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Dissertation summary


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**The potentials of video games in the process of English language learning and the practice of language teaching in the Hungarian context**


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**Abstract**

Video games have been a part of popular culture since the mid-1970s; but despite the fact that the overwhelming majority of video games are in English, research interest in video games and their affordances for English language learning has only been growing in the last ten years. Although numerous studies have tested and affirmed the possibility video games provide for learners to acquire vocabulary, research dealing with the exact nature of the linguistic input and interaction in video games and the changes successful language use in games might bring about in language learners self-efficacy has been relatively scarce. Furthermore, apart from a few examples, academic research has not focused on how commercial off-the-shelf (COTS) video games may be put into use in the language classroom and what obstacles hinder their implementation on the language teachers' side. Adopting a the theoretical framework of self-efficacy based in social learning theory (Bandura, 1986, 1988) and beliefs (Pajares, 1992), the studies presented here used a mixed methods design to understand teachers' beliefs, attitudes and experiences with video games and their usefulness for language learning via teacher interviews (N = 8); to understand the affordances of games through quantitative data from questionnaires and expert gamers' judgments; and to discover possible differences in the self-efficacy beliefs, outcome expectations, self-authenticity and motivation of gamers and non-gamers using a large sample (N = 461) questionnaire. The study found important connections between teachers' first- or second-hand experiences with video games and attitudes towards them regardless of their age using the interview data and subsequent regression analysis from quantitative data. Furthermore, the study investigated Hungarian gamer-learners' interactions with the English in the in-game and beyond-game contexts and - using experts' judgments – focused on compiling a list of factors useful for evaluating the linguistic affordances of video games. Lastly, the investigation revealed significant differences ($p < .05$) between the self-confidence, motivation, engagement and outcome expectations of online gamers, offline gamers and non-gamers, and presented two structural models for the understanding of the relationships between a number of variables although the model was not deemed adequately valid to assess multi-group differences. The study concludes with implications for implementing video games into pedagogical practice and suggests directions for further research based on the data.

# 1 Introduction

The last two or arguably three decades have brought about profound changes related to the practice of English language teaching and the process of language learning. Earliest empirical studies in the field of second language acquisition in the 1960s and 1970s were mostly conducted in contexts where English was an official second language or where immigrant learners were either keen or forced to learn English. Today, in contrast, due to the increasing permeation of English in cultures around the globe through the proliferation of the internet, social media, the overall process of globalization and inescapable English-language cultural artefacts, the settings for natural or naturalistic second language acquisition coveted by many since the studies of Krashen (1977, 1981, 1983) have spread to most countries in the world.

Possible language learners are increasingly gaining access (intentionally) and exposure (incidentally) to the English language; settings that could foster language learning are accessible to learners either entirely or partially without having to leave the comfort of their couch, or, gaming chairs for that matter: the streaming service *Netflix*, offering thousands of hours' English-language entertainment and thus audiovisual input, is today available in over 190 countries worldwide, and day-by-day millions of gamers - young or old, boys or girls - play online games mediated by English, through which they may form friendships with other gamers countries apart or create English-language gaming content for a variety of native- and non-native speakers of English. A prime example, the now slightly notorious YouTuber, the Swedish PewDiePie started out as a comedic reviewer of video games in his second language English, and has since received over 100 million subscribers and 24 billion video views, making him one of the most influential internet celebrities.

Video games have been a part of popular culture since the arrival of the arcade table tennis game *Pong* in 1972. Since then, the video game industry has surpassed films and music in its overall revenue (Chatfield, 2009). Movies have been adapted into video games, and video games have found their way into the movie theatres as well; and since 2004, the British Academy of Film and Television Arts (BAFTA) has been honouring outstanding video games annually in the British Academy Games Awards. For about two generations of people, video games have already become as integral parts of everyday life as films or music.

## 1.1 Rationale

Crucially, however, the overwhelming majority of these computer games are developed in English and are played in English throughout the world, allowing for hundreds

of millions of players to engage in a highly immersive and interactive activity that is mediated through English, which should theoretically serve as an excellent source of input for language learning. Arguably, most people in Hungary have heard anecdotal evidence about gamers who "learnt all their English playing video games." One such example in small corner shop in downtown Budapest served as a primary inspiration for the research presented here. When a man in his thirties was asked by the cashier (apparently his friend) where he had learnt his English, he replied with "Well, I played a lot of *GTA* and I grew up in the 7th district."

