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“Digital Education and its implications on EFL teaching: Technology-enhanced teaching of creative writing in the Austrian language classroom using the blended learning approach”

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Dedication

I dedicate this thesis to the legacy of my younger brother, Thomas Felberbauer, who sadly died February 16, 2007 as the result of a brain stroke at the age of 22. It is thanks to his pioneering effort in creating and programming web tools to interact with different communities, even before Web2.0 gained global influence in our society, that I have become interested in digital technology and communication myself. Co-heading an online based event platform that targeted aficionados of electronic music in Austria and Europe with me, which had long been one of the leading medias for electronic music events from 2003 to 2008, my brother was highly successful in creating media structures that would allow users to interact with each other before the advent of Facebook and other social media platforms. In 2005, he even won first prize in the Austrian Media Awards for best website in the category education.

In his legacy, I became interested in building communities through digital technology and the use of digital media for learning and teaching purposes and shortly after enrolled in the University of Vienna's Teaching Degree for English and German Studies to embed my gained knowledge in my future studies. Over the course of six years I have laid a strong focus on the use of digital media for teaching purposes in all parts of my study and never forgotten my brother's approaches to digital design and communication in order to bring people closer together and build effective networks with the use of digital technology.

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I would hereby like to thank my professors, family and friends who collectively and continuously stood by me through rough and easy times and have thereby been part of this thesis as much as my own humble contributions. Thank you for your help, guidance and constructive talks without which this thesis would not have been possible.

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1 Introduction

“Thirty years ago, students did all their learning inside of a classroom and got all of their information from encyclopedias, dictionaries and libraries. Today, students can download an eBook in less than a minute, search for anything in seconds, and find any topic on Wikipedia instantly. Technology is opening up the world of education.”

“The Future of Digital Education”, 2012

According to researchers and key figures in education and development around the world, there is wide agreement that we are currently facing an unprecedented societal and economic change that makes it unclear how education should look in the near future and how we can meet the challenges of the 21st century. A lot has changed, it seems, since this picture of the state of education in the 1980s portrayed in the quote above, yet an educational revolution, as has been demanded by many, has not arrived.

In fact, it is hard to grasp how significantly the world of young learners has changed even in the past years when thinking about the amount of digitally stored knowledge that learners now have access to every second of every hour of their lives, from almost anywhere in the world. “People are creating 2,000 new websites every hour, [...] uploading 35 hours of video every minute and watching two billion YouTube videos every day” (“21st Century Education” 2012). Nevertheless, it certainly seems that while technology and the advent of the digital era has transformed almost every aspect of our daily lives, education shows almost no transition to new forms of teaching and learning despite this newly created access to an abundance of knowledge and information.

When looking at the current model of education, it is difficult to determine whether any transformation has happened over the past decade, and there seems to be ample evidence that our education system is as old as two hundred years. As Sugata Mitra, professor for Educational Technology at the University of Newcastle, points out, the roots of modern day education lie to a large extent in the age of the Industrial Revolution when Western Empires of the 18th and 19th century colonized the rest of the world (Mitra 2014: 547). “In order to administer a colonized world”, Mitra (2014: 547) explain, “the empires invented modern systems of administration and management [...] using people as the computing elements”.

Mitra elaborates that “[i]n order to produce the large number of clerks needed to administer empires, primary schooling had to adopt a factory model, aimed at producing identical and interchangeable clerks” (Mitra 2014: 547).

Since then, economic and societal life certainly has changed profoundly, not only as a result of the digital revolution, but the classroom seems to have resisted all sorts of change. In fact, if we compare the 18th century classroom to the 21st century classroom, what is striking to observe is the vast number of similarities between the two. Many elements are still the same: the ‘sage on the stage’, the teacher-centered classroom, the simultaneous instruction of twenty to thirty students. Education, up until now, it seems, has largely failed to adapt to the global changes brought by the digital revolution and other profound changes in our daily lives.

Currently, there seems to emerge a global trend to transform and re-organize our current systems of education, and we would certainly be wise to do so. Nevertheless, it seems obvious that this transformation will be far from easy, as we are seeking to change a system of education that not only has existed for decades and centuries, but we are also facing the challenges of not knowing for what scenario to prepare future learners in a world that is changing at an unprecedented pace. As Ken Robinson, advisor to the queen and key speaker for a change in educational paradigms explains, “we expect education to help young people to build lives that have meaning and purpose in a future we can scarcely predict” (Robinson 1999: 18). And that seems to be the prevailing picture in shaping today’s education: preparing learners in a very specific way while not knowing which path this future will take.

The aim of this paper, therefore, is to provide the reader with insights into tools and methodologies of digital learning that promise to help solve many issues of today’s education by equipping the learner with strategies for individual and collaborative learning to develop competences rather than merely acquiring knowledge and is conclusively structured in the following way: chapter one seeks to raise the topic of digital education and why digital learning is needed to better our current system of education, not only in the field of language learning.

In chapter two, the paper will give a brief history of digital language learning from the early 1960s and the birth of Computer Assisted Language Learning (CALL) and the rudimentary first form of the Internet before developing into the World Wide Web as we know it today, over the 1980s with its mainframe computers and first graphical interfaces to the technology of the 21st century which offers broad forms of multimedia language learning and collaboration in language learning through wikis, blogs and social media channels. As the main reason of this chapter is to provide the reader with a broad overview of the biggest milestones in CALL and

technology-enhanced language learning, this chapter is intentionally as concise and brief as possible.

Chapter three deals with the subject of learning theories of the past century, from Chomsky's theory of universal grammar and Krashen's input hypothesis to the sociolinguistic and interactionist approach of the recent decades, as, according to many, every discussion on the topic of CALL and technology-enhanced language teaching affords a brief overview on contemporary SLA theories (Blake 2013: 14). Among other things, the reader will see how learning theories shaped technology-enhanced language learning and what implications SLA theories still have on the field of CALL.

Chapter four is dedicated to contemporary forms of hardware and software that Digital Media and Learning (DML) offers in order to enhance and facilitate language learning through the use of technology and should provide the reader with knowledge of well-known classics of language learning as well as the latest innovations in the field and group them logically for a better understanding of the subject. The chapter will deal with e-books and digital textbooks and how they are and will be integrated in the language classroom as well as the use of virtual learning environments, digital learning channels and social networks as a means for the technology-enhanced language classroom.

Chapter five will then raise the topic of upcoming new forms of methodology that the implementation of technology in the language classroom is associated with and portray which new forms of teaching can arise from effective use of digital technology in the EFL context. The reader will also learn to distinguish between online, mobile, flipped or blended learning and how personalized and peer learning using technology can create flow and higher motivation for language learners.

Chapter six revolves around the implications that the implementation of technology in the EFL classroom has on teaching and learning. The reader will be informed on how technology can enrich the language classroom by providing access to authentic materials, allowing for student-centered and collaborative learning and increasing learner motivation in the EFL context.

Chapter seven then, in preparation for the research project, informs the reader about a specific task of digital language learning: teaching creative writing with the help of technology. Besides useful apps and websites, it should be assessed how and why technology can be of great help for the language classroom and why creative writing should be considered a core element of the language curriculum.

Chapter eight, finally, will give the reader an insight into the practical part of this thesis, namely the research project carried out at a Viennese school to demonstrate the implementation of technology in the EFL classroom as a means of teaching task-based digital learning on the example of creative writing. Next to answering the research questions on the readiness of Austrian EFL classrooms for digital language learning and the ideal ratio of face-to-face and online learning, it aims to shed light on the issue of learner motivation through technology and the increase of students' amount of writing contributions in the virtual learning environment Edmodo.

Lastly, the conclusive section of this thesis will try to encapsulate the knowledge gained from this project and present the conclusions the authors draws from his literature reviews and teaching project ideas and findings.

In general, the objective of this paper is to illustrate in how far the implementation of technology in the language classroom allows for actively addressing and proactively solving a vast number of issues and challenges arising from societal and economic changes that our world is currently facing. In that sense, the author is not shy to show his passion for the field and the high hopes that teaching with technology is holding. The key idea of this paper, nevertheless, is to compile and assess concepts and research on language learning through the use of technology in order to surface teaching models for educators to engage, motivate and assist students in becoming self-aware, pro-active and collaborative language learners by embracing the world of digital technology.

2 History of digital education

On October 29, 1969, Charles Kline sent the short string of characters 'LOGIN' from a computer of the UCLA data center to the Stanford Research Institute, a mere 5,000 kilometers in distance (Beißwenger 2011: 1). The promising transfer already collapsed after the second character, though marking the birth hour of the Internet and technology-enhanced synchronous communication in the future World Wide Web (Beißwenger 2011: 1). Since that remarkable event, digital technology has seen an unprecedented rise inside and outside formal school settings, and yet the implementation of technology in the language classroom is still far from its peak. In fact, it is widely agreed that over the past decades, language learning has become one of the most dynamic areas regarding technology-enhanced learning (Thomas et al. 2012: 1).

To better understand the present situation of technology-enhanced language learning, the following section aims at shedding light on decades of technological advancement of computer technology and the consequent implications for language learning. The presented history of digital education and EFL learning in this section will deal with technology-based language learning from its humble beginnings of Computer-Assisted Language Instruction (CALI) and find its way to contemporary online and blended learning pedagogy of today's classrooms. Due to the limited scope of this paper, the overview given is consequently concise and focuses only on main developments of technology-enhanced language learning. For a more detailed study of the subject, consult the works of Levy (1997) and Delcloque (2000), who provide an in-depth look at the field (Thomas et al. 2012: 19).

Figure 1 The Three Stages of CALL (Blake 2013: 49)

Stage	1970s–1980s: Structural CALL	1980s–1990s: Communicative CALL	Twenty-First Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and internet
Teaching paradigm	Grammar translation and audiolingual	Communicative language teaching	Content-based instruction
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Sociocognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	Fluency	Agency

2.1 The 1960s and stimulus-response learning

According to Levy (1997: 15), the early forms of computer assisted language learning (CALL) of the 1960s took the shape of heavy mainframe computers, where language learning meant "memorizing a body of well-choreographed responses that included frequent vocabulary items, clichés, and phrases used at appropriate moments in a conversation" (Blake 2013: 49). These mainframe-based language learning programs were repetitive in nature and initially constructed to free language teachers from repetitive tasks, allowing more student-teacher time for communicative exercises (Thomas et al. 2012: 21). The process of learning in that era broadly followed a Skinnerian behaviorist framework, as language instruction was viewed as "a type of conditioning, [...] getting students to produce a series of responses in reaction to particular stimuli" (stimulus-response theory; Blake 2013: 49). Regarding the linearity of this form of learning, this approach is often referred to as 'computer-assisted language instruction' (CALI), in contrast to computer-assisted language learning (CALL), where language learning follows a more communicative approach and the focus lies more heavily on meaningful content (Blake 2013: 49).

In retrospect, the era of mainframe-based language learning can largely be defined as an era where technology has mainly been exploited as a tutor and drillmaster. Also most activity in CALL took place in the United States (Thomas et al. 2012: 24), which makes it hard to draw conclusions for the development of digital language learning in other parts of the world. Nevertheless, it is interesting to note that programs at the initial start of CALL performed were flawed in many areas, which can be seen in the fact that even seemingly simple tasks as displaying foreign characters was impossible for most computer programs of that time. The only exception being the University of Illinois' PLATO project, which already used Macintosh's more advanced Hypercard technology (Blake 2013: 51; Thomas et al. 2012: 24).

2.2 The 1980s and the communicative approach

The 1980s saw a general switch from unwieldy mainframe computers to lighter and easier to use microcomputers with the launch of Apple's Macintosh in 1984, introducing the groundbreaking new concept of graphical user interface (GUI), making interacting with computer-generated content easier and more intuitive for users and learners (Blake 2013: 49). With the Macintosh, Apple also introduced the concept of hypertext, "a nonlinear way of

organizing multimedia materials, information, and activities that broke the CALI linear mold and launched a new generation of computer programs that now could be referred to as CALL" (Delcloque 2001: 69). Next to a revolutionary user interface, the 1980s and early 1990s also saw the introduction of CD-ROMs and later DVDs, all of which have a large capacity for multimedia content (audio, video, graphics, etc.) that learners could access via integrated laserdisc players, replacing low capacity media such as the floppy disc (Blake 2013: 50).

The combination of grammar and vocabulary training with the computer's inherent accessibility for multimedia content gave rise to the creation of programs and simulations that would allow the learner to connect with language learning content in a new and engaging way. The Massachusetts Institute of Technology (MIT), for instance, produced a high-quality language learning simulation in 1989 named the 'Athena Language Learning Project' (ALLP), "mimicking real-world tasks based on meaning and authentic materials", introducing multiple plots, complex characters and knowledge-based choices, thus creating "an intrinsic motivation to complete the materials" (Blake 2013: 51).

Second language learning programs of that era were, for the first time, able to provide immediate and relevant feedback for the language learner. Artificial intelligence became an important focus in the newly created field of iCALL (intelligent CALL), using databases to "track learners' responses and, ultimately, provide feedback with commonly asked questions and mistakes" (Blake 2013: 51). The newly added technique provided practical solutions for adaptations to individual learning styles and replaced the behaviorist model that solely used a linear sequence of learning materials in order to stimulate the learner to produce correct answers (Blake 2013: 51). Nevertheless, despite the fact that the communicative approach has largely been established in second language learning, most learning programs of the 1980s and 1990s were created with the 'drill-and-kill' pedagogy of early CALL materials, resulting in an abundance of grammar and vocabulary training programs, neglecting the inherent accessibility of multimedia options for language learning (Thomas et al. 2012: 25).

2.3 The 2000s and the beginning of New Media

The increasing use of technology in the language classroom had led to the creation of learning software that was able to record and play back sound for the language student. The 2000s now saw a profound perfection of this technology, resulting in high-quality audio and video material that would replace the 1990s computer interface objects that only triggered

sound effects or simple speech utterances (Thomas et al. 2012: 31). At the same time, the appearance of the World Wide Web, established for a broad audience in the mid-90s, had gained great importance in second language learning, and 'e-learning' largely became the buzzword of the early 2000s, leading to the implementation of digital advancements in education such as 'virtual learning environments' (VLE; Thomas et al. 2012: 31). Additionally, the advent of the Web 2.0 finally fulfilled the Internet's ultimate promise of being a place for collaboration, knowledge sharing and social interaction, just as its creator, Tim Berners-Lee, had envisioned it (Thomas et al. 2012: 33).

According to Blake (2013: 55), recent advances in digital learning using Web 2.0 applications "have led to a proliferation of useful apps or programs that run on the Internet and can be accessed by an iPad or iPhone". Forums, blogs, wikis and podcasts, made possible by Web 2.0 technology, have started to be implemented in formal and informal learning settings, and CALL sees an unprecedented rise in language learning communities promoting collaboration and interaction using digital learning tools (Thomas et al. 2012: 33). This development is also due to the enormous rise of mobile Internet usage, which has reached 3.7 billion unique users as of 2017, with mobile devices accounting for 49.7 percent of web page views worldwide (Statista 2017). The following chapter, therefore, examines recent technological advances in online and mobile learning, with a focus on internet-based social learning and collaboration strategies.

3 Learning theories for SLA

In the past decades, the field of SLA has seen a great number of learning hypotheses that have, in one way or another, shaped the development of second language instruction. It therefore certainly adds value to the discourse of technology-enhanced language learning to briefly discuss some of the most predominant SLA theories, as, according to Blake (2013: 14), "[n]o general discussion of technology within the context of language teaching would be complete without a brief overview of current SLA theories" (Blake 2013: 14).

On that note, the following section aims to give the reader a basic summary of contemporary learning theories of SLA and how they overlap with the development of technology-enhanced second language learning. After all, as Blake (2013: 14-15) strongly points out, "[l]anguage professionals need to have an adequate theoretical background in order to decide when a particular tool might assist the students' L2 development".

3.1 The psycholinguistic approach

3.1.1 Chomsky's theory of universal grammar

It is impossible to start a discourse about second language learning without mentioning its most prominent contributors, Stephen Krashen and Noam Chomsky, enjoying an almost rock star like fame in the field of linguistics and SLA. Chomsky's psycholinguistic inquiries into the nature of language have most certainly revolutionized many assumptions in the field of linguistics and hugely influenced the area of SLA. In his hypothesis on the concept of an inherent universal grammar, Chomsky claimed that "all children are innately predisposed, if not prewired, to learn language", only requiring a sustained exposure to language material (Blake 2013: 15). According to this concept, the young learner is equipped with an inherent tool, the 'Language Acquisition Device' (LAD), to establish the formation of an internal grammar, constrained by universal properties that are found in every language (Chomsky 1986, quoted in Blake 2013: 15).

3.1.2 Krashen's input hypothesis

Krashen (1985) picked up on Chomsky's hypothesis and highlighted the importance of adequate input for SLA in that he stated that input for L2 learners needs to be comprehensible and challenging, hence formulating his input hypothesis (Blake 2013: 15). The base of this hypothesis is the mathematical metaphor ' $i+1$ ', where ' i ' stands for 'interlanguage', representing the target language of learning that should be scaffolded by slightly more complex language, or as Blake (2013) formulates it, " $< i + 1 >$ designates input that pushes L2 learners to restructure their interlanguage without overwhelming them with data well beyond their present capabilities" (Blake 2013: 15). Most learning programs and textbooks make use of this hypothesis by presenting tasks and exercises in a linear fashion, targeting the goal of providing comprehensible input for language learners.

3.1.3 Krashen's affective filter hypothesis

In addition to the input hypothesis, Krashen came up with the affective filter hypothesis, a recognition that learning anxieties can have enormous influence on how language is processed and can ultimately block language acquisition to the part where no learning takes place (Blake 2013: 18). According to Blake (2013: 18), "[t]hese anxieties erect an affective filter that reduces the students' ability to make use of comprehensible input and subsequently blocks interlanguage development". These implications, once more, suggest that the often-discussed notion of a 'positive learning environment' and an 'inviting classroom' where learners feel safe and motivated are key to successful language learning by lowering the students' affective filters. Some great examples for the implication of the affective filter hypothesis in technology-enhanced learning are the 'School of One' project, discussed in Chapter 5.3.2, where students follow task-based instruction on tablet computers in low-anxiety settings, or the concept of game-based stealth assessment, discussed in Chapter 5.5.3, aiming at creating low-anxiety situations for learners in high stakes testing scenarios.

3.2 The sociolinguistic/interactionist approach

As prominently displayed in Stanley Kubrik's *2001: A Space Odyssey* in the form of the super-computer HAL, technology is far from providing a convincing image of a human being for social interaction that can qualify as a real person. Nevertheless, computers, to a large extent, are

able to provide much needed social interaction that is crucial to effective second language learning. Additionally, studies consistently have shown that people have a strong tendency to interact with technology in a profoundly social way, similar to real-life interactions, as Reeves & Nass (1996: 5) point out in their work *The media equation: How people treat computers, television, and new media like real people and places*. This is significantly important, as it shows that learners are prone to see educational technology as their personal helper, and, as in human-to-human relations, want to make an effort to cooperate and, in a way, fulfill the computer's 'expectations'.

In that sense, "[i]t is not necessary for computers to be human but only to simulate certain human qualities", according to Blake (2013: 22). Interface design in language learning programs already largely builds on that fiction of learners viewing their technology as human, as can be seen in the bold example in Voki's creation of 'speaking characters for education' (www.voki.com), which allows the creation of avatars to improve lesson comprehension and student participation. After all, people rely on technology to follow basic principles of teaching (Pinker 1995: 228), namely that the information supplied is "relevant, truthful, informative, clear, unambiguous, brief, and orderly" (Blake 2013: 22). This is especially relevant when technology is responsible for addressing individual learner differences, as in the 'School of One' example, or is needed to provide relevant feedback for the learner.

3.3 Implications of SLA theories on CALL

The history of CALL is not only influenced by technological advancements and the evolution of computer technology for language learning but also shaped by popular trends in language pedagogy and contemporary theories for foreign or second language learning. In that sense, it is important to note that different SLA theories also suggest "differing degrees of importance concerning the role of instruction/practice and, by implication, the use of technology in the classroom" (Blake 2013: 14). After all, learning, as a change in disposition, is always considered an active process (Swann 2012: 84) and this is especially true for interactive language learning. Nevertheless, it can be regarded as self-evident that technology in language learning can significantly support a large number of language learning activities, from linear 'drill-and-kill' exercises to complex communicative tasks.

With regards to Krashen (1985), comprehensible input is crucial to effective language learning, and contemporary educational technology is capable of providing 'i+1' language

content to the individual learner by continuously assessing the student's knowledge and evaluating the following task based on these principles (as will be discussed in chapter 5.5 on game-based learning). This is to say that technology, when implemented thoughtfully and purposely into the curriculum, is crucial in providing relevant language content and has "a vital role to play in augmenting the opportunities for L2 learners to receive target-language input" (Blake 2013: 22). After all, the amount of contact with the target language is crucial to language acquisition and studies have shown that fluent SLA take an average five to seven years under classroom conditions (Blake 2013: 22). Thus, technology, in the form of language apps or social media communication, for instance, can provide significant help for FL teachers to guarantee maximum L2 contact for their learners.

Regarding the interactionist approach in SLA theories, the former section demonstrated that technology can provide learners with a proper language training assistant in the form of an avatar or learning app, for instance, and that learners instinctively attribute positive features to these technologies and generally perceive said programs as their personal helper (Reeves & Nass 1996: 5). Fogg (2003: 69) even goes so far as to state that learners react highly positively toward reinforcement or rewards received from technology and that these reinforcements can be utilized to change learners' behavior, as, for example, in increasing their engagement toward the learning process. Especially in the field of learner motivation, these findings show that technology can be of great help in the language classroom.

