiang's (2018) research study showed that in an advanced English learning class (academic IELTS), a group asked to produce comics outperformed a group asked to produce translations when tested on reading comprehension. The major conclusions were that comics help students develop visual representations for people, action and ideas, which align with embodied cognition theory (Barsalou, 1999; Zwann, 1999). Secondly, all information in the text was included in the comics and research participants, who were working in small groups, were engaged and immersed in the task. Wakabayashi (2008) assumes that when students act as feedback providers, they gain more insight into writing and revision processes, and have a better understanding of the steps required for revision.

Rocco Versaci (2008) claims that comics promote 'literary literacy', that is, a passion for books, the stories that they tell, and the importance of those stories. Comic books may be considered pleasure reading (Krashen, 1993 as cited in Karap, 2017), and can be an emotionally rewarding task. This form of literacy supports engagement with the material, and includes critical visual literacy, i.e. the ability to create meaning from comics, for example, by generalising to other media (comics, books or films) or to personal or social moments (Baleiro 2010).

This can be seen as the Golden Age of Comics (Chute, 2014, 2017) because of the huge success of comic heroes in cinema, gaming and comics. Consequently, 'If you don't take graphic novels seriously, then you don't take contemporary literature seriously' (Tabachnick, 2017, p. 3).

Comics for inclusive learning

Comics can appeal to learners with learning difficulties such as dyslexia. First, having fewer words to read per page can make reading less stressful and enable them to finish much faster. Secondly, comics can help the reader keep track of the plot or the characters, which may help some learners who struggle to remember the details of stories because of short term memory problems. Kormos (2017) claims that the parallel use of audio and visual channels enhances the efficiency of memory and learning.

There seems to be an agreement amongst researchers that comics have the power to motivate readers (e.g. Carter, 2009, Rapp, 2011, Källvant, 2015), and that they are especially inspirational for reluctant readers (e.g. Eisner, 1994, Rapp, 2011). However, they can also be motivating for high-level and advanced learners (Kelley, 2010, Carter, 2009). Liu (2004) found that struggling readers showed significant, large improvements in reading comprehension if high-level text was present with comics.

Many dyslexia specialists are now using comics to overcome the challenges of motivating reluctant and struggling readers. Technology is also being used to diagnose and support learners with dyslexia.

Digital literacies and transmedia storytelling

Coiro (2003) argues that 'literacy today has expanded from traditional notions of reading and writing to include the ability to learn, comprehend, and interact with technology in a meaningful way' (p. 458). The Visual Literacies (2018) project investigated how visual, video and immersive technologies (such as augmented and virtual reality) can be used by educators to create more visual approaches to teaching. Chen (2005) reveals what most foreign language instructors know that technology-enhanced language learning forms a novelty that presents learners with more engaging options than tedious drills of coursebooks.

Storytelling, as photos, videos, animations or comics, is central to modern media discourse (e.g. on Twitter, Instagram, Facebook, blogging, online gaming, virtual reality environments). Furthermore, telling a *story* is widely considered essential in advertising, commerce, and coaching, where storytelling has become a major industry (Christie & van den Oever, 2018, Zak, 2014, Chute 2017). The comic is a form of visual communication that users of social media negotiate every day. Hard-copy comics have gone digital and moved onto computer screens, tablets and mobile phones - even enhanced by augmented reality. Zimmerman (2010) suggests that:

The very act of encouraging a student to create a simple comic strip online also provides a way for students to become more comfortable using computers. As they learn to negotiate a comics generator web site and move characters and thought balloons around, they are also improving their computer skills. (para. 11)

Salehi (2012) says that creating digital comics to tell stories would make the challenging task of writing in the English language a much more enjoyable experience for learners. However, according to Faulkner (2009), the most difficult part of creating a comic is the many decisions that learners must make when there is not much space for text as they need to find the right image and just enough words for it to make sense. These decisions require critical thought as learners extract the most essential elements of the story.

Elsner, Helff and Viebrock (2013) clarify the multiliteracies approach for foreign language education:

A multiliteracies approach to teaching and learning a foreign language aims at the development of functional, visual, multimodal, and digital literacies, transcultural competence, language awareness and critical-reflective thinking skills. (p. 8)

Jacobs (2014) maintains that digital texts and multimodal approaches such as web-comics could be used to help students understand multiple literacies online. The prevailing culture of the image, online and offline, emphasises the need to learn how to use tools that promote visual communication and language etiquette. Students

should learn to decode the role of images and use them for effective communication. Thus, they should develop critical visual literacy and be able to interpret and evaluate different types of texts so that they do not fall victim to fake news or manipulated information.