Although English language video games have been an integral part of our lives for decades, research interest into the affordances of video games for language learning has only gained momentum in the last decade. With first of a kind studies, Sundqvist and Sylvén (2012, 2014, 2016; Sylvén and Sundqvist, 2012) showed gaming to be an out-of-school activity highly conducive to language learning, while Henry (2013, 2014) directed attention to gamers' sense of self-authenticity, self-efficacy, and possible negative relations to learning motivation. Furthermore, Chik (2012, 2013, 2014), investigating autonomy and beyond-game English language use and teachers' beliefs about the possible language learning opportunities in video games. Lastly, the work of Reinders (2012) must be highlighted, who edited the first ever volume on the topic of digital game-based language learning.

The growing interest in video games and language learning has spurred research in the topic in the last 10 years. The majority of the resulting studies focused on language proficiency (mostly vocabulary) gains in largely uncontrolled quasi-experimental designs (e.g. Sundqvist, 2009), or only made important remarks about how video games might influence a number of individual difference variables which might lead to positive or potentially negative outcomes for language learning (e.g. Henry, 2013; 2014). A number of other studies (notably, Reinders & Wattana, 2012, 2014, 2015; Sundqvist & Wikström, 2015), however, have put games and their direct impact on language learning under scrutiny.

Still, as the amount of evidence lending support to the highly useful nature of gaming is growing, commercial off-the-shelf (COTS) video games have yet to enter the language classroom (Blume, 2019). Teachers' reluctance to tap into the opportunities of video games may be explained by a lack of resources and time, but also by a general lack of experience with video games, a deficient understanding of what gaming entails and how language learning may benefit from it, and arguably a number of stereotypes around video games (eNet, 2019).

However, as Blume (2019) notes, it is imperative that teachers' beliefs about video games and game-based language learning are understood and possibly formed to accommodate new techniques, knowledge and a range of new motivational strategies in a world where English is increasingly more easily accessible outside the school context (Henry, Korp, Sundqvist, & Thorsen, 2018).

## 1.2 The Aims of the Research

As such, the studies presented in the following dissertation focus on three main clusters of questions related to video games and language learning. Firstly, a mixed-methods qualitative to quantitative design will attempt to uncover teachers' experience with gaming and how their attitudes and openness to using or recommending video games for language learning. Secondly, based on questionnaire data from students a list of commonly played video games will be compiled and analyzed by two gaming experts for the importance of language use. Lastly, a large-scale sample will be used to evaluate gamers (or gamer-learners) language learning motivation, self-efficacy beliefs, outcome expectations from learning and related variables, which will be used as a point of contrast with non-gamers and as a basis for structural equation models addressing the issues of outcome expectations, attributions and self-authenticity in language learning.

Hopefully, the general learning and language learning theories discussed in the review of literature combined with the findings related to the above aims will be able to provide a basis that can serve as a springboard for further research into the topic, most importantly in the Hungarian context, which, despite being home to millions of gamers (eNet, 2019), sorely lacks empirical data on the topic.

## 1.3 An Overview of the Dissertation

The following parts of the dissertation are divided into five chapters. *Chapter 2* reviews the literature relevant to the study. The first section of *Chapter 2* gives an overview of what video games are, how the term video game is operationalized in the study and what gaming entails. The second section of *Chapter 2* is devoted specifically to learning theories and how they may be used to understand video games. The third section moves on to discuss language learning theories and how potential language learning in video games might be understood. The fourth section delves into individual difference variables which might influence learners intake from gaming and self-efficacy beliefs connected to language learning; while the final

section elaborates on what roles teachers might play in the world of English language teaching that is increasingly dominated by technology and out-of-school affordances.

*Chapter 3* outlines the research methodology used in the dissertation, addressing such issues as the rationale for the mixed methods research design, the selection of participants, the instruments including the interview protocol, two questionnaires and the related procedures, as well as steps of data processing and analysis.

*Chapter 4* contains the description of the results of the study along with discussions which places the results into the context of extant findings of previous research studies.

In *Chapter 5*, the conclusions and implications (both research-related and pedagogical) are considered along with possible lines of future investigations. Following the references, the appendices include the instruments used for data collection (interview protocols and questionnaires) and some structural equation models, which were not presented in the results, but may serve as a basis for further research and replications.