4 Digital media and learning (DML)

Language learning is definitely a time-consuming activity. It is estimated that reaching a high level of fluency takes "anywhere from 700 to 1,320 hours of full-time instruction" for the average language learner (Blake 2013: 1). To this day, there is broad skepticism among educators on how technology can facilitate the process of language learning, given the fact that L2 learning is for the most part a social, ideally face-to-face, process. This section aims to provide an overview of teaching technologies that are said to transform language learning in the upcoming years, as well as to broadly categorize online and mobile learning tools from digital textbooks to social media platforms and how they can be integrated effectively into the language classroom.

4.1 E-books, digital textbooks and OER

4.1.1 E-books

E-books have become a significant part of everyday media consumption, nevertheless they are only scarcely used in today's language classrooms despite broad political effort toward their integration in the school curriculum (Ehmig & Heymann 2013: 258). An e-book, also known as an electronic or digital book, is defined as a "digitally released version of a book, often consisting of text and images and available on electronic devices, such as specifically designed e-book readers" (Statista 2017). Since the rise of (affordable) e-readers and tablet computers, e-books have significantly gained influence in today's book market and are expected to make up a quarter of global book sales in 2018 (Statista 2017).

Over the past years, e-books have become the subject of academic study for digital learning, particularly regarding the influence of digital media on processing information as well as the use of e-books to generate higher motivation regarding students' motivation towards reading. Contrary to popular belief, these studies found that information consumed digitally, through e-readers like iPads or tablet PCs, was being processed more effectively than when the same content was presented in a traditional paper format (Ehmig & Heymann 2013: 258; Forschungsschwerpunkt Medienkonvergenz 2011). Similar studies attributed positive results to e-books in the field of reader motivation (Ehmig & Heymann 2013: 259). According to Stiftung

Lesen (2011) and their study on reading practice of 12th graders toward digital and traditional media, the institute found that digital book titles were downloaded four times more often by the students than when the same works were presented in traditional paperback format. As the prime reasons for these results the researchers identified "a more positive attitude" toward e-books among young readers in general, as well as a smaller threshold of starting to read a lengthy book in digital format, compared to traditional paperback editions (Ehmig & Heymann 2013: 258; Stiftung Lesen 2011).

4.1.2 Digital Textbooks

The positive outcome of studies concerning information processed via digital media formats (presented in the past section) as well as an upcoming trend toward the use of digital media in the classroom have led to a significant rise in the implementation of digital textbooks in today's classrooms. However, it is important to point out that digital textbooks, ideally, are much more than just PDF equivalents of traditional text books and can better be described as interactive e-books that allow students to process learning content through a range of multimedia components such as texts, images, sounds, infographics, hyperlinks and many more (Blanche et. al. 2017: 103). Therefore, the key ingredient for an effective digital textbook is its interactivity, as this allows learners to 'dive deeper' into the subject by enriching the learning experience with additional content like video tutorials and interactive quizzes of study questions (Blanche et. al. 2017: 110; Ebner et. al. 2013: 336).

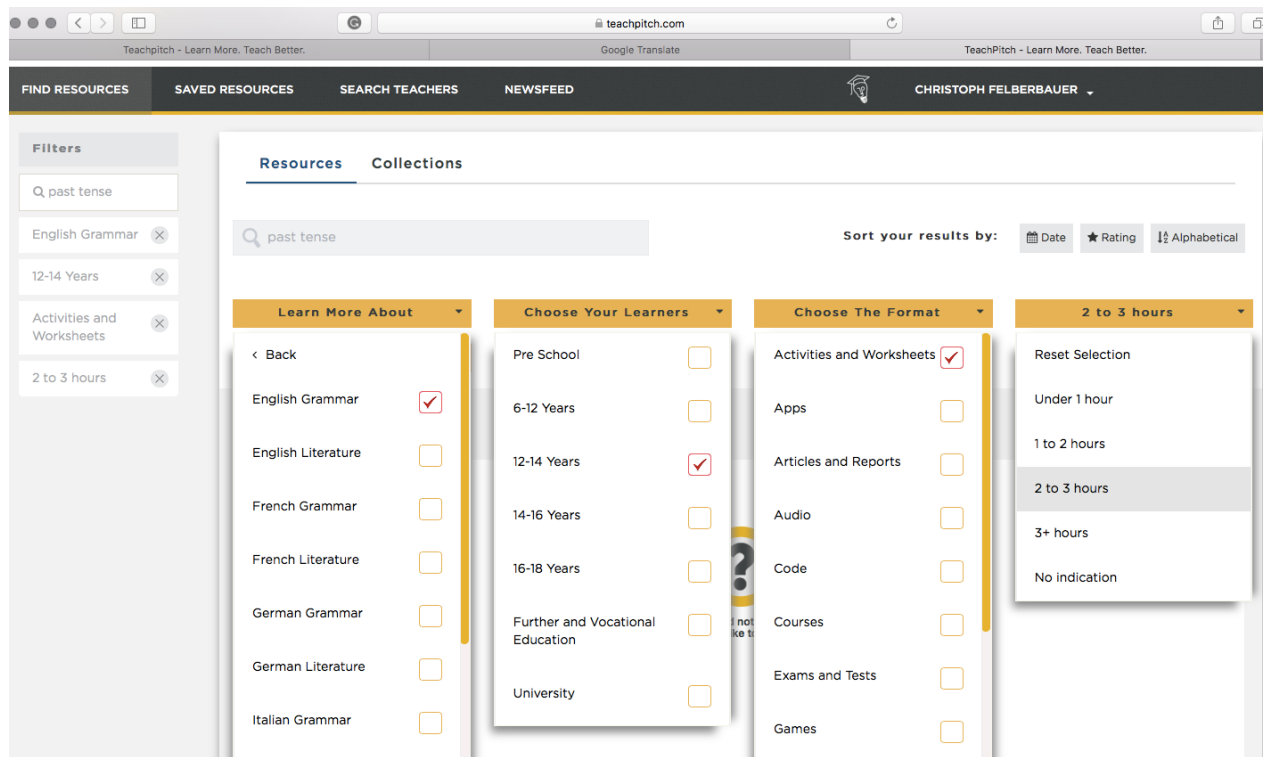
In their 2017 study on the influence of digital interactive textbook instruction on student learning preferences and subsequent motivation toward their use, Blanche et al. (2017: 110) were able to show that students regarded digital textbooks as highly favorable compared to their traditional counterparts. Learners specifically valued the textbooks' interactive quizzes at the end of every chapter, which allowed them to evaluate their current level of comprehension of the content and helped them to identify information important for later assessment. Provided with the latest generation of iPads and corresponding e-book reading software, students were able to highlight information easily by clicking on a portion of the text and to attaching personalized notes to the content in text or audio format that could be retrieved easily through an internal search option, all of which, according to the learners, gave them a better understanding of the provided content (Blanche et al. 2017: 110).

At this point, it is important to mention that during the conception of this thesis Austria's government has raised the intention of making the use of digital textbooks a top priority in educational objectives for the upcoming years. Nevertheless, and even despite the suggested positive outcomes of interactive textbooks in recent studies (portrayed in this and the previous section), Austria is only providing its schools with minimalistic PDF versions, simplified digital equivalents of textbooks already in use (Kogelnig 2016), thus depriving its students of the potential benefits of genuine digital learning. In this case, Austria's approach toward a 21st century classroom must be described as the opposite of the one leading innovators like South Korea are taking. In 2014, South Korea invested 1.4 billion U.S. dollars in the ambitious project of creating a paperless classroom, aiming to provide every classroom with broad-band Internet for effective cloud-computing and peer-to-peer collaboration, as well as with digital textbooks, tablets and laptops free to use for every learner (Ebner et al. 2013: 344).

4.1.3 Open educational resources (OER)

Open educational resources (OER) are defined by the OECD as “teaching, learning and research materials that make use of appropriate tools, such as open licensing, to permit their free reuse, continuous improvement and repurposing by others for educational purposes” (Orr et al. 2015: 17). More generally speaking, OER are online collections of teaching resources that are free to use and reuse under a Creative Commons (CC) license and carry great potential for helping teachers achieve their teaching objectives in today's classrooms (Wintermann 2014: 251). Other than just browsing the Internet via search engines for relevant teaching content, OER platforms like TeachPitch (see figure 2) and others, allow educators to apply specific categories to their search in order to find relevant and high-quality content for any teaching sequence. This can help teachers to collect, use and remix course and age appropriate content from a world-wide database and allows them to shift their focus from creating content to working on how to effectively use said content in the classroom.

Figure 2 Teachpitch search mask



Same as Wintermann (2014: 251), the OECD paper on ‘Open Educational Resources (OER) in Educational Policy and Practice’ holds high hopes for OER in solving the educational challenges of the 21st century classroom (Orr et al. 2015: 16). However, their study continues to point out that the “potential of OER is determined by the way they are used” in that teachers can either substitute them for traditional materials to simply save time or choose to more effectively use them to “lead to a full redefinition of the teaching and learning environment” (Orr et al. 2015: 16). In that sense, teachers should not regard OER as just any teaching content they download off the Internet but as relevant and useful materials that should be implemented in the curriculum with a clear and specific educational purpose in mind (McGreal, 2014: 51 in Orr et al. 2015: 18).

Besides the above mentioned platform TeachPitch, which offers OER in the form of course materials, modules, textbooks, streaming videos, etc., allowing teachers to specify their search criteria according to “format, age, course lengths and source” (TeachPitch 2018) in order to find age-appropriate and relevant content for their lessons, there are a large number of national OER, like Edutags specified for German-speaking users, and international OER platforms, like OER Commons, to be found on the Internet (Wintermann 2014: 251). In whatever way they are used, teachers should keep in mind that the Creative Commons license for OER

not only allows them to download and implement these materials in their classroom but strongly encourages educators to modify, reuse and share their newly created content for future classroom collaborations.

4.2 E-learning platforms

4.2.1 Google Classroom

‘Google Classroom’ is an interactive online learning platform that aims to facilitate teacher-student communication and classroom work for both educators and students. As one of the first Web 2.0 gadgets that Google has offered in its ‘Apps-for-Education’ services, ‘Classroom’ was launched in 2014 to help students create and organize assignments and to provide educators with an effective tool to review and grade students’ texts online whilst being able to provide immediate feedback via the platform (Shaharanee et al. 2016: 020069-1).

Google’s focus on the platform was to create a tool that is intuitive and easy to use: ‘Classroom’ lets teachers create a virtual classroom and generates a unique code that allows students and teachers to log on to this classroom to exchange content (Google Support 2018). The teacher can then create an infinite number of assignments and attach different types of materials (e.g. Word/PDF files, Google Docs, YouTube videos, etc.) to them. By posting the assignment to the group, students will be able to see and work on the assignment from any device available to them (phones, tablets, notebooks, etc.) and can also hand in the assignment via the online interface within a selected time frame set by the course instructor. The teacher can then review the assignments from his/her preferred gadget and return the graded version via the platform as well as attach additional feedback (Google Support 2018).

Regarding academic support for the use of Google classroom in education, it must be said that despite numerous tutorials and comments on its usage on the Internet, profound academic research is still scarce. Nevertheless, studies published on the topic, for example, Shaharanee et al. 2016’s research project on identifying Google classroom as an effective tool for online learning, showed ample evidence for positive outcomes of implementing the learning platform into classroom activities and suggests strong support for its use regarding motivation and overall satisfaction for online learning platforms (Shaharanee et al. 2016: 020069-5).

4.2.2 Edmodo

Edmodo is an educational technology tool launched in 2008 that allows educators to effectively communicate with their students as well as the students' parents through a digital learning platform. Similar to Google Classroom, it provides teachers with an effective platform to create online assignments that students can work on and hand in via the platform whilst allowing teachers to provide feedback and grades in the same way (Carlson & Raphael 2015: 6).

Compared to the most common educational technology platform 'Google Classroom', discussed in the previous section, Edmodo's interface has a slightly more playful appearance than its seemingly more professional counterpart but convinces through its intuitive handling. Students can, similar to social media platforms like Facebook, share notes, links and documents and can post comments on each other's walls as well as send private messages. It also allows personalized learning via the integration of a number of learning apps, and students can define learning goals and evaluate their status quo at any time. According to Carlson & Raphael (2015: 5) Edmodo also shares Facebook's mission of "humanizing and personalizing the vast resources of the Internet, offering [...] accessible and organized unique portals for discovering information." At the same time, Edmodo seeks to provide students and teachers with a safe and protected educational environment, a place to "safely practice the digital-age social networking and learning skills they will need in their increasingly connected personal, academic, and later professional lives" (Carlson & Raphael 2015: 6).

As far as teachers are concerned, the Edmodo platform enables them to provide students with regular feedback and evaluation and even the option of awarding badges (Micheuz 2013: 263). As 'head of a paperless classroom', teachers can "create and lead moderated groups where students post questions, engage in discussion, and respond to instant polls or quizzes" (Carlson 2015: 6). Teachers can also profit from the global Edmodo network that makes it possible to interact with other educators around the globe and to share lessons, resources and teaching materials (Carlson & Raphael 2015: 6).

Regarding motivating students, Edmodo aims at provide learners with a sense of pride for posting relevant content and getting purposeful feedback from educators and peers. Ideally, this new way of processing information for learners gives an additional purpose to the learning process as students see their input as valuable. Additionally, even parents can oversee their children's learning engagement as the platform allows a 'bird's-eye view' of the content shared (Carlson & Raphael 2015: 6). With regards to internet privacy, another positive feature of the

learning platform is that “[n]o data within the groups created inside of Edmodo are searchable from the general internet” (Carlson & Raphael 2015: 7), thus making it a safe environment for any student-teacher dialogue.

Unfortunately, in 2017 Edmodo has become victim to an alleged data breach that again fueled the debate about the implementation of free educational technology in the classroom (Edsurge 2017). Nevertheless, the learning platform continues to provide useful services for digital learning and can be regarded as one of the leading platforms for free and easy-to-use online learning environments with numbers peaking at around fifty million users and a reported coverage of 85 percent of the largest school districts in the United States alone that are using Edmodo on a regular basis (Carlson & Raphael 2015: 6).

4.2.3 Facebook

The use of social media platforms among young learners is growing at an unprecedented scale, enabling new spaces for teaching and learning in the 21st century classroom. Nevertheless, the fields of academia and education are still far from acknowledging the potential of social media for language learning, restricting innovative teachers from implementing social media sites into their classroom activities (Lantz-Andersson et al. 2013: 293). However, research has shown that these platforms possess great potential for digital learning and could significantly improve teacher-student communication as well as peer collaboration inside and outside the language classroom (Wintermann 2014: 252).

Analyzing today’s social media landscape, it can clearly be seen that Facebook is by far the most popular social media platform, with more than two billion active monthly users and five new profiles created every second (Zephoria 2018). Since its creation on February 4, 2004, Facebook has also been the focus of public debate revolving around the effects of social networking on society and culture, and the potential danger of increased transparency or cyber-mobbing of adolescent users (Harris 2013: 101). Nevertheless, the medium’s inherent combination of usability and attraction for student learners is what makes Facebook a powerful tool for classroom collaboration and online learning with the potential of bridging the gap between students, educators and parents (Wintermann 2014: 252). In this context, Lantz-Andersson et al. (2013: 293) have studied the use of Facebook as a tool for EFL teaching after identifying the fact that young learners typically spend a significant amount of time on Facebook communicating with their peers. Additionally, a large part of the Facebook

community are non-native speakers of English interacting with other non-native speakers, making it an excellent playing field for EFL activities (Lantz-Andersson et al. 2013: 294).

For their study on collaborative learning through social media, Lantz-Andersson et al. implemented a Facebook group joined by 60 learners aged between 13 and 16 from four different countries (Colombia, Finland, Sweden and Taiwan) whose first language was not English, which was supervised by the group of researchers and the students' teachers. Over the course of nine month, learners were encouraged to interact with each other by presenting themselves and their country through posts and comments on the platform (Lantz-Andersson et al. 2013: 295), and although the amount of language interaction in the educational setting of the study was significantly lower than the students' everyday interaction on Facebook, the study shed light on how interactions on social networking sites can be integrated into EFL teaching, making use of the fact that "English is [the most common] mediating language among many students, especially for online communication" (Lantz-Andersson et al. 2013: 296).

Overall, the researchers were able to monitor a large amount of communicative interaction supposedly "triggered by the students' established communicative, collaborative practices that belong to their everyday use of language in social media" (Lantz-Andersson et al. 2013: 310). Nevertheless, the study clearly suggests that in order to "take advantage of young people's various dynamic communicative uses of language in their everyday life in social media" educators need to have a clear goal in mind and constantly supervise the students' output to guarantee maximum benefits for collaborative language learning in the EFL classroom (Lantz-Andersson et al. 2013: 309).

4.3 Digital learning channels

Digital learning channels are among the fastest growing trends in mainstream media and by now, almost every major educational institution in the world is hosting its own educational media channel, presenting their learners with collections of videos, featuring lectures, tutorials and other media, for effective online learning (TeachThought 2018). These channels allow teachers and institutions to on the one hand share and blend information to represent their thoughts and ideas to an online audience and on the other hand implement online videos from other creators in a diverse and dynamic way in today's classrooms (TeachThought 2018). The following is an introduction to some digital learning channels that have the potential to transform classroom learning providing quality content.

4.3.1 YouTube for #education

‘YouTube EDU’, or ‘YouTube for #education’ as it is sometimes referred to, is an educational YouTube video channel that features cross-curricular videos, aiming to help students find relevant content for online learning and providing teachers with educational videos for their lectures (YouTube 2018). Launched in 2009, ‘YouTube EDU’ features content from over a hundred learning institutions, providing access to quality lectures and video courses (TeachThought 2018) and has, as of January 2018, more than ten million subscribers. Same as OER, the digital channel allows educators to specify age group and grade levels in search for video content, ranging from ‘primary and secondary education’, ‘university level’ and ‘life-long learning’ (YouTube 2018). What started out as a playful way of sharing video content has meanwhile evolved into the largest video-sharing site that streams more than four billion videos a day, and roughly one hundred hours of video are uploaded to the site every minute (Lange 2014).

Next to ‘YouTube EDU’, there exists a sheer endless number of learning channels represented on the YouTube platform, for example, ‘RSA Animate’, which translates popular lectures into video graphics, or ‘Edutopia’, which focuses on K-12 education, or the National Geographic channel, which revolves around wildlife and ecosystems, making YouTube a powerful video provider for online learning (TeachThought 2018).

4.3.2 Ted-Ed

With over 400,000 subscribers, this channel offers an extensive library of original videos meant to inform and inspire. A new lesson is posted every day from Monday to Friday, and relevant TED Talks are highlighted on weekends (TeachThought 2018). TED, short for Technology, Entertainment and Design, is an annual conference held in Vancouver, British Columbia, and various other locations around the world, featuring concise lectures by various renowned innovators, scientists and Nobel laureates. TED is also a media organization posting the videos of its lectures on their website under the slogan “ideas worth spreading” (TED-ED 2018). Its sub-site TED-ED understands itself as an educational initiative aiming at collecting and sharing animated videos for students and young learners that seek to inform and inspire its more than 400,000 subscribers (TeachThought 2018). Curated by a number of credible advisors from Salman Khan to Sir Ken Robinson, TED-ED produces a growing collection of original

animated videos that aim at bringing complex concepts to life and which can be shared digitally with participating learners around the world (TED-ED 2018).

4.3.3 Khan Academy

Khan Academy is a collection of more than 3,500 instructional videos providing online learning tutorials and activities for various school subjects from mathematics to the humanities, also providing learners with test preparation in their area of study and immediate feedback (Finley 2013). “The videos introduce a key concept but allow the student to interact with the material by completing practice exercises”, explains Lenihan (2012), by “giving detailed data reports that allow the student and teacher to assess, in detail, the student's level of achievement in the task before moving on” (Lenihan 2012). Its founder, Salman Khan, created the institution for online learning by reflecting on effective methodology to tutor his own cousins; he quickly realized that the educational learning videos he put online proved to be helpful not only to his family but to a staggering crowd of global learners (Lenihan 2012). Khan himself narrates most of the brief and concise videos, that are watched by more than 200,000 students each month, with the use of a digital blackboard and colorful writing (Storm 2011).

The revolutionary learning platform also allows for a new methodology: the ‘flipped classroom method’ (which will be discussed in more detail in chapter 5.6). “By accessing the video at home, the student arrives in class with a strong conceptual footing in the unit and, working alone, is able to progress on a topic at his own speed, thus facilitating student differentiation” (Lenihan 2012). Additionally, Khan Academy allows students to complete self-evaluations, providing valuable performance data for teachers and educators: “What this means is that the teacher, armed with individual student performance data from the concept attempted the night before, is now free to focus class time on those students that have demonstrated difficulty in attaining understanding of the core concept and extending those that demonstrate outstanding comprehension” (Lenihan 2012). It is important to point out that the nonprofit organization provides all of its resources, features or services to all users free of charge (Finley 2013) and can be accessed through its website (www.khanacademy.org), iTunes (itunes.apple.com) or any digital devices (laptops, Chromebooks, netbooks, iPads, etc.), running entirely in the browser without the need for special software.

According to Khan, the concept of having a digital teacher that lets students rewind, pause and review the content without having to feel ashamed of not having understood a

certain concept earlier enables learning in a new and effective way (Khan 2011). Students become empowered by being able to learn at their own pace and according to their individual learning styles.