Sadik (2008) argues that to use learning technologies effectively, the activities need to be meaningfully utilised by being integrated into learning tasks and objectives and not simply digitised. Comics are available on digital mobile devices where a reader can download comics and manga with some added features such as animation. Augmented reality can be added to print comics and books to animate characters and provide extra material for understanding the plot and visualising the story (Lytridis, Tsinakos, Kazanidis, 2018). User-friendly and open access augmented reality applications are available for Android and iOS devices. Educators and students may find it interesting to explore the possibilities and affordances of these media to develop 3D comics.

Barthes (1975/1966), one of the founders of modern narratology, supports the view that narratives are universal and can be told in all media; narratives can be multimodal and transmedia. Jenkins (2006) uses the umbrella term *transmedia storytelling* which is defined as:

a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience. Ideally, each medium makes its own unique contribution to the unfolding of the story. (Jenkins, 2007, n.p.)

New practices of creating narratives across media are strongly linked with the entertainment industries where games and films are now created with interconnected narratives and released at the same time. It could be argued that transmedia storytelling is also driven by users and their increasing desire for transmedia and multisensory experiences (Clash of Realities, 2017).

The neuroscience of storytelling

According to Damasio (2000), storytelling is a natural process that makes comics easier to understand, as can also be seen in plays and films. Research on the role of storytelling in behavioural development is blossoming, and there are some innovative research studies connecting neuroscience, storytelling, and cognitive psychology.

Zak (2014) explains that our love for stories could be attributed to a hormone called oxytocin that plays a role in establishing bonds between people, i.e. it makes people connect with others as a social being and is the key to empathy. Oxytocin is linked to recognizing feelings and predicting how people are likely to behave. Zak tried to find out how to motivate and engage people in teams in workplace settings using narratives. He compared character-driven stories (which deal with relationships or inner transformation of a character) with plot-driven stories (which focus on the choices made by characters). Analysis of blood taken before and after storytelling showed that a character-driven story increases the production of oxytocin and the amount of oxytocin released by the brain predicted how much they were willing to help others. As a result, Zak recommends storytelling to business executives to build trust with their clients and influence their decision-making. He says that every presentation should contain a compelling human story and that 'character-driven stories with emotional content result in a better understanding of the key points a speaker wishes to make and enable better recall of these points weeks later' (Zak 2014, para. 6).

Brain research suggests that vision dominates all the senses and can improve memory, comprehension and attention (Brown, Roediger & McDaniel, 2014). Cole (2014) writes that engagement of all the senses promotes learning and memory, and this seems to be equally effective with dyslexic children.

Emotions can open and close the gates of learning. Curiosity can enhance comprehension and engagement while threat or stress can interfere with memory and attention. According to Brosch, Scherer, Grandjean, Sander (2013, p. 10), they can determine 'how we perceive our world, how we remember it, and which decisions we take'. Emotions are identified through facial expressions and gestures, e.g. 'Eye movement and attention shifts usually occur together' (Wright and Ward, 2008, p. 121). Visuals trigger emotions as can be seen with all forms of Art, from paintings to film, from sculptures to digital holographic art. When we watch a film, and it captures our attention, we begin to get emotionally involved in the story then our brain simulates the emotions and we experience them, too. In storytelling this is called transportation and is akin to immersion in technology-enhanced learning literature.

Neuroscientists Yuan, Major-Girardin, and Brown (2018) found that with all forms of storytelling, the brain was activated and affected by the character's thoughts, emotions and deeds. Despite the fact that Aristotle suggested 2,300 years ago that plot is the most important aspect of a story or play, and that character is less significant; brain research reveals that people focus on the mental and psychological state of the characters in the story.

Herman's (2007) cognitive narratology is defined as 'the study of mind-relevant aspects of storytelling practices, wherever—and by whatever means—those practices occur' (p.1). Herman (2013) maintains that cognitive narratology is transmedia in scope because it encompasses the nexus of narrative and mind, providing a framework for understanding narrative elements not just in printed texts but also across multiple digital technologies. In turn, the cognitive part of the term, can investigate the multiple factors influencing the processes by which we make sense of narrative worlds when evoked by the actions and the dispositions of characters.

These studies of storytelling provide some physical and empirical evidence that explains how comics can support teaching and learning in languages or any other subject. There is scope for further research in this area as visual narratives show great potential for exploring questions about how the brain works (Cohn, 2019) and recent advances in brain scanning provide valuable evidence.