4.4 Massive Open Online Courses (MOOCs)

Massive Open Online Courses (MOOCs) are the latest invention in digital learning and are a prominent catch phrase in any discussion regarding learning through technology. MOOCs are characterized by offering the opportunity of open online learning through digital collaboration for a vast number of learners, usually unrestricted and free of charge (Mallon 2013: 46). Its result is a “massive grouping of learners collaborating and producing content on a variety of platforms, including social media, learning management systems, and websites” (Mallon 2013: 46). MOOCs combine the facility of social learning with the accessibility of free online resources (Hoy 2014) and provide “significant opportunities for increasing access” to knowledge (Gaskell 2015).

In the 2016 ‘Forum Alpac’, MOOCs have been a prominently discussed topic with key speakers declaring them to be one of the most important digital inventions of the 21st century (“Forschungsatlas” 2016). The MOOC model for online education offers a wide array of advantages from the inherent openness and user-friendliness of the format to almost unlimited access to the world database of educational resources available to anyone (Hoy 2014). In that sense, MOOCs, undoubtedly, offer great opportunities to people without access to traditional education and the New York Times declared early 2012 to be the ‘Year of the MOOC’ (Gaskell 2015).

4.4.1 The pioneers

In the fall 2011, Peter Norvig and Sebastian Thrun, both professors at Stanford University and early adopters of digital education methods, created a massive open online course to teach a class on ‘Introduction to Artificial Intelligence’ at Stanford University (Dräge & Müller-Eiselt 2015). Dealing with advanced subject matter but dissatisfied with the current teaching technology, they aimed at creating an online class that would be “equal or better in

quality to our Stanford class” but could be attended by “anyone in the world for free” (Norvig 2012). The offer of attending a free Stanford lecture by state-of-the-art lecturers was so appealing that within two weeks of the announcement an astonishing 50,000 had signed up (Norvig 2012).

In the end, Stanford had to close registration early when the number of subscribers exceeded 160,000 from more than two hundred countries (Dräge & Müller-Eiselt 2015; Norvig 2012). Next to these record numbers, Norvig and Thrun made another remarkable observation: while the average final test score of Stanford graduates was “one full letter grade higher than any class previously” (Alexander 2014), making Norvig and Thrun’s MOOC model an impressive success for the methodology of open online learning, the top grades did not go to Stanford attendees. In fact, all of the 248 A-grades were achieved by students outside the prestigious Ivy League campus, leaving the highest-ranking Stanford graduate at only position 413 (Dräge 2015).

4.4.2 Udacity

Astonished by the outcomes of their first attempt in online education, Thrun consequently engaged in founding his own online academy and named it ‘Udacity’, a compound of ‘university’ and ‘audacity’ (Dräger & Müller-Eiselt 2015). The free ‘digital university’ offers courses in computer science, statistics and physics from beginner to advanced level which can be completed at the student’s own pace, without worrying about assignments or missing deadlines (Mallon 2013). Udacity’s board is convinced that education is “a basic human right” as well as “no longer a one-time event but a lifelong experience” (Udacity 2016). Udacity’s work force consists of experts and educators who, according to their mission statement, are working “to change the future of education by bridging the gap between real-world skills, relevant education, and employment” (Udacity 2016). Specialized in nanodegrees for software programming, the digital university has currently roughly three million students subscribed to their free open online courses and additionally offers premium services, including feedback, personal mentoring as well as certification of course completion (Chapman 2016).

4.4.3 Coursera

While the Massachusetts Institute of Technology (MIT) set the standard for digital open-access courses in 2001 by launching its project OpenCourseWare (OCW) as the first of its kind, addressing the issue of open access learning in higher education, its predecessor Coursera took online learning one step further (Walsh et al. 2011: 3). Characterized as a ‘social entrepreneurship company’, Coursera partnered with many top universities across the globe to offer admission-free online classes for any learner with Internet connection and providing a wide number of subjects (Audsley et al. 2013). The digital university initially started out as a partnership of Stanford, Princeton and the University of Virginia (Alexander 2014) including more than 200 courses with roughly one million learners subscribed (Mallon 2013). Coursera’s mission is “to educate millions of individuals worldwide by offering courses on various topics from elite universities” (Audsley et al. 2013) allowing their professors to teach enormous capacities of learners ranging in the 30,000s at once (Audsley et al. 2013). Thanks to an “instructional platform supported by robust computing power and complex infrastructure” (Audsley et al. 2013), Coursera is able to serve any student with Internet connection, providing a more collaborative and interactive learning experience by allowing students to educate themselves through online lectures and discussion forums from the convenience of their homes.

What sets Coursera apart from its counterparts is its inclusive pedagogy on digital learning methods, striving to make online learning on Coursera highly efficient by combining latest research on digital education with peer assessment and putting a strong focus on retrieval and testing (Audsley et al. 2013). This can be seen in the length of the presented material (videos are generally eight to twelve minutes long), forming a coherent concept, and the fact that videos automatically pause at various points during the presentation, encouraging students to address questions covered in the material before being able to proceed (Audsley et al. 2013).

4.5 Blogs and Wikis

4.5.1 Blogs

According to Blake (2013: 80), blogs can be described as “online hypertext journals that others read and react to” and are typically composed of individual entries followed by a thread of reactions, allowing students to voice their thoughts and opinions in written form which

“cannot be experienced in moderated discussion forums” (Blake 2013: 80). This aspect is highly important when thinking about blogs as effective tools for language learning, as they “empower students to become their own agents” and to be authentic producers of their own language material (Blake 2013: 80). At the same time, blogs also demand a high level of commitment and individual responsibility – compared to forums, for instance – as blogs usually only have one single publisher, even when created collaboratively. In their study on learning outcomes and students’ perceptions of online writing, Miyazoe & Anderson (2010: 192) examined the participation of 23 students publishing task-based exercises via blogs and explicitly concluded that learners felt empowered and motivated in their language production and suggested an overall highly positive effect on students’ EFL learning processes of the use of blogs in language learning (Miyazoe & Anderson 2010: 192).

4.5.2 Wikis

Unlike blogs, wikis are commonly created in collaboration rather than individually and can be edited and modified through a WYSIWYG (‘what you see is what you get’) mode (Blake 2013: 80). “The goal of a wiki site is to become a shared repository of knowledge, with the knowledge base growing over time”, explains Blake (2013: 80) and, in sharp contrast to spontaneous online writing as in chat room conversation, “wiki content is expected to have some degree of seriousness and permanence” (Blake 2013: 80). In a survey on the use of wikis for lower intermediate level EFL instruction with students in a language school in Brazil, Franco (2008) was able to show substantial results for the use of wikis in EFL learning, coming from students’ wiki submissions and their responses to an online questionnaire (Franco 2008 in Miyazoe & Anderson 2010: 195). The overall results clearly suggested “positive perceptions of wiki activity” among the students and subsequent data regarding post-correction indicated great progress in language acquisition of the participating students” (Miyazoe & Anderson 2010: 195).

The learning platform Moodle, frequently used in environments of higher education, also makes extensive use of wikis for collaborative learning and allows participants to create a range of wikis using Unicode compliance on their platform (Blake 2013: 79). Learners working on these wikis can easily add, rearrange and modify created content (including images and other multimedia content) while keeping a record of all modifications to allow regression to a previous content state (Blake 2013: 80), hence making wikis an ideal tool for monitoring instances of collaborative writing tasks and project-based learning activities.

5 Toward a new methodology: instructional models of teaching with technology

According to Nguyen (2015: 309), the advent of digital learning, as seen around the world, is largely responsible for the fact that the "physical 'brick and mortar' classroom is starting to lose its monopoly as the place of learning". Made possible by the unprecedented rise of the Internet, online and other forms of digital learning can help to "enhance and improve student learning outcomes" while being able to reduce costly resources and investments in the classroom (Nguyen 2015: 309). This chapter aims to provide an overview of methodology that embraces the concept of digital learning and bridges the gap between computer-correspondence learning and face-to-face sessions and seeks to point out how they can be implemented in the 21st century classroom.

5.1 Online and mobile learning

5.1.1 Online learning

As defined by Carliner (2004: 1), online learning refers to "learning and other supportive resources that are available through a computer". Traditionally, the computer displays material in response to a learner's request and also fulfills the function of prompting the learner for more information, "based on the learner's response" (Carliner 2004: 1). A more traditional definition is provided by Perry & Pilati (2011: 97), who describe online learning as a form of 'correspondence' between learners and technology, permitting "synchronous and asynchronous communication and collaboration". Today, a large part of learners, often without even realizing it, instinctively use various forms of online learning when they turn to tutorials on YouTube or other channels and examine wikis and online lexica to satisfy their intrinsic hunger for knowledge. Also, a significant part of learning happens online when students discuss topics and assignments on social media to gain new ideas and approaches or use online collaboration tools to "share their expertise" with other students (Grant & Basye 2014: 54).

However, according to Perry & Pilati (2011: 97), online learning does not only refer to the correspondence of learners and technology but more to the holistic concept of fusing online instruction with traditional face-to-face learning, a concept that is also referred to as 'blended learning'. There are a number of reasons why online learning is said to provide great benefits to

learners and educators, among other convenience, availability and flexibility of both content and learning styles. Recent studies have shown that learners perceive online learning activities to be more pleasant in contrast to traditional forms of learning, but the same studies also point out that students need to be supervised in their progress to maximize results and keep being motivated (Perry & Pilati 2011: 97). However, with regards to Perry & Pilati (2011: 97). when used efficiently, online learning also provides teachers with the opportunity to be more purposeful in their teaching while at the same time offering students various new ways to interact with course materials.

5.1.2 Mobile learning

Mobile learning can be defined as "the process of learning mediated by handheld devices such as smart phones and tablet computers" (Christensen & Knezek 2017: 379) or, in other words, "the integration of mobile devices, such as tablets and smartphones, into both in-school and out-of-school learning activities" (Grant & Basye 2014: 56), mostly while using the resources of learners' technology to facilitate the implementation of educational tools into the classroom. Mobile learning makes use of digital technology inside and outside formal school settings, same as online learning, but above that, "make use of the fact that a large part of today's learners possesses high-performing smart phones that allow them to gain access to online learning from anywhere anytime" (Grant & Basye 2014: 56). The method of mobile learning is one of the latest inventions of digital learning thanks to a recent shift in attitude toward mobile phone usage in the classroom, which has been largely prohibited in most school settings (Grant & Basye 2014: 57).

Mobile learning has seen a significant rise over the past years following a vast increase of mobile usage and the continuing lack of high-performing software and hardware in the school environment. As Professor Chris Dede, who teaches at the Harvard Graduate School of Education, states, mobile learning is accelerating at an enormous pace and can be regarded as one of the fastest growing technology trends with regards to the vast number of mobile usage among young learners (Dede quoted in Barseghian 2012). Additionally, mobile devices offer new forms of learning, for instance, allowing students to have 'back-channel' discussions about topics that simultaneously happen in class (Grant & Basye 2014: 56).

With mobile phone usage is in general on a constant rise, it is becoming easier for today's language learner to enrich course content with interactive learning apps or having live discussions on social media networks. The popular language learning apps Babbel and

Duolingo are just two of many options for mobile language learning, providing language content to more than two hundred million users (Duolingo 2017). Also, Facebook, Twitter and Snapchat allow students of English to communicate with billions of English language users around the world, and of the 2.13 billion active monthly Facebook users alone, 1.74 billion users access their services via a mobile device (Zephoria 2018). While mobile learning technology provides constant access to language learning for everyone, “[t]he impact of mobile learning is even more dramatic for those students who struggle with learning”, as Grant & Basye (2014: 56) explains. Students requiring special education are in desperate need to “connect classroom learning to their world in order to make learning relevant” (Grant & Basye 2014: 56). Mobile learning can provide an effective solution for this group of learners, giving the fact that most mobile devices allow basic functions like taking pictures and recording audio and video material from the learners’ perspective, opening up new ways of learning for special needs students (Grant & Basye 2014: 56).

5.2 Self-initiated learning

Self-initiated learning, as a distinct form of learning, can be defined as the process of actively seeking relevant information in order to fulfill educational objectives (Tour 2017: 181). Arguably, most learners already make use of present-day technology to engage in self-initiated learning when collaborating in social media networks to collectively solve classroom tasks or indulge in a quest for additional knowledge on relevant topics on blogsites and forums. Research on immigrant teens in the United States, for instance, even suggested that their engagement in online communication with their peers, though being described as 'deliberate' and 'non-formal', can be regarded as effective self-initiated learning and significantly helped in maintaining and progressing their native language skills (Tour 2017: 181). Additionally, the creation of personal online learning environments, such as blogs, channels and other forms of collaborative online networks, and their advanced use in commenting and establishing online connections, helps learners to achieve a feeling of belonging, to maintain a high level of self-initiated learning and also results in a positive effect regarding sustainable learning (Tour 2017: 181).

5.2.1 Intrinsic motivation

There is a substantial discussion in education that the popular 'carrot-and-stick-method', engaging students to learn by extrinsic motivation as in good grades or punishment for lack of learning, will sooner or later fail educators and students alike. In his bestseller *Drive: The Surprising Truth About What Motivates Us*, Daniel H. Pink famously argues that intrinsic motivation and self-initiated learning is key to achieving a level of greatness in knowledge, stating that people are naturally equipped with this form of motivation by giving the example of the immense amount of time scholars around the world spend on providing input for Wikipedia and other online sources without getting paid (extrinsic motivation) and mostly while working full time jobs (Pink 2009).

The implication of this argument has even greater effects on the discussion of students' intrinsic motivation: in his viral TED Talk on 'How Schools Kill Creativity', Sir Ken Robinson (1999) argues that many methods in formal schooling eliminate the intrinsic motivation of students to learn. He further provides the example of young children being able to produce a vast number of concepts when asked for possibilities of usage for paper clips, while only a fraction of these concepts seem to remain when asking learners the same question at high school age, after having spent a number of years in formal education (Robinson 2006). Arguably, this trend can be reversed by the implementation of technology in the classroom, as research in that area has shown ample support for the inherent attraction of technology to young learners and the power of self-initiated learning through technology to fuel learners intrinsic hunger for knowledge (Tour 2017: 181).

In 1999, Sugata Mitra first set out to examine the opportunities of self-inflicted learning in India, driven by the fact that most rural areas of the country were lacking basic access to quality teaching and learning (Mitra & Dangwal 2010: 673). In an attempt to investigate if young students would be able to learn by themselves when provided with basic access to rudimentary technology, Mitra had a series of computers implemented in a wall overlooking a slum area in New Delhi – a project that later became known as the 'Hole-in-the-Wall'-experiment (Mitra & Dangwal 2010: 672). The researchers monitored the behavior of the children and their interaction with the computers while allowing them to interact freely and un-supervised with the technology provided (Mitra & Dangwal 2010). According to Mitra & Dangwal (2010: 673), after a period of just one month of exposure to computers and no prior knowledge of usage, results clearly indicated "that the children had taught themselves to use the computer and acquired some basic skills in English and mathematics".

Evaluating the outcomes, the experiment shows ample evidence that young learners, provided with access to technology, will use their intrinsic motivation to explore and investigate a relevant topic or subject of interest and reach a profound level of achievement without or only little help or supervision (Mitra & Dangwal 2010). Over the following years, Mitra and his team successfully repeated the experiments in other remote areas of India with similar outcomes, fortifying the assumption that "given the facilities, groups of children in such settings could learn to use computers and access and benefit from Internet resources on their own" (Mitra & Dangwal 2010: 673).

Furthermore, the line of experiments confirmed that learners with no or limited knowledge of English can become literate on a computer, to "[t]each themselves sufficient English to use email, chat and search engines", use the Internet and its resources to answer questions and even "[i]mprove their English pronunciation" in order to be able to join live discussions, solely by being granted access to technology (Mitra & Dangwal 2010: 673). With regard to these evident forms of self-initiated learning, Mitra coined the term 'self-organizing learning environments' (SOLEs).

5.3 Personalized learning

To define personalized learning, it might be easier to define what it is not. According to Grant & Basye (2014: 4), personalized learning is a lot more than the mere "digitization of traditional learning". It is certainly not new to anyone working in education that the current school system is facing challenges teaching an increasingly heterogenetic classroom with students becoming more and more diverse "in cultural backgrounds, learning styles and interests, social and economic classes, and abilities and disabilities" (Ferguson 2001:1). "Successfully including students with so many differences and different ways of learning challenges schools to reinvent themselves as more flexible, creative learning communities" should therefore be the primary goal when inviting new methodology in the form of digital learning into our classrooms (Ferguson 2001:1).

Personalized learning and teaching with technology holds great potential in helping to bridge the gap of social and cultural diversity in the classroom and can cater to a vast array of individual learning styles. In that sense, teachers should be committed to try to bridge the gap between what students for the most part are doing in class (working silently, listening to the

same content at the same time) and what students do outside the classroom (connecting, sharing, engaging in virtual communities) and take advantage of the fact that today's learners are for the most part digital natives and possess a vast amount of digital skills that seek to be utilized in classroom activities (Grant & Basye 2014: 2).

Other research paints a much grimmer picture of the implementation of personalized learning in today's classrooms: Roberts-Mahoney et al. (2016: 405) claim that the use of big data necessary for personalized education will eventually end in the corporatization of public education in that big data, and adaptive learning systems are transforming educational decisions "from public school classrooms" to "private corporate spaces and authorities". Nevertheless, it has to be noted that little evidence of that dark trend can be observed in general, and schools' inclination toward corporation-building regarding educational decision making has yet to be defined, although it is certainly wise to monitor and evaluate large corporations' intention of moving into school environments. In the end though, personalized learning does promise an effective escape of the traditional 'one-size-fits-all' model of education and creates a more open and flexible concept of classroom learning and can help to engage students to "become more invested in designing their own personal learning paths" (Grant & Basye 2014: 2).

The New York City Department of Education's digital education project "School of One" was among the first to demonstrate the effective outcomes of personalized learning: on a daily basis, students of a Brooklyn middle school received a personalized curriculum according to their learning style, level of knowledge and past performances that was computed daily at the department's data center for learning (Dräger & Müller-Eiselt 2015: 62). A computer-based learning algorithm, which was constantly collecting students' performance data over the process of their online classroom learning, generated these lesson plans to best fit students' learning needs (Dräger & Müller-Eiselt 2015: 62).

Seemingly effortless, this approach caters to one of the biggest issues of the 21st century classroom: dealing with individual learner preferences in an increasingly heterogenetic classroom environment. As Grant (2014: 3) points out, "[s]tudents in the same grade have different knowledge base levels and learn at different rates" and "are more likely to succeed academically, emotionally, and behaviorally when they are supported as individuals". The 21st century classroom that allows technology and online learning into their curriculum can overcome said issues and transform the traditional 'one-size-fits-all'-approach into effective structures of personalized learning catering to these individual needs.

In an ideal setting of personalized learning, technology is not only used to provide efficient learning strategies for students but also to free up valuable teacher time to address learners' individual problems (Grant 2014: 5). As Grant also (2014: 5) puts it, the one-to-one learning component of personalized digital learning "allows teachers to mediate learning rather than act as gatekeepers, transforming the classroom into a hub of self-directed learning with teachers enabling and empowering each student's unique learning path". The popular phrase 'facilitator' is used excessively in this context but largely paints the right picture.

However, personalized learning does require a radical shift in the design of teaching and learning, as well as a profound understanding of educational technologies (Grant 2014: 5). "[R]esources and strategies must be appropriate for each student's learning style, abilities, and interests", remarks Grant (2014: 5) and continues to point out that when successfully implementing this form of methodology, teachers are empowering their students in their learning process and allowing them "to assert control over the methods by which they learn, thereby personalizing their educational experiences" (Grant 2014: 5).

5.4 Collaborative or peer learning ('peeragogy')

Collaborative or peer learning with technology promises to become an important asset in today's classroom, given the fact that the integration of technology, in addition to one-on-one learning, "enables students to collaborate with one another and work with a range of interactive, instructional resources" (Grant 2014: 3). These resources can include teachers, parents, peer tutors, volunteers and everybody else interested in participating or assisting in the learning process (Grant 2014: 3). Another definition comes from Bugge Henriksen et al. (2016: 3), who stated that "peer-to-peer learning occurs when '[...] students engage in information and knowledge exchange for the mutual benefit of all participating parties".

The concept of peer learning originates in the findings of Russian psychologist Lev Vygotsky (1930-34), who claimed that "individuals learn socio-cultural 'behaviors' and 'values' from those closest to them" and similar ideas were later developed by Jean Piaget (1932), who stated that adolescents undergo an important stage in development when they shift their prime source of knowledge from parents to members of the same age group, 'peers' (Bugge Henriksen et al. 2016: 3). Given these concepts, it can clearly be seen why peer learning can be regarded as a highly powerful learning method in the language classroom.

Blake (2013: 153) points out that effective solutions for peer learning and collaboration in language learning can be found in the use of social networking sites, due to their sheer number of users and internationality. The most popular social networking site, Facebook, attributes for more than two billion unique users (Zephoria 2018) and Blake (2013: 153) underlines the attraction of the network: on the one hand, students' average daily time spent on social media measures more than an hour, on the other hand the fact that a great part of users lives in English-speaking communities or use English as a lingua franca in their communication, "making this forum an ideal site to meet speakers from a wide range of the world's languages all over the globe". Aside from the global player Facebook, there is also a large number of social networking sites focusing specifically on language learning, like Hellolingo (former Livemocha), where engaged language learners can find peers for tandem sessions, or iTalki which provides experienced peer language teachers for more than a hundred languages (Blake 2013: 154).

Another pioneer of collaborative learning is Rheingold (2014: KL142), who has done profound work in examining the effects of collaborative online learning. He believes that the key principle of peer learning in the age of technology lies in the fact that it is a simple and cost-effective way (in terms of time and energy) to share relevant content among peers, making it a valuable asset in today's classroom. He named the methodology of using peer learning supported by technology 'peeragogy', ranging from activities like writing blogs to collectively creating wikis and web-based documents or participating in online forums and discussions, defining this method as "student-centered and based on collaboration and inquiry" (Rheingold 2014: KL142).

Although pessimistic about school's function of compliance, which still exists today, creating only a small number of independent and interdependent learners, Rheingold is convinced that technology will afford an "environment in which students take on more of the power and responsibility for their own learning" (Rheingold 2014: KL160). This principle of having engaged students through peer learning can best be summed up in the following statement: "If you want to learn something these days, there's probably a teenager who has posted a tutorial online" (Rheingold 2014: KL160).

5.5 Game-based learning

Educational games, also known as 'serious games', have seen a significant rise in popularity in the past years. According to Felicia (2014: 8) computer games provide numerous opportunities for students "to collaboratively solve problems, and learn from their experiences", explaining the rapid growth in the creation of computer games for educational purposes in recent years. Game-based learning (GBL), the product of serious games, deals with "clearly defined learning outcomes through the medium of play" and "allows players to gain insightful knowledge in a game-like, engaging environment, presenting an opportunity for independent collective learning" (Felicia 2014: 8). Fueled by the opportunity of actively engaging students in the learning process and stimulating players to retain the information presented to them, game-based learning offers "an alternative way for educators to present material to learners" (Felicia 2014: 8). However, it is important to note that the main objective of gaming as a classroom activity is never pure entertainment; rather, play is an integral part of a clear educational objective and consequently facilitates learning through entertainment.

According to Kim, Park & Baek (2009: 800), game-based learning has enormous potential as an effective learning environment in the sense that it can motivate students through the above-mentioned entertainment. Many key aspects in gaming seem to be favorable and could be adopted into classroom learning: the fact that gamers need to combine knowledge to arrive at a solution, that they base the outcome of the game on self-formed decisions and that "learners are encouraged to contact other team members to discuss and negotiate subsequent steps, thus improving, among other things, their social skills" (Felicia 2014: 1). Additionally, not just since the advent of the digital native generation have high school students, in general, been characterized as "bored and disengaged from the learning process" by many (Admiraal et al. 2011: 1185). According to recent studies, there is ample support that new educational designs, such as game-based learning and instructional technology, possess the power to change that attitude in learners and promote a new level of "excitement and engagement" among students toward the process of learning (Admiraal et al. 2011: 1185).

Moreover, Felicia mentions that (2014: 78) "[t]he advantages of technology-based learning are particularly evident within game-based learning which appeals directly to the culture of children", and scholars generally agree that gaming, as a significant aspect of learners' environment, can largely increase students' motivation with regards to their competitive structure (Kim, Park & Baek 2009: 800-801). Felicia (2014: 78) further argues, that "[d]ue to the transition from traditional to technology-based learning, particularly game-based

learning, new skills have developed" and that learners' brains have even adapted to the mode of gaming, allowing them to process information in a new and adapted way. It is for the reader to decide whether this is a welcoming or alarming trend. Generally speaking, it can be seen that learners are and will be required to process a far larger amount of information in a far smaller amount of time with regards to the developments in the socio-political world (Stiftung Lesen 2011; "21st Century Education", 2012).

Game-based learning also seems to be beneficial in increasing motivation towards studying and learning. According to Admiraal et al. (2011: 1186), game-based learning technology possesses great potential in augmenting students' motivation toward the learning process, considering the fact that computer games are regarded as preferable among learners and at the far opposite of general learners' perception of school. Admiraal et al. (2011: 1186) further describe this phenomenon of students' great affection and positive attitude toward digital games as "the attitude we would like all our learners to have: interested, competitive, cooperative, results-oriented, and actively seeking information and solutions". Due to this outlook, research in the field of game-based learning and instructional design is currently being conducted on a large scale, intending to evaluate interventions that can increase and sustain learning motivation (Huang 2011: 694).

Based on the flow-theory of Csikszentmihalyi (1990), describing the symbiotic relationship between challenges and skills, Admiraal et al. (2011: 1185) have conducted some research on the effects of game-based learning on students' motivation. Learners in the state of flow perceive their performance to be pleasurable and successful, and the activity is regarded as being "worth doing for its own sake, even if no further goal is reached" (Csikszentmihalyi 1990, quoted in Admiraal et al. 2011: 1185). This can be described as the 'ideal learning state', as individuals function at their fullest capacity and the experience becomes its own reward. The outcomes largely suggest that students engaged in game-based learning activities show comparable states of motivation and flow as found in individuals achieving this state in non-formal activities. Nevertheless, the occurrence of flow experiences in learning is believed to surface only when learners' skills are neither "overmatched nor underutilized", and keeping this balance is crucial as well as challenging (Admiraal et al. 2011: 1186).

Similar studies on the connection of motivation and game-based learning continue to suggest positive effects on learners' motivation and the existence of effective correlations of engagement and learning that can "increase and sustain learning motivation" (Huang 2011: 694). A large part of research in this field is based upon the work of Malone & Lepper (1987)

who proposed a link between motivation and intrinsic learning (Admiraal et al. 2011: 1186). Building on this, Admiraal et al. (2011: 1186), identify seven factors promoting this form of motivation among learners when engaging in game-based learning: "challenge, curiosity, control, fantasy, competition, cooperation and recognition", factors that seem to have positive effects on learners' motivation toward the subject.

Research conducted by Schwabe & Göth (2005: 215) also implies that technology enables "immersion into a mixed reality" (Admiraal et al. 2011: 1187) and thus provides "highly motivating learning experiences", moving the students "into a state where they are mentally ready for learning" and "in the right environment for learning" (Schwabe & Göth 2005: 215). Given these findings, it can be concluded that game-based learning possesses great potential for classroom learning, and it is reasonable to attempt merging learning content with "the engaging and thereby motivating strength of games" (Admiraal et al. 2011: 1186). Huang's (2011: 699) findings also identified "a significantly higher level of confidence" among users of digital instruction. It is evident that a motivated learner is more likely to show core interest in the subject as well as a persistence in learning and that game-based learning can provide significant support on this account.

5.5.1 Stealth assessment through GBL

According to Shute et al. (2016: 107), "[t]he main purpose of any assessment is to collect information that will allow the assessor to make valid inferences about what people know, what they can do, and to what degree they know or are able to do something". Stealth assessment, grounded in a so-called 'evidence-centered design' framework, continuously measures students' performance by providing an ongoing stream of data while students engage in game-based learning that is automatically stored in a log file (Shute et al. 2016: 107). As Shute et al. (2016: 107) elaborate, "[t]he performance data is automatically analyzed" and can give valuable insight into students' learning progress and help create and adapt individual learning models for the student engaging in the activity as well as adjust "task difficulty or challenge in light of learner performance".

As the name implies, stealth assessment 'silently' collects data on students' knowledge over the year in an "unobtrusive nature" (Lynch 2016). According to Lynch (2016), stealth assessment also presents a "powerful step in minimizing and eventually closing the teaching and learning immediacy loop" by providing immediate feedback for students and educators.

Especially for learners, "[t]he immediacy of feedback is critical", explains Lynch (2016), as it allows educators to help students change their learning strategies for the better. As Lynch (2016) puts it, technology allows teachers to "disrupt" or "interrupt the failure to learn, rather than continuing to remediate failed learning".

Next to continuous evaluation of learners' progress and the possibility of instant feedback, stealth assessment addresses another important issue of testing: learner anxiety. Predominantly in the United States school system, but not exclusively, there is a significant amount of popular discussion about the horrors of standardized testing, scenarios featuring psychological damage to and physical outbursts of students in high stakes testing situations. Stealth assessment, as an alternative to the 'stop and test' approach, can eliminate these situations and provide comfort to those learners by "passively collecting data on students' knowledge over a semester" without the risk of harming learners (Kamenetz 2015). While this may seem to many as a far too easy solution for the downsides of standardized testing it should be noted that it is at least a valuable attempt in the right direction of eliminating the trend of standardized testing methods in favor of stimulating students' individual skills while not aiming at producing a work force of sameness by the current educational system.

5.6 Flipped learning

Organizing classroom time effectively is one of the greatest challenges of teaching. Much time is wasted on introducing content and it is a rare case that every student of the class is present at every lecture, making it necessary to repeat concepts for formerly absent students. In an attempt to address this issue, Colorado high school teachers Jonathan Bergmann and Aaron Sams recorded and annotated their lessons for absentees using basic educational technology. The outcome was even better than expected: while absent students appreciated their service, so did other students, using the online materials to "review and reinforce classroom lessons" (Tucker 2012). By chance, Bergmann and Sams had stumbled across a new teaching methodology that included the use of technology – 'flipping the classroom'.

According to Khan (2017: 135), the concept of the flipped classroom has been gaining vast popularity among educators in recent years as it can be seen as an effective alternative to a traditional lecture-based method. By definition, flipped learning is a "pedagogical approach in which direct instruction moves from the group learning space to the individual learning space"

while transforming the group space into a "dynamic, interactive learning environment" that the teacher can attend to more individually (Bergmann & Sams 2014: 6). In practice, learners watch recorded video content in the comfort of their homes before class and "use the duration of class to put their learning into practice by engaging in hands-on learning activities and interacting with their peers and teachers" (Khan & Ibrahim 2017: 135). This approach leaves time for educators to address individual issues with learners and use class time more effectively for active, group-based activities (Khan 2017: 135). Research conducted by Khan & Ibrahim (2017: 136) suggests overwhelmingly positive feedback from students using this method, as it provides an effective approach for active problem solving and control on the pace of students' learning.

These may be the main reasons why flipped learning is continuing to gain widespread popularity among teachers and educators, solving the issue of having to reteach lecture content due to absent students and providing a radically new approach for effective class time use. As Tucker (2012) puts it, by flipping the common approach "instruction that used to occur in class is now accessed at home" and "the class becomes the place to work through problems, advanced concepts, and engage in collaborative learning" (Tucker 2012). Nevertheless, technology is only a means to allow flipped learning, same as homework instructions and scaffolding materials, and educators agree that it is not merely the use of digital education on its own that is revolutionary (Tucker 2012). It is rather a holistic concept that is radically rethinking classroom time to maximize the scarce resource of student-teacher-time and student-talking-time. Introductions to topics, longish explanations and explanatory videos can now be consumed in the confinements of the learners' home while classroom time is available more complex tasks. Especially in the field of language teaching this can provide immense help for the language learner as time saved for instruction (e.g. grammar teaching) can now be used fully for communicative practice, which is crucial to language learning.

5.7 Blended learning

As stated by Grant (2014: 50), the goal of blended learning is to combine and fuse the best aspects of online learning and student-teacher interaction taking place in the classroom. Sharma (2010: 456) adds to the definition that blended learning not only refers to the combination of classroom and online learning but also to blending technologies (combining media tools in the learning environment) and methodologies (such as present-practice-produce

methodology and task-based learning, for instance).

Blended learning is said to possess a great number of advantages for learners: among the most obvious, allowing students to learn at their own pace while catering to individual learner styles through providing "[a]ccess to global resources and materials that meet the students' level of knowledge and interest", Giarla (2018) claims the occurrence of "more affective interactions between the learners and their instructors" thanks to the use of personal communication tools like message boards and online discussions. Giarla (2018) further elaborates that self-pacing in blended learning caters to slow and quick learners alike as it "reduces stress, increases satisfaction and information retention". Grant (2014: 51) adds that the core principle of blended-learning, providing multimedia-rich content that caters to a wide range of individual learners, must also mean that students have access to these resources inside and outside the classroom.

According to Hockly (2018: 98), the implementation of blended learning into the English language classroom has risen significantly over the past decade, rendering it a field worth studying for ELT purposes. A growing number of research into blended language learning has been conducted recently, and the overall data largely suggests highly positive effects on learners' motivation toward language learning, although some studies have not identified enough conclusive data to arrive at the same conclusion (Hockly 2018: 98). A reason for the latter might lie in the cultural differences of English learners, as Hockly (2018: 98) explains, and that "in some contexts, learners may be reluctant to engage in written online forum discussions for fear of making mistakes". Nevertheless, Giarla (2018) stresses the fact that learners, independent of their age, have different strategies of incorporating a language and establishing blended learning environments can be an effective way of catering to students' individual needs "by designing teaching programs in a way that reaches visual, auditory and kinetic learners alike".

6 Implications of technology for the EFL classroom

It is often claimed that today's learners of the 21st century classroom are "fundamentally different from previous generations of students" in the way they naturally interact with technology and that they are expected to be "similarly engaged by their educational environments" as long as it features some kind of technology (Felicia 2014: 237). Indeed, the mere implementation of technology does not guarantee engagement and motivation from EFL learners but will only be successful when implemented with a clear rationale in mind. In that sense, the present thesis is not arguing for any sort of imperative of implementing technology into the language classroom but acknowledging the various benefits that arise from educational technology and how they can be of help in the EFL classroom. Therefore, the following section aims to provide an overview of specific categories in which technology is said to make evaluable contributions to the field of EFL teaching and what implications they will have on EFL learning.

6.1 Technology as a means of access to authentic resources

Firstly, provision of authentic language materials is one of the key principles for effective EFL teaching and has been propagated manifold in EFL teaching and learning literature. Technology is a powerful means to give learners free and easy access to an abundance of authentic EFL materials that can be beneficial to their learning process. As mentioned in chapter 4, an average of 1,000 hours of intense learning is needed to gain mastery in any language (Blake 2013: 1), and the Internet's inherent access to useful language materials, both for teachers and students, can play a vital role in achieving this goal.

Secondly, and equally important, learning is an active process, in that "effective learning requires students to do more than simply respond to stimuli", instead it should "actively seek and generate relationships between lesson content and prior knowledge" Hooper (1995: 8). It has been argued that access to authentic materials in EFL, which students would consider relevant to their learning process, is a key factor in making learning an active process for students and that the Internet is an effective repository for providing access to this abundance of authentic materials that learners can access from any given device inside and outside the language classroom. Using technology to enable students to enter the realm of authentic language learning materials through digital devices is therefore a valuable claim for student-

centered learning through technology; another is being able to actively establish relations between content and learning by allowing students choice and agency for their learning in providing a seemingly endless source of material to choose from, therefore enabling effective language learning.

As further argued in chapter 4.1, the Internet provides access to a very specific collection of authentic materials, Open Educational Resources (OER). As Wintermann (2014: 251) explains, OER allow teachers to browse the Internet for specific classroom materials that are conveniently organized in subjects, grade levels, format and course lengths and can redefine the way we implement technology in the classroom and how students personalize their learning experience.

Thirdly, digital learning can make instruction more effective by building upon students' knowledge and experiences as well as encourage discussions in meaningful contexts (Hooper 1995: 10). The mentioned OER, guaranteeing appropriate grade and age levels for materials, and digital learning apps that assess students' status quo and build on learners' knowledge when introducing new content, are just two examples of effective implementation of Krashen's input hypothesis and his argumentation for providing slightly more complex content than the students had already acquired as these apps partly provide slightly more challenging content to engage learners in their learning experience but only switch to higher levels of challenge when learners excel the current level.

Closely related to building upon students' knowledge and experiences is the claim that effective learning frequently takes place when learners are presented with familiar contexts (Hooper 1995: 11). According to Hooper (1995: 11), "[g]rounding instruction in meaningful contexts appears to have both cognitive and affective benefits". It can therefore be concluded that students learn best when educators are able to link classroom content to the world of experience of their learners.

Lastly, using digital devices to access learning content is deeply rooted in students' everyday lives. It can thus be regarded as a familiar process to them and is consequently likely to provide additional motivation for language learners to engage with learning content, hence making it an extra benefit for technology-enhanced language learning.

6.2 Technology as a means for multimedia learning

It is a well-known principle in traditional as well as contemporary learning theories that information that is presented on multiple media is acquired significantly better than when the same information is being presented on a single medium, for instance, in written or oral form only. This principle goes back to Mayer's cognitive theory of multimedia learning, which states that combining words and images in a certain task allows for a much deeper understanding than when both items are presented separately, naming it the 'multimedia principle' (Mayer 2014: 57), with a display of multimedia content typically integrating "writing, graphics, audio, animation and video" through the use of computer hardware and educational software" (O'Neill 2015: 47).

Furthermore, as learning is an active process of filtering, selecting, organizing and integrating information based upon prior knowledge, it is not enough to just combine auditory and visual channels to guarantee deep learning, but learners need to actively create mental representations as a product of successful learning, as each channel (auditory and visual) has limited capacity for processing and storing information (Mayer 2014: 58). Multimedia learning, when implemented successfully, takes this principle into account and it is suggested to use short and concise video content for successful teaching that should ideally not exceed five and seven minutes in length.

In general, technology as a means to provide multimedia content is a useful tool to help learners to more effectively engage with language learning content, which has been demonstrated in various studies. In a large-scale testing scenario of reading proficiency, Huifen & Tsuiping (2007: 83) were able to show that students who were presented with animated visualized EFL content far outperformed the group of students who were only given static visual content as a preparation, making a strong case for the benefits of technology-enhanced multimedia content of EFL materials in the classroom. This effect is already taken into account in contemporary online EFL testing formats such as IELTS or TOEFL (now TOEFL iBT) that switched from static visuals to video content in their standardized settings.

6.3 Technology as a means for personalized learning

The thoughtful and purposeful implementation of technology in the EFL classroom can transform personal agency of learning as we know it. Technology provides the chance for creating personalized learning environments, shifting the focus from teacher-centered classrooms to learner-centered classrooms and the role of the teacher from dispenser of knowledge to that of facilitator and coach. As Grant (2014: 3) points out, personalized learning structures allow teachers and students to "take charge of their education experiences", which is made increasingly manageable through online and mobile learning environments.

Nevertheless, the idea of a personalized learning environment where students take care of their learning experience in a student-centered classroom situation might not reside well with most EFL teachers. Traditionally, the role of the language teacher was to provide authentic, comprehensible input (see Krashen in Chapter 2) for EFL learners and losing that role might feel even threatening to EFL teachers (Blake 2009: 112). Additionally, breaking up the roles of authority and expert is why EFL instructors might refrain from using technology as a means for personalized learning in which students have control over their style of learning.

In spite of that, EFL educators might as well take the risk of losing power in the classroom for the benefit of creating personalized and student-centered learning environments as Blake (2009: 113) strongly points out: "[EFL] teachers should redirect their energies away from notions of control toward learning objectives that ensure that the tasks and tools will motivate students to become active participants who engage" themselves in their learning experience. This principle of allowing technology to play an important role in students' learning is key to the EFL learning process as "[s]tudents in the same grade have different knowledge base levels and learn at different rates", as Grant (2014: 3) explains.

Implementing technology in the language classroom to create a personalized learning environment "allows students to work at their own pace" and according to their individual learning styles as well as makes learners "more accountable for their learning and more proud of their accomplishments" (Valentine 2017: 20). Students taking control over their learning paths is crucial to EFL teaching for a number of other reasons: technology enables students to "achieve established goals, building self-efficacy, critical thinking, and creativity skills" (Grant 2014: 4), key assets which are crucial to language learning as agency in the language learning process is most likely to be a positive factor for engagement and motivation in the acquisition process.

By giving students agency over their learning, technology not only creates engagement with the learning content but allows for the possibility of creating new and exciting forms of writing tasks for EFL learners. As Blake elaborates, "technologies have engendered innovative forms of expression that challenge traditional notions of authorship and standard genres" (Blake 2009: 114) as can be seen, for instance, in the blurred distinction of written and oral forms of chat communication. "Students, then, are charged with not just negotiating meaning in L2 but also with trying to make sense of their world with the inclusion of new L2 elements and forms of expression", Blake (2009: 114) points out.

6.4 Technology as a means for collaborative and peer learning

It becomes increasingly evident that collaborative learning and peer learning represent another virtue of technology-enhanced language learning. Peer learning has numerous advantages and can significantly enhance students' learning performance in the language classroom, as many researchers have argued, and technology is furthermore an effective way of enabling learners to engage in collaborative learning. As Grant (2014: 4) points out, in addition to personalized and one-on-one learning, "technology enables students to collaborate with one another and work with a range of interactive, instructional resources", which can include teachers, parents, peer tutors, and many more. Rheingold (2014: KL142) even sees collaborative learning as one of the key motivators for effective language learning and is dedicated to continuously examine the positive effects of peer learning, establishing the aforementioned new term for this promising methodology, 'peeragogy' (see also chapter 5.4).

Another important principle of language learning is that information should ideally be presented from multiple perspectives, as seen in effective peer learning forms, which is said to "increase the durability of instruction" (Hooper 1995: 9). Peer learning can therefore be regarded as an effective way to provide different approaches to EFL learning that may differ significantly from traditional teaching methods and is regarded by many to carry huge potential in revolutionizing the EFL classroom (Hooper 1995: 9; Grant 2014: 5; Rheingold KL 142). According to Hooper (1995: 9), "learning should [ideally] take place in environments that emphasize the interconnectedness of ideas across content domains and help learners to develop flexible networks of propositions and productions" as "[p]resenting content from a

single perspective is unlikely to reflect the complexity inherent in many concepts", especially in language education, and collaborative learning allows for this much required multi-perspective angle of effective learning.