REVIEW OF TEACHING METHODS AND RESOURCES

This section explores the teaching methods and resources available to foreign language teachers, identifying current approaches to technology-enhanced teaching and learning for inclusion. First looking at methods for learning by creating comics and then resources for teaching with comics.

Learning by creating comics

As many foreign language instructors have found out, most students find practising and acquiring writing competence is the most difficult part of studying a foreign language. Writing is a demanding endeavor that requires complicated choices at the

level of ideas, planning, organisation, grammar among other things (Deligianni-Georgaka & Pouroutidi, 2016; Salehi, 2012).

Brown (2013) researched a teaching approach for students working in small groups; first they read comics and study them for comprehension, exploring the communication style, plot and characters. Secondly, the students create comics using the same style and elements of the graphic narratives. Thirdly, they create a multimodal story by converting it into digital form. The students can teach one another how to use the tool to digitise the comic. This transmedia production of web-comics makes students active participants in the learning process (Kovalik & McGeehan, 1999).

The COMMIX (2018) project (co-funded by the European Union) has developed a methodology of how to use comics in education, and also online resources and training materials for school teachers. After being introduced to creative writing and gaining an understanding of literary character perspectives, the students use online resources to create their own comics as autobiographies, diaries, comic strips, and stories. In foreign language learning, they can practise writing, public speaking, conversational skills, vocabulary, social competences such as conflict resolution and promote team collaboration. Their efforts are validated, and they can have fun. The COMMIX methodology also includes suggestions for open access tools that can be used online to create web-comics. An open access curriculum and a training course were also developed to educate teachers on how to use comics to create technology-enhanced learning in and out of the classroom.

Similarly, Neil Cohn, a visual linguist from Tilburg University in the Netherlands, teaches basic drawing and visual communication skills to masters students in the Communication and Information Sciences program. The final project for this course is to summarize and translate an academic paper into a short comic to promote comprehension.

Teaching with Comics

A growing body of research indicates that graphic novels are also excellent resources for learning and communication not only for children but also for advanced learners. European Union research projects, the British Council and the UN, to name a few, offer free narrative graphics that foreign language teachers can use as libraries for reading resources.

The British Council posts videos to encourage language teachers to learn how to draw people, actions, and animals to make their teaching more engaging and fun (British Council 2019a). They have created a comics library that offers members unlimited online access to more than 16,000 stories and graphic novels. Activities for students are also available as well as tools to help them create their web-stories with a comic structure. The British Council (2019b) claims that manga and graphic novels are valuable teaching vehicles for learning English. Manga comics are available for works of Shakespeare, and popular classics such as *Crime and Punishment*, *The Picture of Dorian Gray*, and a whole range of Sherlock Holmes books.

Lucia Berliner's blog (2018) 'Black Panther in the Classroom' explains that educators could approach the comic and the movie as a cross-media literacy platform to engage in conversations about race, gender, and colonialism.

CONCLUSIONS, LIMITATIONS AND FURTHER WORK

The visual language of comics can be an inclusive and engaging way to learn. The literature explores how comics have been used to spark student motivation, heighten vocabulary acquisition, promote writing activities, reinforce understanding, enhance multiple literacies and teamwork, reduce examination anxiety, and improve multimodal skills during an inclusive learning process.

Research into storytelling, cognitive psychology and neuroscience explains that multimodal skills for reading or producing comics help readers make meaning of the visual, audio, and narrative features of a comic, thus heightening critical visual literacy. Finally, visual narratives can provide new ways of communication (Sousanis 2015, McCloud, 2018 as cited in Milano, 2018) that create more inclusive language learning and aid people with learning difficulties.

An extensive range of technologies and comics resources are available for foreign language teachers to use in and out of classrooms, online or offline for group work, with peer feedback or as supplementary reading material. Learning technologies can be used to enhance and modernize, the teaching practice of foreign language teachers to make it more inclusive of learners who are reluctant or struggling readers, or who have a specific learning difficulty, such as dyslexia. Comics can be used to: motivate both high and low achieving learners; develop language skills; and develop competences in critical visual literacy, and the visual grammar of comics.

The review of the literature shows that changes could be made in foreign language teaching practice, for example, the teaching of writing may be improved by using comics to develop multimodal, transmedia activities, for students and teachers alike.

The scope of this review does not consider issues of costs or access to technology, professional development of teachers, and whether or not teachers are willing to adopt technology-enhanced teaching. While relevant, these issues were considered as outside the scope of this chapter.

In addition, research into the professional development of foreign language teachers is important and should investigate issues such as how best to disseminate and share new teaching practices, and how to support teachers in a continually changing technology landscape.

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