Additionally, the aspect of interconnectivity that is provided by technology in the language classroom can play a significant role in EFL learning. "Networks are increasingly recognized as key instruments for knowledge acquisition", as Guilmette (2007: 55) points out, and language learners of the 21st century classroom usually have an abundance of digital networks to fall back on when it comes to peer language instruction (as argued in chapters 5.1 and 5.4). This becomes increasingly obvious when examining peer chat and forum discussions on social media sites, which are overwhelmingly carried out in English as the overall lingua franca of the Internet (Blake 2013: 153). Furthermore, the language use of these networks seems to be an effective way to challenge learners' attitudes and allow for deep learning and engagement with the learning content. Hooper (1991: 10), for instance, strongly points out that group collaboration is beneficial to the overall learning experience as "groups appear to create environments in which all members benefit from exposure to diverse attitudes and opinions that are often unavailable in the traditional classroom".

6.5 Technology as a means for communication and classroom management

Learning management systems, such as Google Classroom or Edmodo (presented and discussed in Chapter 4.2), increasingly convince skeptics of technology-enhanced learning to engage in online and mobile instruction, mainly because of their blending of learning and classroom management. The possibly greatest benefit of digital learning environments is granting access to the all classroom content around the clock and guarantees that even c absentees are continuously informed about classroom activities and learning content (Valentine 2017: 22). Also, these technologies allow for classroom time to be freed up for productive practices while simple tasks (e.g. watching an educational video) can be fulfilled outside the classroom at an individual time slot and at an individual pace.

Additionally, mediated discourse technologies such as classroom response systems and class replay systems are increasingly finding their way into the school environment and are becoming more prevalent in the quest to engage students and create more participatory and engaging learning environments in an otherwise asynchronous communication process (Blessinger 2013: 3). Students naturally feel more empowered when able to actively contribute

not just during classroom time but also via digital learning platforms and at the same time are able to shape the curriculum and the topics discussed. According to Blessinger (2013: 3), "[w]hen coupled with germane teaching and learning methods such as peer instruction, these technologies have the potential to enhance or transform a classroom, make learning more meaningful and interesting, and increase academic achievement".

6.6 Technology as a means to increase learner motivation

Although results indicate that digital learning technology needs more and profound research in terms of efficiency and effective usage, "the vast majority of researchers now acknowledge their benefits in terms of motivation and engagement" (Erhel & Jamet 2013: 159). At present, studies examining technology-enhanced teaching claim that technologies in the language classroom have significant potential in increasing learners' motivation toward classroom content and engagement in learning activities (Blake 2013: 113), and some of these claims will be addressed in the following section.

Firstly, studies show that the use of online and mobile learning can lead to increased motivation towards school subjects due to the inherent attraction of the medium (Tour 2017: 181). This trend might find an abrupt end in the near future when technology becomes the norm and thus loses its power as an attractor for reading motivation and other language activities, as Ehmig (2013: 258) has argued, but until then, so-called tech-ed seems to provide a large number of positive reinforcements for language students at the present time.

Secondly, technology helps EFL students to make their writing efforts more meaningful by allowing to publicly share their works. Nagel (2013: 78) considers the "ability to share their work with a wider audience" to be one of the key factors of motivation for EFL learners' writing tasks as students generally feel more engaged and motivated in the writing process and when they perceive that their works are seen and valued by a peer audience. Also, "creativity and personal expression" and the potential for collaboration is what teachers and learners find most attractive and motivational for language tasks (Nagel 2013: 78).

Thirdly, technology in the language classroom seems to reduce learner anxiety and empowers language learners in their language acquisition process. "Networked exchanges seem to help all individuals in language classes engage more frequently, with greater confidence, and with greater enthusiasm in the communicative process than is characteristic

for similar students in oral classrooms”, as pointed out by Blake (2013: 5) and other researchers agree. "Blended learning has increased student engagement dramatically", adds Valentine (2017: 21), "[s]tudents [now] have more ownership for their learning because they can choose their path based off immediate feedback". Also, according to Rheingold (2013: KL154), "[educational] technology affords an environment in which students take on more of the power and responsibility for their own learning"; making technology a considerably effective tool to increase learner motivation.

7 Technology-enhanced teaching of creative writing in the EFL classroom

7.1 Communication in the EFL classroom

Today's discussions on EFL teaching are still packed with arguments around contents and competences that should define the core curriculum of the English-speaking classroom. The communicative approach in EFL teaching is widely regarded as the key element of EFL methodology and the use of 'authentic material' has become a catch phrase for SLA in the English classroom. But what is it that should be taught in the EFL classroom, and how can teachers make use of a seemingly inherent drive of learners to communicate and therefore master a new language? In the upcoming chapter, the author is making a point for creative literary production in the EFL classroom as a means of engaging and motivating students to master a new language. In this regard, the following section aims to elaborate on how creative writing can be implemented into the EFL classroom and what part technology can play to benefit this process.

Regarding McRae (1991: 4), "[i]n the era of mass communication, the age when there is a world language and that language is English, techniques of language teaching have tended to concentrate on how to communicate rather than on what to communicate about". Chomsky (1986) and Pinker (1995) have successfully pointed out that concepts such as a 'universal grammar' and an inherent 'language instinct' exist in every human and they allow us to apply rules and structures to new languages in order to communicate with others, mostly without even being aware of the grammatical constraints and concepts of that language. Therefore, it seems that communication can be regarded as the driving force behind language acquisition and as McRae (1991: 4) further points out, "the desire or necessity to learn English reflects a wish to reach some level of communicative competence in the target language". Creative writing is one way to make use of that inherent drive for acquiring a language and gives students purpose and motivation in pursuing proficiency in that language.

7.2 The benefits of creative writing for SLA

"Writing in an L2 involves skills such as knowing the language rules to express ideas around a particular purpose and audience", explains Niño (2016: 5), which is why language production is immensely important to EFL learning. Literary production of creative writing, in that sense, has the potential to give meaning to the process of EFL language production, certainly more meaning than artificial dialogues often promoted in various EFL textbooks, which should create meaningful interaction, but which often remain unsuccessful as they do not encourage creative use of language.

Disney (2012: 4) argues that teaching to write poetry uncovers valuable strategies of English language learners in their acquisition process. Facing a continuously globalized world, second language learners have even found their own way to customize the English language: literary production, making the local global and vice versa (Disney 2012: 4). This process can not only be seen in an increasing infiltration of non-native speakers of English and L2 writers in the English-literature canon with names like Nabokov and Conrad, but it is also a phenomenon of the EFL classroom, with students taking control over their language learning by creating literature in their second or foreign language.

In that sense, poetry is a powerful tool for allowing students to become the agents of their own learning while keeping them engaged and motivated to master a second language. While engaging students for literary production might seem fairly easy, "[t]he challenge is to encourage students to shift from attending to compositional rules, and to move instead toward creative zones where language is a material with structures (grammar, syntax, diction), surface textures (phonemes and potential sound patterns), and tensions (forms, idiolects, registers) to explore", as Disney (2012: 5) points out. This also means shifting the focus away from form and toward meaning, allowing learners to make mistakes and take risks in order to produce authentic literary texts.

7.3 Implementing creative writing with technology in the EFL classroom

7.3.1 Task-introduction for creative writing

EFL teachers cannot assume that students will automatically be delighted to engage in literary production, and certainly the field of poetry is not something that students are assumed to naturally attend to in their spare time. Hence, learners need to be made aware that writing

poetry is in fact part of today's pop culture as the literary art form of composing poetry broadly follows the same rules and concepts as contemporary production of song lyrics. Especially the genre of hip hop offers a sheer endless repertoire of examples of poetry writing, with artists such as Drake, Eminem, N.W.A. or the Wu Tang Clan constantly challenging the rules of conventions in their production of lyrics and thus provide great examples for teaching the concepts of metric, simile and metaphors and how they can be applied in both lyrics and poetry (see teaching project).

Additionally, the breaking down of conventions not only in the genre of hip hop gave rise to a series of new literary concepts in pop culture. Among the most prominent are poetry slams, where artists combine the concept of poetry with on-stage performance, reaching a new level of excitement in the genre of literary production. Disney (2012: 6) adds to the discussion that creative writing in EFL "holds potential to equip students with lexical, systemic, and creative perspectives on both learned and native languages". In fact, no matter what examples may be taken from contemporary pop culture, they can most certainly help bridge the gap between a compulsory language task and an exciting classroom experience in the sense that it renders the task from necessary to purposeful and motivating.

7.3.2 Presentation tools for the EFL classroom

As mentioned in chapter 6.1, presentation can play a vital role in teaching an EFL classroom, especially when it comes to teaching creative writing. Presenting learners with vivid examples of poetry and lyrics has been a challenging experience in the past. Showing stage performances on TV screens and playing lyrics or poetry bits from CD players while handing out transcripts for learners to read along with the presented examples meant spending valuable classroom time sprinting from one medium to the next, additionally losing time for loading the media and pushing buttons (not to speak of the exhausting task of wheeling ancient large and heavy TV sets or CD players into the classroom).

Today, presentation technology, as in the example of the highly effective presentational software Prezi, allows educators to teach students using various formats (text, audio, video, etc.) and seamlessly transcend from one format to the next without exiting the software at any given time. Prezi's visual storytelling capabilities, that even allow the implementation of augmented reality in their advanced version of Prezi Next (source: Prezi), help educators to

easily navigate through course material by only using the left and right arrow buttons on the keyboard to switch from slide to slide. Additionally, implemented sound and video files will start and resume playing automatically when zooming in on the content, making it even easier to navigate through course material and prevent losing learners' attention in otherwise lengthy medium switches.

7.3.3 Apps and Websites for creative writing

The Internet holds a sheer endless repertoire for useful apps and websites to foster creative writing in the language classroom. A prominently discussed example in EFL literature is the app Storybird which uses prefabricated illustrations to inspire students to produce literary texts. According to their mission statement of providing topic pictures to kickstart and facilitate the creative writing process, the software company claims that "it stirs the emotions while it engages the brain and jumpstarts students into their text, avoiding the blank-page syndrome" with this technique (Storybird for Educators 2018). Studies in the use of Storybird as a motivational tool to engage students in creative writing have produced positive effects, with Giacomini (2015: 36) describing the use of Storybird as highly positive and "students' engagement with the task" convincing to speak for its implement into the EFL classroom.

Additionally, there are numerous creative writing websites to exploit when looking for input in the EFL classroom. Among the most prominent examples are the sites Wattpatt and Teen Ink, described as a "go-to for teens interested in writing and publishing nonfiction essays and articles as well as poetry" (Palmer 2018). According to Palmer (2018), Wattpad is considered the largest online reading platform among its competitors and often referred to as "the YouTube of writing" as the site allows its users to share their literary productions with a wider audience (25 million members; Palmer 2018) by publishing the texts on the site. Learners can also consume a wide array of literary texts, follow their favorite authors and consult a 'writer's portal', a collection of resources and programs designed to help students with creating their own literature.

7.3.4 Learning platforms for the EFL classroom

Next to a coherent presentation of course materials and task instruction, effective communication between teachers and students as well as peer communication is vital to effective classroom learning in the EFL environment. Technology offers a large number of communication tools for exchange inside and outside the language classroom and learners' inherent drive for social communication can best be utilized to inspire learners to make use of the communication tools provided.

As a unique feature in the EFL classroom, communication (in the target language) is already a vital part of language learning itself and communication technology possesses the advantage of augmenting the amount of speech production inside and outside the language classroom. According to Blake (2013: 81), a recent study on SLA and chat communication observed that language students using chat programs in the classroom "wrote much more and produced more turns than students talking face to face in the classroom", an average of 12.5 vs. 5.3 turns, although the level of linguistic accuracy was slightly lower than what was expected in face-to-face utterances of same students.

Learning platforms such as Google Classroom and Edmodo therefore not only provide benefits for classroom management when it comes to task instruction or handing in assignments but more importantly engage students to communicate more often than otherwise in the target language. Nevertheless, EFL teachers need to recognize that chat communication is significantly different from other forms of written language production, and that its conventions more closely resemble those of oral communication (Blake 2013: 81). Keeping that in mind, the amount of additional speech production alone that technology can provide to the EFL classroom nevertheless makes it a key player for any successful EFL instruction.

7.3.5 Collaboration, contribution and gamification of the EFL classroom

As discussed in chapter 5, one cannot exaggerate the importance of technology when it comes to engagement and motivation in the EFL classroom. Apart from the inherent attraction of the medium itself, technology can help provide a positive learning environment in which students feel empowered in their process of acquiring a second language. "Integrating technology properly into the curriculum can accelerate the focus on the student-centered classroom" and makes the student the producer of language learning content (Blake 2013: 112). Learners

achieve empowerment in sharing their ideas and literary production with a larger audience when posting essays and poems on blogs and websites, and motivation arises from seeing learners' extracts as valuable contributions to the world instead of mere classroom assignments.

In previous chapters, it has also been outlined that gamification can highly benefit motivation and engagement of EFL learners inside and outside the language classroom. As philosopher Marshall McLuhan (Prensky 2007: 90) famously pointed out: "Anyone who makes a distinction between games and education clearly does not know the first thing about them". There are numerous ways to engage students through the implementation of games in the classroom and classroom collaboration in gaming structures is only one of them. As Felicia (2014: 8) elaborates, the implementation of game-based learning in the classroom offers "an alternative way for educators to present material to learners" and can be done in various ways. While long-term strategies might call for a complex game-based learning environment, short-term goals in motivating language students to engage with classroom content might already be achieved through the frequent use of quizzes, such as Kahoot and others, in the EFL classroom.

7.3.6 Deciding on technology in the EFL classroom: BYOD

Not too long ago, teaching and learning with technology was limited to short segments of computer time that had to be held in a special facility of the school, often with tiring efforts of booking the room and even greater and certainly time-consuming efforts to physically move the entire class to one of the very scarcely provided computer labs. Recent advances in technology enable new forms of online and mobile learning, and students themselves, in most cases, possess smartphones of the latest generation, outsmarting the computing power of an average desktop computer in the language lab by a tenfold.

The fact that students are generally equipped with high-performing hardware and software in the form of smartphones, tablets and other gadgets that learners, additionally, are accustomed to work with, enables a relatively new form of digital learning: BYOD – Bring Your Own Device. BYOD refers to "initiatives that allow students or employees to use their own personal mobile technology devices at work or at school as part of their day" (Elkeles, Pullman & Phillips 2014: 6), which frees educators from the burden of having to provide learners with

and teach them how to use those digital learning devices. On top of that, it empowers the language teachers in their work and shifts the focus from an under-equipped classroom to effective teaching with technology, trumping concerns about network security and other safety issues that may arise.

7.3.7 Rationale for digital learning readiness

Despite the broad number of advantages rendering online and mobile learning beneficial for the EFL classroom, it needs to be clear that implementing technology without having a clear educational goal in mind (as briefly discussed in chapter 4.2.3) before its implementation can only be a half-hearted gesture at best. Many researchers speak about a paradigm shift in pedagogy when using online and mobile technology and it is certainly nothing short of that. As Christensen & Knezek (2017: 112) point out, "[s]imply owning mobile technologies does not guarantee effective use in education by students and teachers" (Cochrane 2014 in Christensen & Knezek 2017: 112).

It is further argued, that "[t]eachers must have supportive training on the pedagogy of integrating these devices as well as useful strategies for classroom management that will enable the teachers to feel confident in their classroom instructional environment" (Christensen & Knezek 2017: 112), and providing and applying that kind of training might challenge future teachers as well as educational lawmakers the most. After all, "[s]uccessful teacher implementation of emerging technologies in education requires well-planned, ongoing professional development and support" (Christensen & Knezek 2017: 112) – a task that is far from simple and requires intensive planning and supervision from all educators working with technology.

8 Research Project

8.1 School environment and research questions

In order to test the theories and assumptions of the previous chapters, a teaching project in an Austrian EFL classroom was established in the course of this thesis and carried out over a period of two weeks in the summer term of June 2017. The school in which the project was realized offers subjects in languages, arts and sciences and is demonstratively pioneering in the field of teaching with technology, according to their own mission statement.

The aim of the research project was to determine whether EFL teaching with technology, in a blended learning approach, could be implemented within a reasonable time frame in what would be considered an average Austrian EFL classroom and whether the necessary infrastructure would be available in the average language classroom in order to carry out the project. Furthermore, it should be established whether blended learning could bring sufficient outcomes with a limited amount of classroom time where students fulfill the majority of the task at home and only receive minimum input in class, or if learners produce better outcomes when instructed extensively in face-to-face sessions.

To put theory into practice, the following research questions have consequently been established:

Research question 1: Can technology be implemented in a defined language teaching task of an Austrian EFL classroom, namely for the purpose of teaching creative writing, and within a reasonable time frame in an Austrian EFL classroom?

Research question 2: Does implementing a blended learning environment with limited face-to-face time provide the same results as applying a more balanced online and face-to-face timeline?

8.2 Research design

To address the formulated research questions, two 9th grade EFL classes of the GRG 11, consisting of 13 and 19 students, were taught in creative writing, and their achievement in task fulfillment as well as the conditions during the project were compared to each other in order to answer the set research questions. The participants were divided into class 5A, from here on referred to as group A or experimental group, and class 5D, which will from now on be referred to as group B, or control group. Both groups were presented with technology-enhanced instruction and materials for teaching creative writing and asked to complete a specific task, namely the creation of a poem, to generate results for this survey. The two groups significantly differed in the number of face-to-face sessions but received the same amount of input regarding online and mobile learning content.

8.2.1 Research group

Group A was taught in three consecutive face-to-face sessions before being asked to hand in their project task, whereas group B only had one single face-to-face session and, additionally, received online and mobile instruction outside the personal meeting in order to complete the task. The study took place over the course of two weeks in which both classes were given the same task and the same amount of time to fulfill said task.

The school was chosen for their attitude toward digital learning, availability of classroom time and willingness to participate in the outlined research project, and due to personal contact to the school's English teachers, which significantly helped the rigorous and arduous process of receiving permission for doing research in the Austrian school environment. In retrospect, this turned out to be highly important for the successful implementation of the research project.

8.2.2 Digital learning platform

With regards to Hockly (2018: 98), who strongly argued that effective implementation of blended learning into the classroom implies effective usage of digital learning platforms that would allow "online interaction with other learners, the teacher, and possibly with individuals in the wider world" (Hockly 2018: 98), it was decided to establish a mobile and online platform for student-teacher as well as peer communication in form of the educational software program

Edmodo (introduced in detail in chapter 4.2 on e-learning platforms). Edmodo is valued across the field of education for being a safe social networking environment for digital classroom learning and an effective tool for classroom management (Carlson 2015: 46). For this research project, the easy, intuitive and, foremost, fast way of being able to implement the digital infrastructure into the classroom and being able to enroll students into the digital course created for the duration of the project were the main criteria that spoke in favor of choosing Edmodo as the digital platform for this project.

8.3 Research criteria

The criterion for the first study question was the successful implementation of technology in an average Austrian EFL classroom and whether this could be achieved within a reasonable time frame. More specifically, whether it would be possible to provide a technology-enhanced learning environment to teach creative writing in a Viennese EFL classroom with not more than two weeks of course preparation and using the tools and infrastructure available to every teacher of that given school to the most extent. For an inviting opportunity to implement technology into the EFL classroom, it is important to be able to prepare for each given segment within a reasonable time frame without spending endless time on technology implementation. Therefore, the maximum time spent for each segment should not exceed the amount of three hours, which should be average preparation time for first-year teachers of English as a Second Language classes.

Additionally, it goes without saying that teachers generally are compelled to spend a significant amount of time and energy providing tools for effective classroom learning, and it therefore would be of great help to language teachers if schools, for the most part, provided the necessary infrastructure for digital learning. To the authors' strong opinion, this would significantly influence their willingness to implement technology in their classrooms.

The criteria for my second, and even more important, study question were in how far students were able to fulfill the task within the given time frame and if the number of face-to-face sessions in the blended learning setting would significantly influence the outcome for task fulfillment. As average grades, according to the author, can be considered to be rather subjective criteria for measurement, especially in the case of creative writing tasks, the criterion for task fulfillment was decided to be 'number of submitted assignments' that were received

within the given time frame to receive accurate and comparable results for evaluation. Furthermore, it should be assessed whether the number of received face-to-face sessions, compared to sole online and mobile instruction, would have significant influence on students' motivation and readiness to complete the task. For that purpose, as mentioned, group A received a significant number of face-to-face sessions whereas group B received only a minimal amount of the same, and outcomes of both groups were compared to each other.

8.4 Lesson design

For the duration of the teaching project both group A and B were given a creative writing task in the form of creating a poem. The poem needed to consist of at least three stanzas or 12 lines and the minimum requirement for task fulfillment was creating said poem and handing it in via the online platform Edmodo within the time frame of two weeks while the teaching project was in session (specific due date was announced on learning platform for each group). Both group A and group B were provided with a series of online scaffolding content to help with task fulfillment (video tutorials on how to write a poem, examples of contemporary and historic poetry, motivational videos on why writing poetry, etc.) and both groups have been given classroom time during the project, although group A received a far larger amount of classroom time, which will be explained in the following section.

8.4.1 Lesson design of group A

Group A was presented with three consecutive classroom sessions, accompanied by online and mobile learning instruction via the digital learning platform Edmodo. The face-to-face sessions will be described in 'lesson one', 'lesson two' and 'lesson three', supported by relevant screenshots and examples. The accompanying learning and instruction that took place via the online and mobile platform is illustrated in the section 'communication'. Excerpts of both are provided throughout the sections.

Lesson 1: topic introduction and enrollment in the learning platform

The first lesson for group A was an introductory class into the subject of online and mobile learning. Students were presented with key findings of digital education for EFL learners

in order to present the given project as relevant and spike participation. They were also introduced to the learning platform Edmodo, which would be the base for all learning and instruction of this project, inside and outside the language classroom. As students were generally not allowed to bring mobile devices into the classroom, an exceptional permit had to be issued by the school addressing the learners' parents to gain their consent for allowing students to bring their mobile devices into class on the appointed dates.

In order to not take up too much time of the learners' schedule, the introductory lesson of the project, for group A, was reduced to a fifteen minutes time slot and most of the instruction and preparation for the consecutive lesson happened via the online learning platform. In the quarter hour, learners

Lesson 2: visualization and emotion

Students had been introduced to digital learning and successfully enrolled in the mobile version of the learning platform Edmodo, which was used during classroom learning as well as a means to communicate further information and task criteria and also to give instruction for mini assignments from class to class, and the criteria for fulfillment of the ultimate lesson task. Nevertheless, students were not yet given the content of the task but only a homework assignment of having to watch a video uploaded to the learning platform that should introduce the subject of creative writing.

Digital visual aids in the form of the provided video and purposefully emotional video content were used to spark students' motivation for class participation and to further task fulfillment. The content of the video revolved around a 2017 competition of a traditional Viennese coffee maker who encouraged their clients to 'pay with a poem' for their products and a before-and-after shot of (casted) customers and their reaction when they were reading a poem in front of the camera, which they had written in their early years for an apparent loved one. The video should emotionalize the learners and visually show them that creating poetry is not only demanding classwork but can have highly positive effects on one's life when looking back at the creation (and maybe even pay for coffee). The emotionalization of the content is seen as an important part of engaging students with the language learning content of the class and is regarded as an effective tool to emotionalize learning.

Lesson 3:

In lesson number three, students were presented with a quiz where they needed to match quotes presented to the class to their originator which could either have been from Shakespeare or a contemporary hip hop artist. The quotes were intentionally misleading, which should elaborate that classical poetry and contemporary song lyrics bear many resemblances and give students extra motivation to engage with the subject content of writing a poem.

Also, students were given the time frame for creating their poem (the assignment needed to be handed in within a week of the last session via the learning platform) and task instructions. It was made clear that students could communicate about the assignment task with the instructor and their peers via the platform at any given time during the assignment.

8.4.2 Lesson design of group B

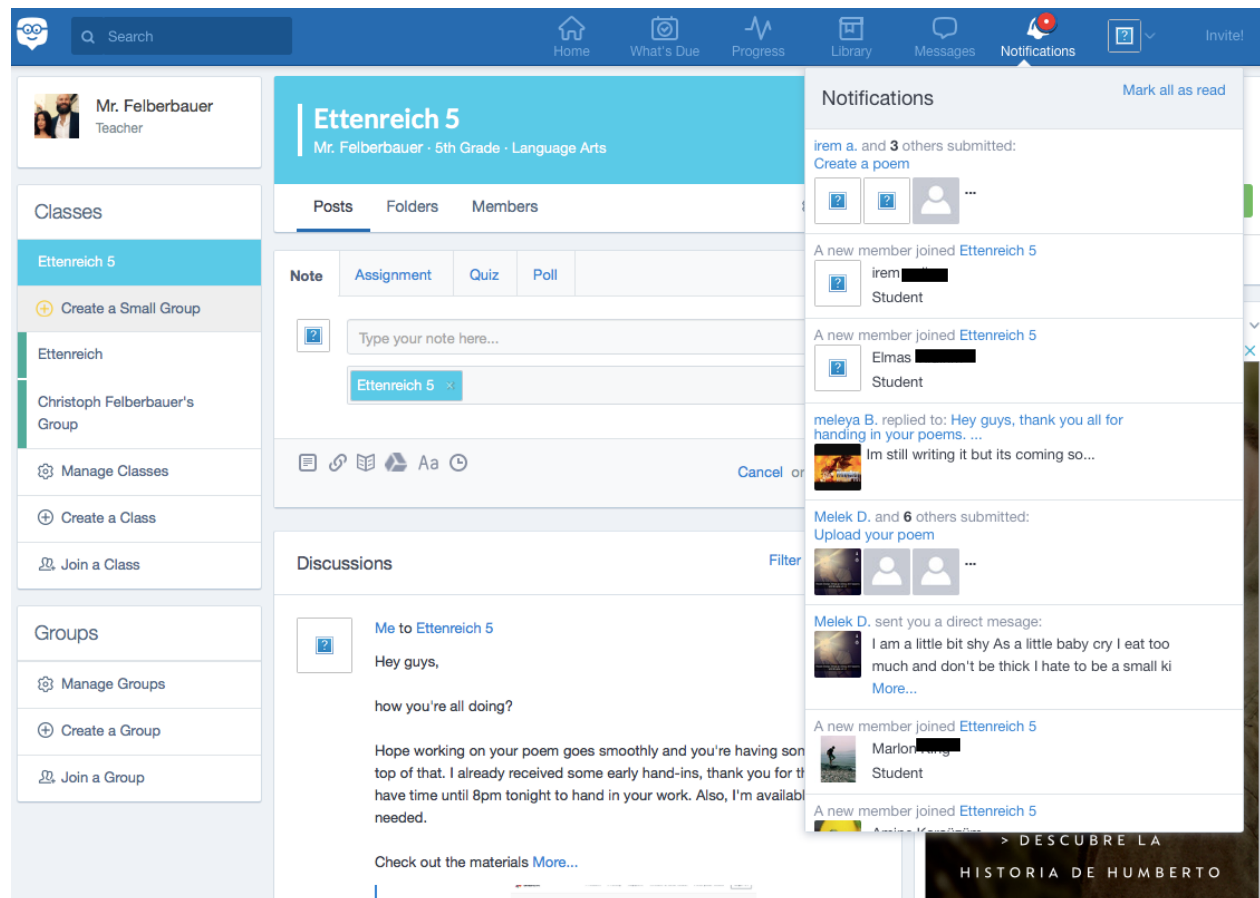
Compared to group A, group B received a significantly less amount of face-to-face time, and while the content of instruction was roughly the same, in terms of amount of input, learners of group B lacked vital parts (familiarization with task, emotionalization) of the course content due to the limited amount of student-teacher time. In particular, group B was given only one single face-to-face session that included most parts of instruction that group A received (introduction to topic, task fulfillment criteria, additional material), but all in one concise sitting, and was only supported by the instructor via the online mobile platform and through peer collaboration (messages and posts by peer learners on the mobile learning platform).

The face-to-face session of group B consisted of three parts: introduction to the topic of mobile and online learning, enrollment in the learning platform and assignment specifications and task fulfillment criteria as well as deadline and medium of communication and for submitting the assignment. Apart from that single session, all communication with group B was realized via the learning platform.

8.5 Data collection

Using the learning platform Edmodo rendered data collection for this project fairly easy as the task fulfillment criteria were ‘number of submitted assignments’ and ‘time of upload’, both of which could be determined clearly and unmistakably via the platform. Apart from an overview on received and pending assignments from the learners, the platform also collected all peer-to-peer and student-teacher communication as posted on the news wall, and the instructor could additionally access the ‘private mails’ sent to the instructor regarding the assignment for deeper insight into the projects development.

Figure 3 Edmodo wall and notifications mask



The screenshot above shows Edmodo's start page and how the teacher (and research project manager) is receiving updates on handed in assignments (in this specific example, the data collection) via the notification board. The number of submitted assignments can also be seen in the assignment section, which also allows educators to review and grade the handed in works of their students and to return them with feedback.

Figure 4 and 5 Examples of students' poems for teaching project

[Home](#)
[What's Due](#)
[Progress](#)
[Library](#)
[Messages](#)
[Notifications](#)
[Invite!](#)

Grading Overview
Create a poem
Due: Jun 23, 2017, 1:00 PM

Assignment Options ▾
Average graded score: --

4 Ready to Grade 12 Not Turned In 0 Graded 16 All Students

Filter by: All classes 1 ▾

☐ Student Name		
☒ Ettenreich 5		
☐ irem		
☐ Amine		
☐ Sarah-Maria		
☐ Sümeyye		

Sümeyye

Latest Revision Submitted on time Jun 23, 2017 7:15 AM

About You

Standing here right now,
Feeling so much about you,
Don't know what it is,
Is it pain, fear, or love

Every second in every night thinking about you,
It's weird, it makes me freak out,
Want to spend all my hours with you,
But you don't even know me though

In every night, in every situation seeing you,
Talking to others, where I'm just watching you,
Tell me do they love you like I do,
Tell me do they treat you like I do,
Tell me do they know the very little things about you,

Tell me will you feel the same, some day
Tell me if it's worth it, waiting here for you, anymore.

Score Total ✕
Request Resubmission

Make comments and start a conversation with Sümeyye here!

Type your note here...

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[Home](#)
[What's Due](#)
[Progress](#)
[Library](#)
[Messages](#)
[Notifications](#)
[Invite!](#)

Grading Overview
Upload your poem
Due: Jun 22, 2017, 1:00 PM

Assignment Options ▾
Average graded score: --

7 Ready to Grade 13 Not Turned In 0 Graded 20 All Students

Filter by: All classes 1 ▾

☐ Student Name		
☒ Ettenreich		
☐ Ana .		
☐ Elar		
☐ Paul		
☐ Melek		
☐ Arwa		
☐ Andreas		
☐ eda		

Andreas

My heart races as I step on the court
Basketball my favorite sport
The whistle blows to start the game
It's a feeling I can't explain
My team is my family
When we work together there's no boundaries

Pass, shoot, score
Everyone wants more
Time for defense no one gets by
Shot goes up the ball is mine
The half time buzzer blows
Into the locker room we go

Start at half it's a tie
We need to give it our all to get by
Ten seconds left down by one
We can't be done
I have the ball I shoot a three
The crowd stands up and cheers or me.

Author: ME

Score Total ✕
Request Resubmission

Make comments and start a conversation with Andreas here!

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The two screenshots on the previous page show examples of the work submitted by the students participating in the teaching project. The screenshots also show the format in which students handed in their assignments (when done correctly) via the platform and the teachers' opportunity of actively managing the class by messaging the group or individual students if participation near the deadline was still scarce in order to push for unified participation of all students.

8.6 Description of project implementation

The following section should give the reader a deeper understanding of how the teaching project has been implemented specifically and which challenges and insights arose during the implementation of the project. The section is presented in the form of a research diary and subsequently, a slightly more colloquial form of describing events and insights has been used.

June 5, 2017:

After a lengthy correspondence between all participating parties of the research project (researcher, teacher, principal), the project has finally been approved and the research period was set to take place in the time between June 14 and June 25, 2017. As a core part of the project was to illustrate the effectiveness of mobile learning via the BYOD (bring your own device) method, it had to be ensured that students would be able to use their mobile phones during the research week. As the participating school was generally not allowing mobile phones on school premises and therefore not in the classroom, a letter of approval had to be crafted and sent to the students' parents beforehand in order to sidestep the conflicting school law for the duration of the project and allow mobile learning in the classroom.

June 14, 2017:

The research week started with group A receiving its first of three teaching sequences. It is important to note that while the teacher was present in the classroom during the teaching sequences, all information was presented digitally via Prezi and Edmodo (the learning platform in use for the project) to assist classroom learning and allow continuous communication with the classroom outside the formal school setting.

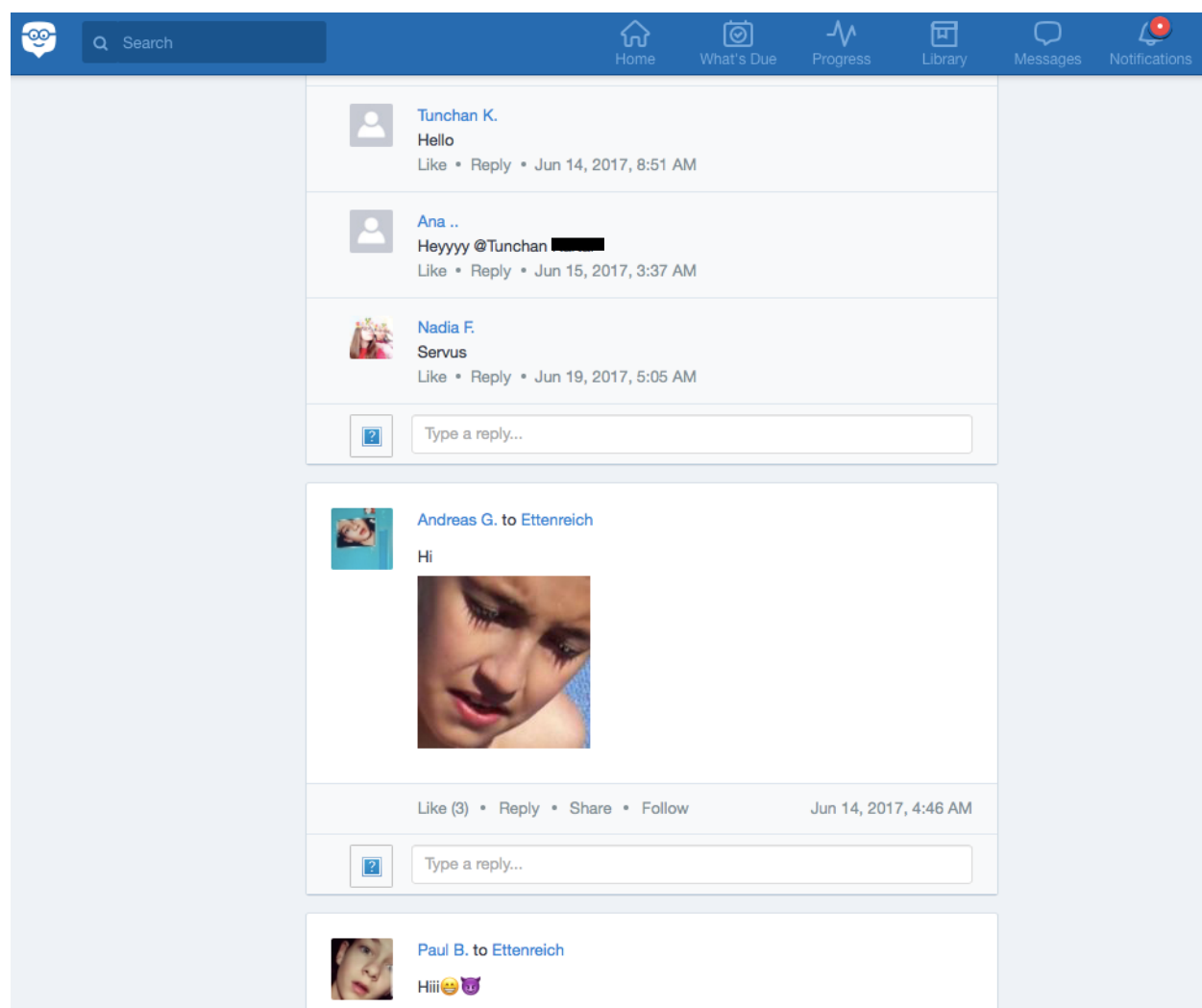
After a short introduction of the teaching sequence and the academic background of the project, students were presented with an introductory video (see transcript of video in appendix) curated by the Khan Academy, one of the examples for successful and effective

flipped learning discussed in this thesis. Students were also introduced to the concepts of MOOC and free democratic online learning in the form of an excerpt of Peter Norwig's TED talk on Stanford's impressive MOOC experiment, which has also been portrayed in this thesis.

Students were then asked to take out their mobile phones to log on to the created group on the learning platform Edmodo. As mentioned, the platform was chosen for its simplicity and the fact that no personal data of the students was needed to log on to the group. The teacher could just simply create a group and generate a unique code that students would use to log on after downloading the app from the App Store (for Apple users) or Google Play Store (for Android users).

Interestingly, almost immediately after logging on, students started producing content (see figure 6) on the learning platform by introducing themselves as well as sending short introductory messages to the teacher and their peers and/or posting on the wall of the created group page (see figure 6). Students were visibly motivated and engaged with the learning platform and seemed genuinely happy to communicate with the teacher as well as their peers, and although the learning platform was primarily created to reinvent ways to delegate instructions and information regarding the created assignment, it immediately seemed that students felt comfortable and engaged in using the platform.

Figure 6 Edmodo wall with students' introductions



The screenshot above is from the start page of the online version of Edmodo, displaying the news board on which all participants could distribute messages and content. It is clear to see how the learning platform instantly came to life when introduced in the first introductory session of group A. Minutes after students were asked to download the app for Edmodo and log in to the created virtual classroom, the first learners were actively greeting each other in formal and informal ways ('Hey', 'Hi', 'Hello', 'Hiii', 'Heyyy') and were predominantly using the target language (with the exception of one student: 'Servus'). Most learners were using pictures of themselves or avatars and contributed with their full name or an alias.

June 15, 2017:

Students of group A have all signed on to the learning platform and are receiving their first follow-up message today via the Edmodo platform. The goal of the message is to get students to watch a short YouTube clip curated by the Austrian coffee maker Julius Meinl, who recently had a promotion in its stores where clients could pay for their coffee with a poem. The

content of the clip revolved around the portrayal of four individuals that Meinl brought before the camera to have them read pieces of poetry that the producers ‘managed’ to get ahold of and apparently were written by the individuals themselves for their loved ones decades ago. Just like Meinl wanted to emotionalize its clients for their brand, the clip was thought to emotionalize the students of the teaching project towards writing poetry, even though the assignment was not even mentioned, let alone discussed inside or outside the classroom yet.

Until the upcoming face-to-face session of group A, its participants were invited to watch the YouTube clip and try to guess the topic of the assignment that was about to be revealed just by referring to the content of the video. They were further asked to voice their guesses by posting on the learning platform wall under the section of the posted video. Students, via the Edmodo platform, were also informed of the post (and all other activity) through private messages in the Edmodo mobile app.

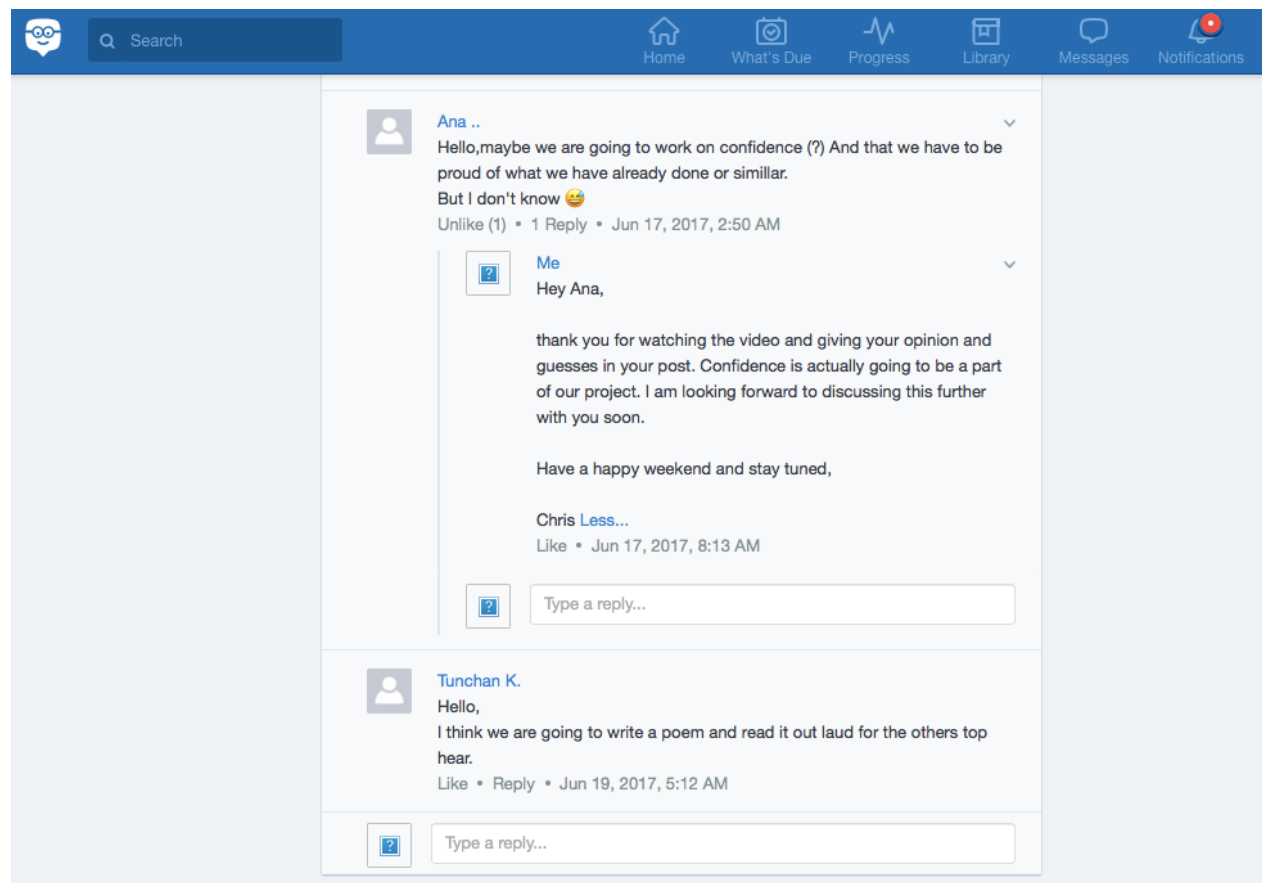
Figure 7 Edmodo wall with message to group A

The screenshot shows the Edmodo mobile app interface. At the top is a blue navigation bar with icons for Home, What's Due, Progress, Library, Messages, and Notifications, along with a search bar. Below the navigation bar is a post from a user named 'Me to Ettenreich'. The post text reads: 'Hey everyone, hope you're having a relaxed holiday! To start off our next week assignment I would like you to watch the attached youtube video I posted below. You might want to watch it several times to fully understand the story and I would love for you to post some comments about what you think of it. Also, can you already guess what we might be working on next week due to watching the clip? Enjoy your day and looking forward to your contributions! Best, Chris Less..'. Below the text is a video player showing a scene from a video titled 'Join Pay With A Poem 2017 (full version)'. The video shows two people sitting at a table in a cafe, with the hashtag #PayWithAPoem overlaid. At the bottom of the post, it says 'Like (7) • 4 Replies • Share • Follow' and 'Jun 15, 2017, 10:26 AM'.

June 17, 2017:

Students were posting comments and guesses for the assignment topic ahead of them. The teacher was aiming at nurturing learners' engagement and actively keeping the discussion on the learning platform alive by liking and responding to learners' comments as a form of acknowledgment and positive reinforcement. Students could also like and respond to peer comments.

Figure 8 Edmodo wall with comments posted by learners



June 19, 2017:

Students of group A received their second face-to-face session in which the research topic was revealed, and learners were introduced to the content of the research assignment. With regards to the flipped learning approach, students had been asked to watch a short video sequence revolving around a poetry project conducted by Julius Meini (explained in the previous section) and were then invited to join a face-to-face debate based upon the online discussion that had already started on the learning platform. It was noted that almost all participants seemed to have watched the clip posted, and discussion of the content was both

lively and productive. Students collectively guessed the topic of having to create a poem for the research project and understood the emotional value of creating poetry as referred from the clip content which should further increase motivation to fulfill the task assignment. It was also visible in the students' engagement in the discussion that the video had 'sparked a flame' in learners of what positive consequences writing poetry could have for them.

Then after discussing examples and features of poetry (students had prior knowledge of the topic regarding their curriculum), to give learners some guidance for producing their own piece of poetry, learners were presented with a quiz to further fuel their motivation towards producing poetry. In the quiz, students had to guess the originator of one-line-quotes which stemmed either from Shakespeare or a contemporary hip-hop artist. In order to underline the fact that the principles and features of poetry, in its core, are still in use today and are therefore fundamentally not very different from contemporary hip-hop lyrics, the quotes used were intentionally misleading and were intended to puzzle students when seeing how closely related these seemingly opposite forms of art in fact were. Additionally, the quiz should help fuel students' motivation towards the assignment by referring to the learners' cultural environment.

At this point, it should be highlighted that students were specifically engaged in answering the quiz questions and that they were visibly having fun guessing the right answers to the quiz questions (see Appendix for full transcript via screenshots). Additionally, it should be noted that engaging students in quizzes to increase motivation is by far not an idea specific to digital learning but using digital technology to create a deeper impact for students certainly is. In that sense, the presentation and visualization of the quiz through the inclusion of sound samples, artists' pictures and other graphic and audio content was crucial to how students perceived the quiz and how engaged they felt in contributing to the assignment. That difference in perception of the teaching content was strongly felt throughout the teaching project and can be regarded as a vital part of the project.

June 20, 2017:

After the assignment of writing a poem was revealed in class and students having revised features of poetry in the June 19 face-to-face session, group A received some additional material ("How to write a poem"-clip, examples of poetry/lyrics, etc.) to help with the project development.

June 21, 2017:

In the last face-to-face session of group A, learners were starting to write their poems in class while receiving individual help from the teacher. Students were also encouraged to apply mobile learning techniques by using web-based vocabulary and thesaurus apps on their smart phones.

June 22, 2017:

Group B had its first and only in-class session for a total duration of about 35 minutes. In that session, they received most parts of what group A has received in their face-to-face sessions, but with a shorter amount of time for each segment. Also, and most importantly, students were not scaffolded in class when writing their poems but left alone to fulfill the assignment in the confinements of their homes.

In general, it felt that this difference in personal time spent with the learners made a huge difference in the outcome of the assignment, as group B has basically received the same amount of input in the form of material, video content and the interactive quiz but had a lot less time interacting with the teacher and their peers during the face-to-face session. Consequently, the online communication via the platform was a lot more silent, too, and, in the end, task fulfillment of group B differed significantly from that of group A.

8.7 Outcome and evaluation

Over the course of the project (until the deadline), in group A, thirteen students (out of 20) handed in their poem on time, with an extra two assignments received during the following two days. Eleven of these were handed in via the assignment platform, two were sent as private messages of which one consisted of a screen shot of the poem created on a phone's note app (and have been counted as successfully handed in assignments due to deadline criteria). Group B, on the other hand, only managed to hand in five (out of 16) assignments on time with one more assignment handed in three days after the deadline and was consequently not counted as successful. All five assignments that would be counted as successful were handed in via the assignment board of the learning platform.

Analyzing these outcomes, it seems rather clear that online and mobile learning does require a fair amount of classroom time in order to be effective, simultaneously answering the age-old question if teachers will be replaced by computers when new forms of digital learning

will become common in the language classroom. When looking at the results of this study, it can clearly be said that educators will continue to be an important part of learning, guiding students in their learning process and evaluating input for their learning. As the results of group A unambiguously exceeded those of group B, research question two could be answered consecutively: a balanced amount of classroom time, in relation to online learning time, is more likely to achieve better results for teaching creative writing tasks than limited amount of classroom time in relation to online learning time, even when the learning content is available online.

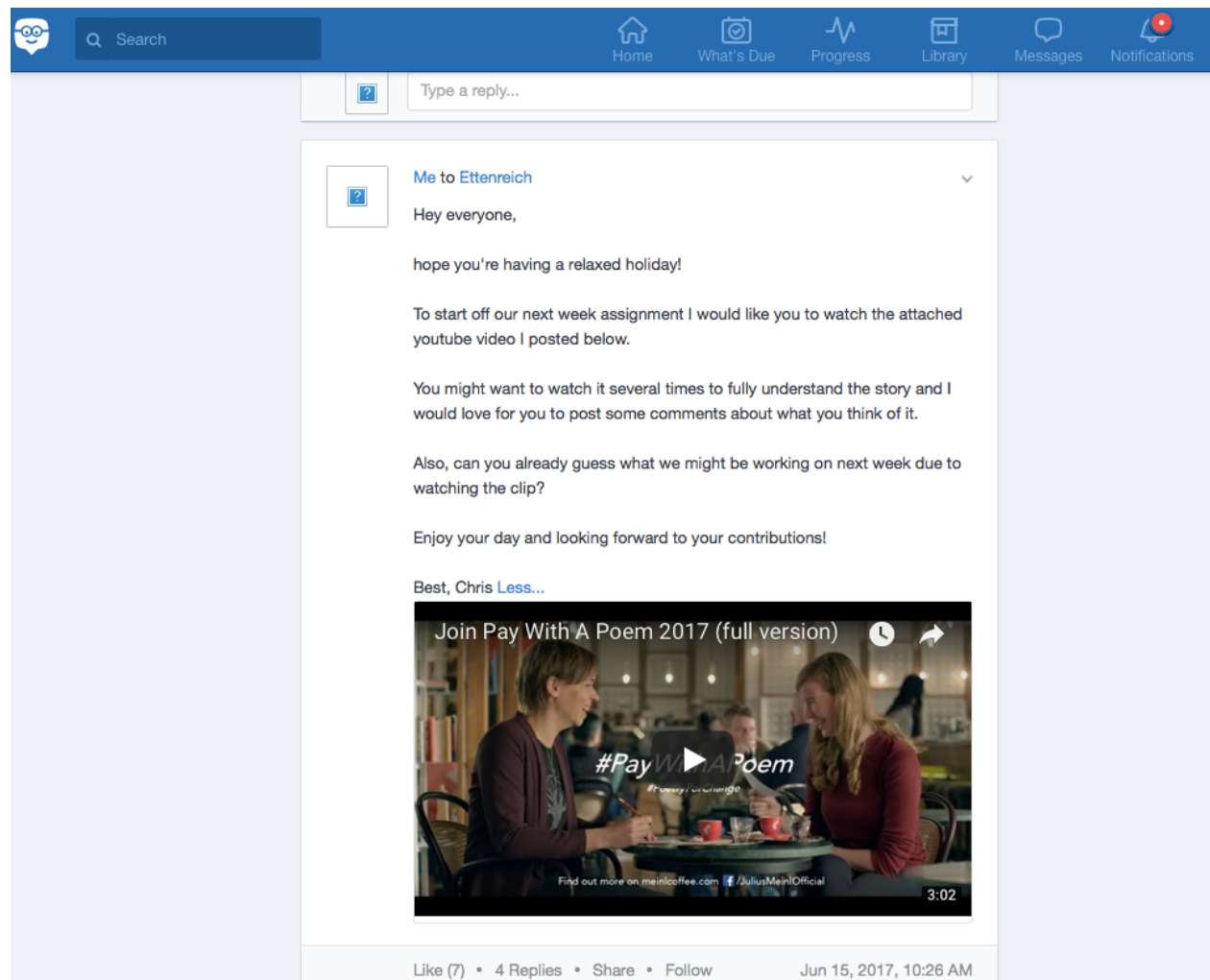
Concerning research question number one, it has to be said that the amount of preparation time for each lesson segment exceeded double the amount of the time estimated (6.2 hours on average per lesson instead of 3 hours). This is due to several factors: firstly, the project itself required quite some preparation to translate all the objectives into an effective rationale concerning teaching with technology and secondly, and more importantly, Austrian EFL classrooms seem to substantially lack basic infrastructure, from broadband internet to state-of-the-art school computers and mobile projectors. It therefore has to be concluded that the average EFL classroom (or what has been considered to be an average EFL classroom for the simplicity of the project) is not sufficiently ready for the requirements of the 21st century digital classroom for online and mobile learning, and educators, at the moment, would need to sacrifice their own time and resources in order to establish effective forms of digital learning in their EFL classrooms.

8.8 Communication and peer learning

Apart from the actual assignments which were evaluated to answer the given research questions, another interesting aspect of the experiment is worth being analyzed: students' communication on the learning platform. 115 posts and private messages have been counted in the communication process during the experiment with a total number of 1058 words (an average of 9.2 words per post or message), exceeding the total word count of all submitted poems (902). And while it can be argued that postings and messages follow different norms of written language production and are more closely related to oral conventions of language and therefore easier to produce than the content of a poem that requires profound knowledge of a language and deep reflection on the writing process, the sheer number of utterances renders the project's online and mobile communication an important part of the teaching process.

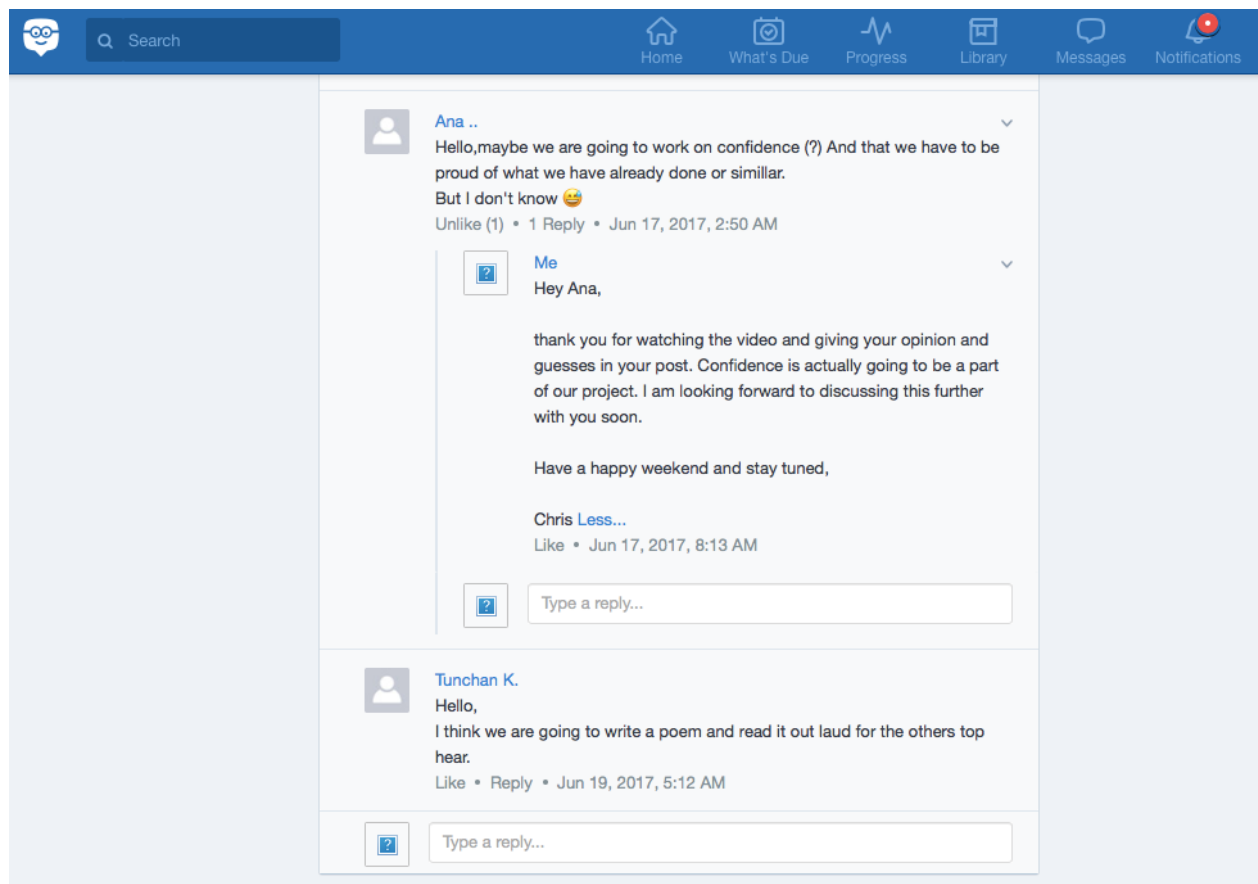
Additionally, it can be said that a number of questions that arose during the project (regarding deadlines, task fulfillment, resources) have been answered by students even before the instructor could attend to them and thus portray a textbook example of peer learning. In that sense, digital help in form of a 'teacherbot', that the University of Edinburgh employs could provide valuable help in managing an online forum for EFL learning.

Figure 9 Edmodo wall with instructions for blended learning



The above screenshot displays the introductory message from the instructor to group A after having met in a face-to-face session the day before. It encourages the learners to watch an introductory video (blended learning) in order to raise the topic of the subsequent teaching sequence without giving away the task that is about to be introduced in the following face-to-face session. Learners should comment on the news board with guesses about the topic. It can also be seen that the video, hosted on the streaming platform YouTube, is already integrated in the message board and can be played seamlessly without leaving the learning platform.

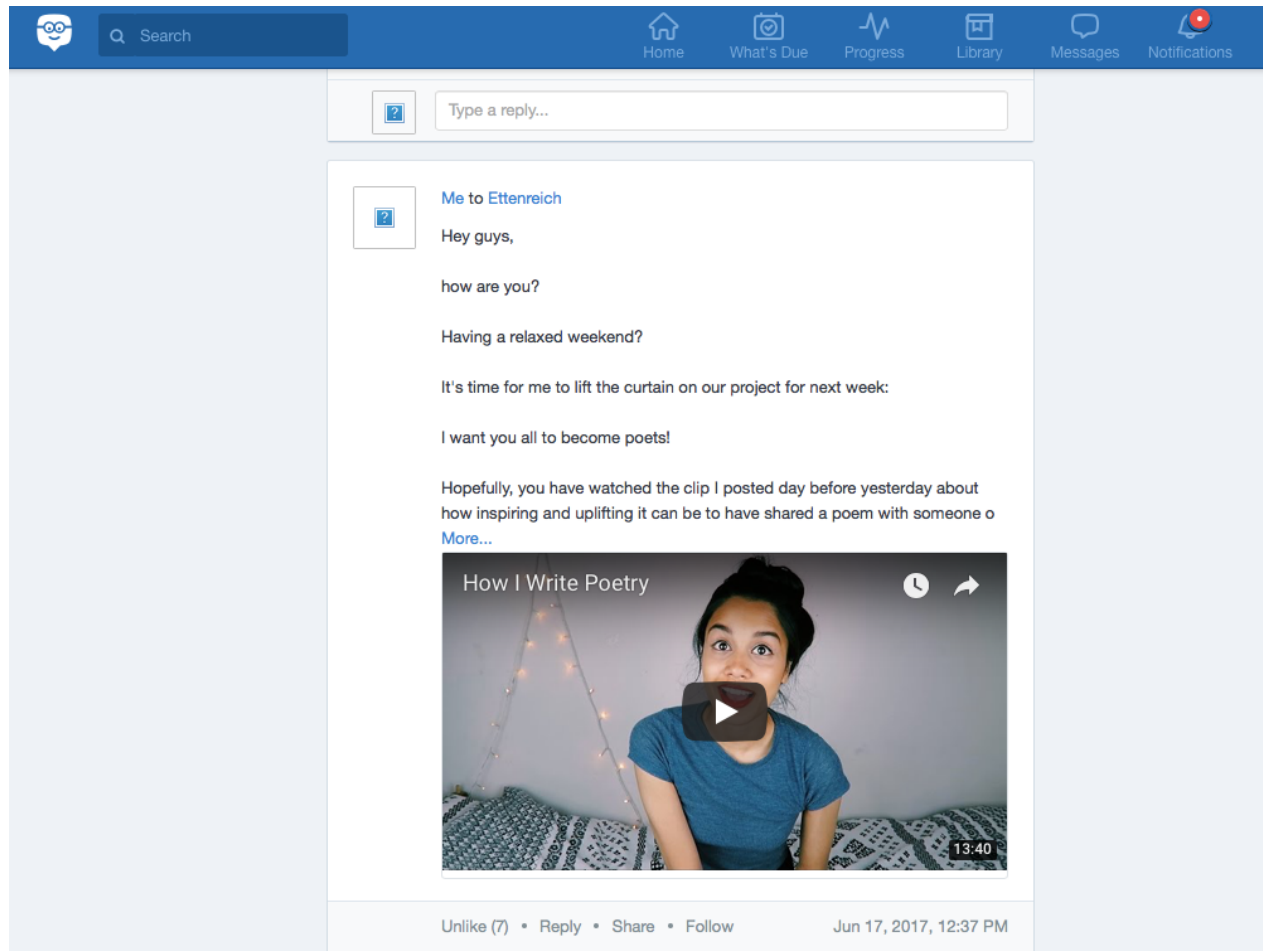
Figure 10 Edmodo wall with learners' comments



The screenshot above shows the students' answers to the introductory video in the form of comments (and replies to comments). The learning platform allows students to post original comments, answers or replies, or simply linking posts and comments. It also shows the intuitive format of Edmodo's news wall and how it does, in fact, resemble Facebook and other social media networks in how members can communicate with each other.

Especially for the teacher of the virtual (and actual) classroom, it is interesting and valuable to follow up on learners' participation by being able to see how many students (and which students) have contributed to the class discussion and most probably watched the video, as asked in the assignment. A second sphere of less active participation could also be perceived in the number of likes that statements and posts would get, identifying those students that have not posted comments themselves but at least engaged in the discussion by reading and interacting with the feed.

Figure 11 Edmodo wall with follow up message for learners



After allowing for a brief discussion on what the topic of the lesson assignment might be, students received a follow-up message via the news board including video content that should prepare them for the task ahead. The screenshot shows the message to the learners and the implemented video content (scaffolding language material to fulfill the task assignment).

8.9 Implications of the research project on EFL teaching

Regarding the principles for effective blended learning established by Hockly (2018: 98), the following should evaluate the implicated learning sequences for their relevance and effectiveness, as well as draw implications for future teaching. Firstly, it needs to be said that

blended learning in the EFL classroom should always have a strong focus on communication and interaction to make use of the medium's inherent advantages. Hockly (2018: 98) describes the mix of "online interaction with other learners, the teacher, and possibly with individuals in the wider world" as a key component of this approach, and the research project has shown that learners can easily be engaged in producing language content in the target language when provided with a platform that resembles that of their everyday online communication. As Blake (2013: 77) also established, most researchers agree that computer mediated communication, in the form of social networking and online and mobile learning platforms, holds great potential for engaging students to produce and communicate in the target language, as teenagers already spend a large part of their spare time on social networks and digital learning platforms naturally exploits their 'lust' for online communication. Many studies also show that learners' inherent drive to share and produce content for the online world accounts for a high level of engagement and motivation of learners to pursue self-initiated learning when they perceive their contributions as valuable to a wider community (Tour 2017: 181).

Another principle for effective usage of blended learning, according to Hockly (2018: 98) is the correlation of the rationale and the technology in use for the selected teaching sequence, or as formulated by Hockly (2018: 98), "task design and the choice of technology tool(s) need to match". The task design for creative writing and, more specifically, creating a poem, naturally seems to demand a rich composition of words and images and technology in the form of video content. Animating students to engage with creative writing seemed to have provided an adequate solution in the example provided in the research project. The additional quiz showing correlations between classical poetry and contemporary lyric design, and made lively by implementing powerful images and example videos through technology, further helped increase learners' motivation to engage with the subject and can be seen as a successful example of matching content and technology.

Furthermore, there is the issue of learner training as a necessary preparation for blended learning sequences, as Hockly (2018: 98) points out that "learners [may] find working autonomously a challenge" and that the "blend may require some initial learner training". In the 21st century, it becomes increasingly important to innervate students to become the masters of their own learning experience. Teaching with technology seems to foster that approach in the sense that learners are provided with a wide range of materials to take learning into their own hands and to see their learning as more purposeful when being able to implement it in their daily use of technology in forms of online and mobile learning environments.

Lastly, with regards to Hockly (2018: 98), it should also not be forgotten, that educators need to be willing to familiarize themselves with educational technology to become experts in usage and able to rely on the technology in use. Hockly (2018: 98) strongly points out that “training is key for the successful implementation of a blended approach” and educators should be willing to stay interested and informed and dedicate time and effort to train in new forms of methodology to effectively use educational technology in the classroom. Even with a fair amount of previous knowledge on the subject and having put a strong focus on technology in the classroom throughout most of my education, I must admit that without spending hours of preparation and research for each technical sequence in the lessons planned, the research project and my teaching would have proved to be very different.

9 Conclusion

This thesis aimed at giving the reader an overview of contemporary methods and inventions in digital learning and how they can be implemented in the language classroom to engage, motivate and aid students in mastering a language by catering to an increasingly heterogenous classroom and providing individual help for learners with differences in both their status quo and their learning styles. The thesis, by its nature, is set to fulfill an academic standard but may seem, at times, to show forms of advocacy for digital learning and partially might be lacking a critical stance for the digitalization of education. The reason for this is certainly not a disregard for academic standards but might rather be seen as a reflection of the author's high hopes for what digital learning can and hopefully will bring to the language classroom and education in general.

Admittedly, this thesis might also be perceived as different in nature than academically more balanced research papers and reflections on contemporary teaching methods and learning aids as it is written with regards to Sir Ken Robinson, Neil Postman and Salman Khan, who collectively agree that our current school system needs profound reform in order to meet the challenges of the 21st century (Robinson 1999; Postman 1995; Khan 2011). As it is, in the same way as the Industrial Revolution demanded restructuring society and education towards building a homogeneous workforce for a new form of labor, the Digital Revolution demands the exact opposite. Consequently, what is needed for an education that reflects the uniqueness of its participants is the discovery and nurturing of our students' individual strengths instead of aiming to reproduce a standardized work force that lost its legitimacy and benefit some two hundred years ago.

In that sense, I strongly believe that the trend towards a standardization of education, as seen in the pursuit of standardized testing and assessment scenarios, is not compliant with the nature of today's (young) learners and, in the long run, will do great harm to our society and economy as future occupations demand unique forms of problem solving and flexible thinking rather than the reproduction of knowledge. As stated by the National Advisory Board on Creative and Cultural Education, "[w]e need a broad, flexible and motivating education that recognises the different talents of all children and delivers excellence for everyone" (Robinson 1999: 6). Digital learning has proven to provide effective help for solving this issue by providing a methodology that caters to individual learning styles and allows personalized learning scenarios that can be effective for all learners (Grant 2014).

Especially in the field of language teaching, digital learning can open up a whole world of opportunities for teaching a foreign language in new and exciting ways and make use of the medium's inherent attractiveness as well as students' natural passion for engaging in social discourse and producing, sharing and collaborating content through the means of the Internet.

Missing this chance would be disastrous as Blake (2013: KL 39) elegantly put it:

Either teachers embrace the new language learning technologies and integrate them in a new pedagogy or they will not only deprive themselves of the enormous benefits afforded by computer-assisted language learning (CALL), computer-mediated communication (CMC), distance learning, social networking, and language games, but they will be increasingly out of touch with their own students, who are by now wired, networked, and computer-savvy.

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11 Appendix

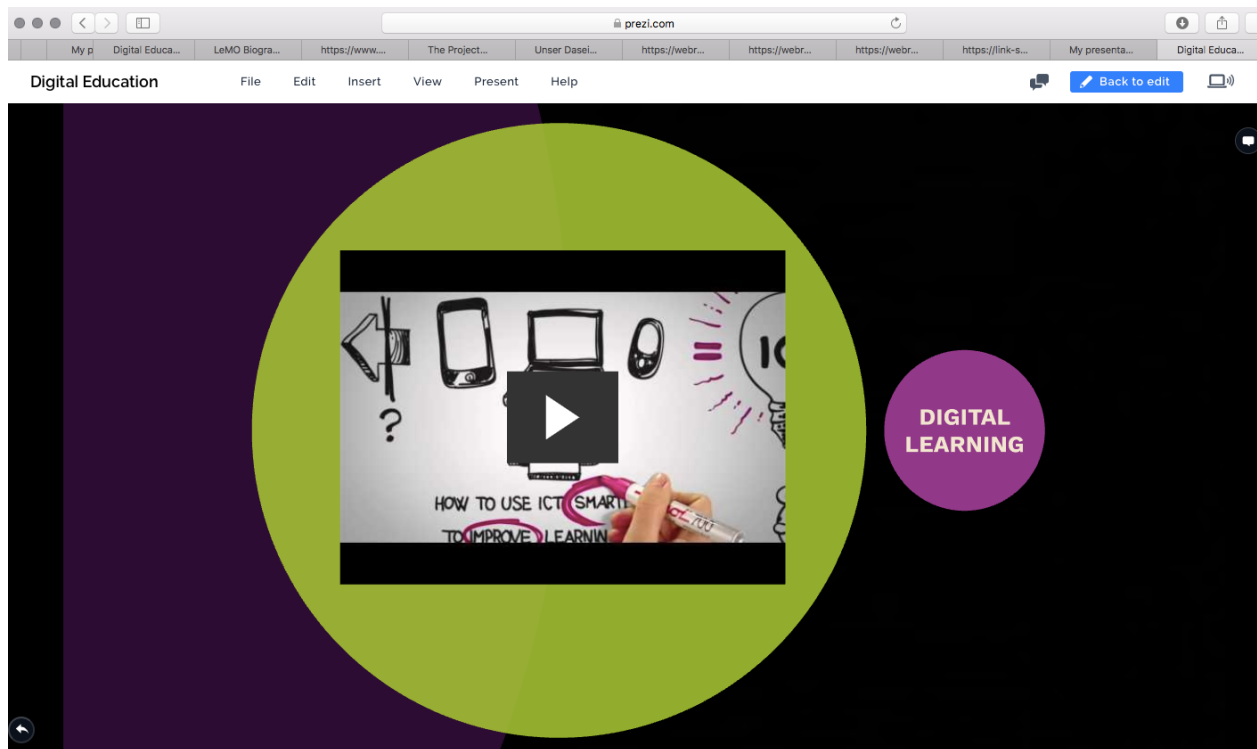
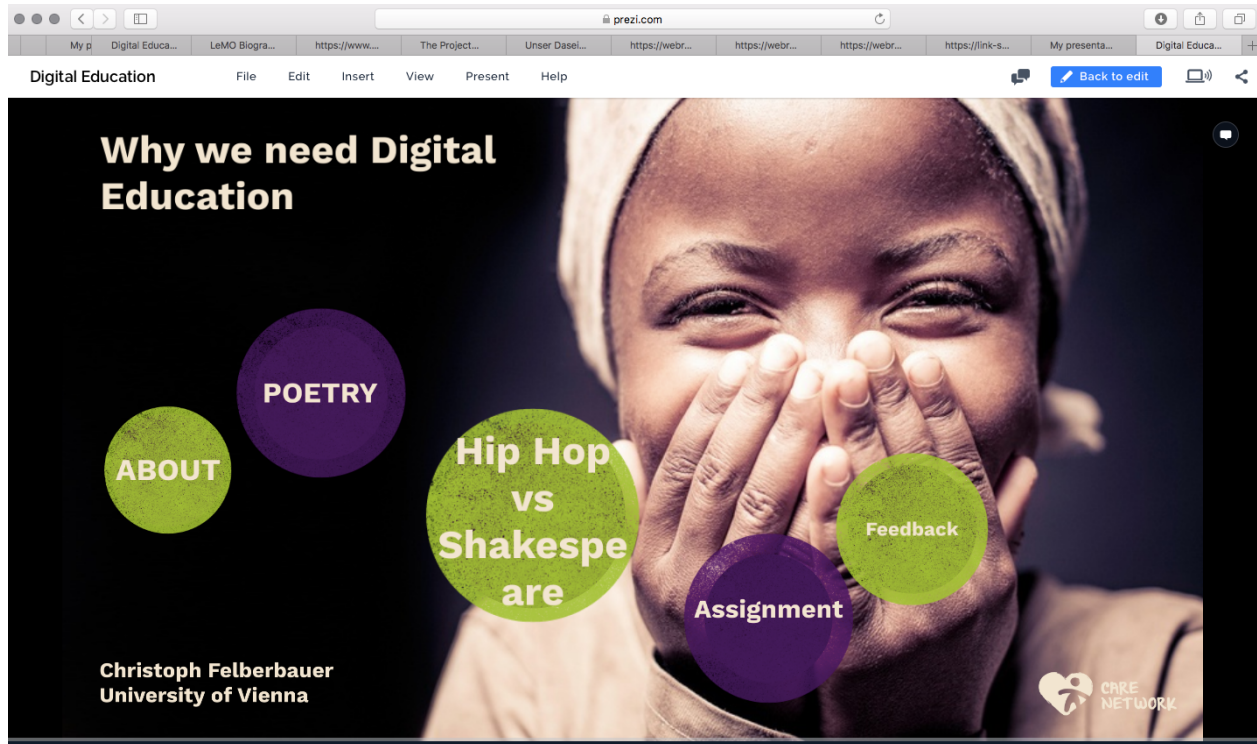
Websites

Babbel	https://www.babbel.com
Coursera	https://www.coursera.org
Duolingo	https://www.duolingo.com
Edmodo	https://www.edmodo.com
Edutags	https://www.edutags.de
Edutopia	https://www.edutopia.org
Facebook	https://www.facebook.com
Forschungsatlas	http://www.forschungsatlas.at
Google Classroom	https://classroom.google.com
Hellolingo	https://www.hellolingo.com
IELTS	https://www.ielts.org
iTalki	https://www.italki.com
Kahoot	https://kahoot.it
Khan Academy	https://www.khanacademy.org
Moodle	https://moodle.org
National Geographic	https://www.nationalgeographic.com
OER Commons	https://www.oercommons.org
RSA Animate	https://www.thersa.org
Storybird	https://storybird.com
TeachPitch	https://teachpitch.com
TED	https://www.ted.com
TED-ED	https://ed.ted.com
Teen Ink	http://www.teenink.com
TOEFL	https://www.ets.org/toefl
Udacity	https://de.udacity.com
Voki	https://www.voki.com
Wattpatt	https://www.wattpad.com
YouTube	https://www.youtube.com

List of abbreviations

ALLP	Athena Language Learning Project
BYOD	Bring Your Own Device
CALI	Computer-Assisted Language Instruction
CALL	Computer Assisted Language Learning
CC	Creative Commons
DML	Digital Media and Learning
EFL	English as a Foreign Language
GBL	Game-Based Learning
GUI	Graphical User Interface
L2	Second Language
LAD	Language Acquisition Device
MIT	Massachusetts Institute of Technology
MOOCs	Massive Open Online Courses
OCW	OpenCourseWare
OER	Open Educational Resources
PCs	Personal Computers
PDF	Portable Document Format
SLA	Second Language Acquisition
UCLA	University of California Los Angeles
VLE	Virtual Learning Environments
WYSIWYG	What You See Is What You Get

Excerpts of teaching project Prezi with quiz





Examples of poetry

Sonnet 18

Triumph

Performances

Shakespeare's Sonnet 18

classic

canonical

iambic pentameter

Iambic pentameter in Shakespeare's *Sonnet 18* and Wu Tang Clan's *Triumph*



Are the following quotes from Hip Hop or Shakespeare?



Why we need Digital Education

ABOUT

POETRY

Hip Hop
vs
Shakespeare
are

Assignment

Feedback

Christoph Felberbauer
University of Vienna



**“To destroy the beauty from
which one came”**

Hip Hop or Shakespeare?

**“To destroy the beauty from
which one came”**



Jay-Z "Can I Live"

**“Maybe it’s hatred I spew,
maybe it’s food for the spirit”**

Hip Hop or Shakespeare?

**“Maybe it’s hatred I spew,
maybe it’s food for the spirit”**

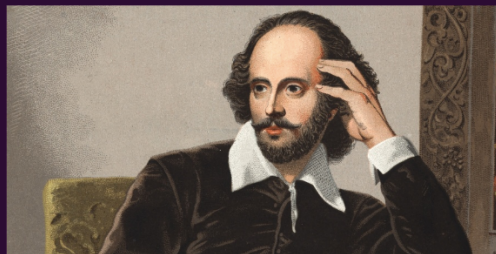


Eminem "Renegade"

**“Men would rather use their
broken records than their bear
hands”**

Hip Hop or Shakespeare?

**“Men would rather use their
broken records than their bear
hands”**



Shakespeare "Othello"

“Socrates, philosophy and hypotheses can’t define me”

Hip Hop or Shakespeare?

“Socrates, philosophy and hypotheses can’t define me”



Wu-Tang Clan "Triumph"

Lesson Plan: group A, lesson 1

GRG Vienna

9th grade

10 a.m.–10:33 a.m.

June 15, 2017

rough time frame	procedure	interaction format	skills/language system	materials	notes
5'	Introduction to topic, explanation of teaching project; short introduction to digital learning and how it can be used in the language classroom	Teacher monologue	Listening, reading	Projector, computer	Projector needs to be set up beforehand, personal hotspot needed to present from Prezi (no Wi-Fi connection in classrooms)
3'	Students watch short clip about digital learning curated by the Khan Academy to raise awareness for the abilities of digital education	Plenum	Listening	Projector, computer, Bluetooth speakers	Bring Bluetooth speakers
15'	Learning platform Edmodo is being introduced; students download the Edmodo app from the App Store/Google Play Store and log on with group code	Plenum, individual	speaking		Provide hotspot for students with slow or no Internet connection for download
5'	Students start using the platform by introducing themselves on the wall and/or write messages to teacher and peers to familiarize themselves with the usage of the platform	Plenum	Speaking		
5'	Q&A for learning platform; reminding students to log on to Edmodo regularly to receive updates and (mini) assignments; give outline for project	Plenum			Present slides with outline

Lesson Plan: group A, lesson 2

June 19, 2017 9 a.m.–9:45 a.m.

9th grade GRG Vienna

rough time frame	procedure	interaction format	skills/language system	materials	notes
15'	Students have watched "Pay with a Poem"-clip in flipped learning scenario; content is now discussed in class; this should reveal the topic of the class project (writing a poem) and add meaning to the assignment	Plenum	Speaking	Projector, computer	Projector needs to be set up beforehand, personal hotspot needed to present from Prezi (no Wi-Fi connection in classrooms)
5'	Building on students' prior knowledge, features and elements of poetry are discussed in class to prepare students for writing poetry	Plenum	Listening, speaking	Projector, computer	
20'	To further engage students for the upcoming assignment, students are participating in a quiz that underlines how contemporary hip-hop lyrics follow similar patterns (rhyme rhythm, iambic pentameter, etc.) as canonical Shakespeare poems by having students guess who the originator of a certain quote is – Shakespeare or contemporary hip-hop artist (intentionally misleading)	Plenum	Speaking	Projector, computer, speakers	Set up speakers for poetry examples
5'	Q&A for learning platform; reminder of log on to Edmodo regularly to receive updates and (mini) assignments	Teacher monologue, Plenum			Present slides with outline for last session

Lesson Plan: group A, lesson 3

June 21, 2017 10 a.m.–10:30 a.m. 9th grade GRG Vienna

rough time frame	procedure	interaction format	skills/language system	materials	notes
4'	Students have received material to help with their assignment via the learning platform ("How to write a poem"-video, examples and excerpts of poetry, etc.) and are encouraged to discuss the ideas and concepts that they have received in class	Plenum	Listening, reading	Projector, computer	Projector needs to be set up beforehand, personal hotspot needed to present from Prezi (no Wi-Fi connection in classrooms)
3'	Students watch short clip (Wu Tang Clan's "Triumph", lyrical version) as an example of contemporary poetry/lyrics production		Listening	Projector, computer, Bluetooth speakers	Bring Bluetooth speakers
1'	Teacher explains all requirements for task fulfillment of assignment	Teacher monologue	Listening		
20'	Students are starting to create their poems in class which will later be completed at home; teacher attends to students individually to assist with challenges regarding rhythm, alliterations, etc.; students are encouraged to use web-based dictionaries on their mobile phones for vocabulary questions	Individual, assistance from teacher	Writing		
2'	Q&A for further development of teaching project; outline and deadline for handing in students' poems	Teacher monologue, plenum	Listening		Present slides with outline

Lesson Plan: group B, lesson 1

June 22, 2017 9 a.m.–9:50 a.m.

9th grade GRG Vienna

rough time frame	procedure	interaction format	skills/language system	materials	notes
5'	Introduction to topic, explanation of teaching project; short introduction to digital learning and how it can be used in the language classroom	Teacher monologue	Listening, reading	Projector, computer	Projector needs to be set up beforehand, personal hotspot needed to present from Prezi (no Wi-Fi connection in classrooms)
2'	Learning platform Edmodo is introduced; students are asked to download the Edmodo app from the App Store/Google Play Store and log on with group code (at home)	Plenum	Speaking		Provide hotspot for students with slow or no Internet connection for download
3'	Students watch "Pay with a Poem"-clip to reveal the topic of the assignment/teaching project (writing a poem) and add meaning to the assignment		Speaking	Projector, computer	
5'	Content is then discussed in class; also: building on students' prior knowledge, features and elements of poetry are discussed in class to prepare students for writing poetry	Plenum	Listening, Speaking	Projector, computer	
15'	To further engage students for the upcoming assignment, students are participating in a quiz that underlines how contemporary hip-hop lyrics follow similar patterns (rhyme rhythm, iambic pentameter, etc.) as canonical Shakespeare poems by having students guess who the originator of a certain quote is – Shakespeare or contemporary hip-hop artist (intentionally misleading)	Plenum	Speaking, reading	Projector, computer, speakers	Set up speakers for poetry examples
5'	Q&A for further development of teaching project; outline and deadline for handing in students' poems	Teacher monologue, plenum	Listening		Present slides with outline

Abstract

Since the advent of the digital revolution our social, societal and economic life has changed profoundly. We now live, work, learn, and play in a rapidly changing communication landscape of which the most revolutionizing changes are yet to come. Nevertheless, the implications on education and language learning, besides countries as South Korea, Australia and the United States, have been minor and focusing on the Austrian classroom it can be seen that teaching in the 21st century is not significantly different from the past hundred years. The question is, how do the inventions of the digital age affect the ways we learn and teach languages and why should they bring change to the language classroom?

This thesis aims to give an overview of technology-enhanced teaching methodology and applications for the English language classroom and further investigates in how far the Austrian EFL classroom is fit for the needs of the 21st century. The first part will provide the theoretical framework for said discussion by providing a short history of Computer Assisted Language Learning (CALL) with a focus on EFL teaching and an overview of existing classroom technology from websites to social media platforms to blogs and wikis and many more. The second part of the thesis will describe my research project which is being held in an Austrian EFL classroom near Vienna and is seeking to portrait how technology-enhanced language learning can increase students' motivation towards language learning in a concrete example of creative writing. Besides describing research design and methodology, outcomes and implications for future EFL teaching in the Austrian classroom will be provided.

Although this is by far not a new topic to EFL methodology, which has seen numerous publications on digital teaching trends in the past decade, this thesis should give practical insight into modern EFL teaching for the Austrian classroom.

Zusammenfassung

Mit den allerwenigsten Ausnahmen sind die größten Nationalstaaten dieser Erde derzeit im Begriff, ihr über viele Jahrzehnte wenig verändertes Schulsystem an die Erfordernisse des 21. Jahrhunderts anzupassen. Die digitale Revolution und ihre Auswirkungen auf das soziale und wirtschaftliche Leben aller Menschen brachte beträchtliche Veränderungen auf allen Ebenen mit sich. Vor allem die Auswirkungen auf den Kommunikationsbereich sind aber noch weit vor ihrem Zenit. Trotz dieser maßgeblichen Veränderungen hat die digitale Revolution bisher aber nur wenig bis keine Adaptionen im Bildungsbereich mit sich gebracht, mit wenigen Ausnahmen wie Südkorea, Australien oder der USA, vor allem, wenn man die österreichischen Klassenzimmer unter die Lupe nimmt.

Die vorliegende Arbeit beschäftigt sich daher mit den Herausforderungen der digitalen Revolution und wie die daraus resultierenden Möglichkeiten und Potenziale des digitalen Lernens im Sinne eines schülerzentrierten, individualisierten Unterrichts nutzbar gemacht werden können. Lernprogramme, digitale Lernplattformen und OER (Open Educational Resources) werden dabei ebenso beleuchtet wie die Nützlichkeit einer neuen Methodik, die digitales Unterrichten ermöglicht und gleichzeitig fördert.

Der Schwerpunkt dieser Beleuchtung und ihrer zugrunde liegenden Literaturrecherche bildet die Auswirkung des digitalen Unterrichtens auf den Englischunterricht im österreichischen Klassenverband. Für den zweiten Teil dieser Arbeit wurde außerdem ein Unterrichtsprojekt durchgeführt, mit dem Ziel, Englischunterricht unterstützt mit technischen Hilfsmitteln darzustellen und dessen Implementierung unter einem wissenschaftlichen Standpunkt zu evaluieren.