## 2 Theoretical Background

The literature review of the study looked at the connections of language learning and video games from a multiple angles; however, it took a social cognitivist approach (Bandura, 1977, 1978, 1986, 1988, 1997) to understanding the role of in-school and out-of-school *mastery experiences* and *outcome expectations* on learners' *self-efficacy beliefs*, *motivated behaviour*, and *engagement* in a certain activity; i.e. language learning. In other words, it was hypothesized that language learners involvement in English-mediated out-of-school activities like playing video games gives them a sense of achievement (mastery experience) that impacts on their self-efficacy beliefs, motivation, and engagement in in-school and out-of-school language learning, while also affecting their belief of the usefulness of in-school language learning (outcome expectations).

Important additions to the hypothesis were the concept of *self-authenticity* in language learning and *flow*. Self-authenticity as put forward by Henry (2013, Henry & Cliffordson, 2015) refers to the fact that some language learning activities are more personally meaningful, self-relevant, and emotionally-cognitively stimulating than others: learners who have ample amounts of such language learning experience (e.g. through gaming) may find in-school language learning to be inauthentic, and therefore, less useful for achieving the overall goal of language mastery. Also, flow theory (Csíkszentmihályi, 1975, 1990, 2014) was invoked as video games have long been considered as a flow-inducing activity (Kaye,

2016; Van Eck, 2007) as they fit most, if not all, of the defining factors of flow states: they are played for self-relevant reasons (intrinsic motivation), there is immediate feedback for the player, it requires intense focus, the challenge is adjusted to the player's level of expertise, and players often experience a loss of their sense of time. It is hypothesized in the study that it is this state of flow experienced while playing English-mediated games contributes to learners considering it a positive and self-authentic mastery experience.

Besides the above presented variables connected to self-efficacy as per Bandura's social cognitive theory, various other individual difference variables are also discussed which

The literature review presented an overview of why video games might be considered to hold great potentials for language learning. Drawing on Reinhardt and Thorne (2016), three important qualities of video games are highlighted that make them not only suitable, but also conducive to language learning: their interactivity in both implicit and explicit senses; their motivating nature that is inherently based in personal (intrinsic, integrative) motivation that is often called upon in theories of gamification in learning; the goal-oriented behaviour that allows learners to focus on achieving a goal while using the language, and, as aptly pointed out by Gee (2007), meaningful, contextualized, authentic language use.

Furthermore, it is also argued that computer games allow for language learning which involves a naturalistic context supplemented with authentic language that affords implicit learning, facilitates the development of learner autonomy, and is underlain by the principles of task-based learning. Various aspects of language learning, especially implicit learning and its interface with explicit learning are also discussed.

Besides the above presented variables connected to self-efficacy as per Bandura's social cognitive theory, various other language learning-related individual difference variables are also discussed, e.g. language learning motivation as per Dörnyei's L2 Motivational Self System (2006), where motives related to the Ideal L2 self can be understood as stemming from learners intrinsic interest in games and their future self-image as competent English-speaking gamers, and the Ought to L2 self as the expected language learning competence of gamers. Learner beliefs and attribution theory are also discussed in relation to language learning.

As far as the role of teachers is concerned, it is argued in the study that experience with gaming must be a cornerstone to teachers' positive attitudes about games, which might manifest itself in teachers helping their students exploit the learning potential in video games. Arguably, the degree of connection towards games (i.e. whether it is first-hand experience or experience connected to close friends or relatives) might be an important factor in the

formation of such positive attitudes. Importantly, such experience can positively impact teachers' attitudes towards gaming, their perceptions of the usefulness of gaming, and the perceptions of games' relevance to the process of language learning.

It must be noted, however, that despite the apparent importance attributed to beliefs and attitudes in pedagogical processes, multiple studies have pointed to discrepancies between beliefs and actual in-class behaviour (Basturkmen, 2004, 2012; Phipps & S. Borg, 2009), all stemming from the complexity of teaching as a profession and a vast array of institutional, personal and interpersonal hindrances. Thus, teachers' responses in the present study may not be fully reflective of their actual teaching practice.

The present study, therefore, puts a focus on teachers' beliefs, knowledge and attitudes towards the nature and perceived potential of learners' contact with English in out-of-classroom settings (extramural English) and in particular in the context of gaming, and explores how that set of beliefs and attitudes may have an effect on teachers' decisions to recommend out-of-school activities such as video games.

# 3 Research design

## 3.1 Aims and Research Questions

Based on the review of extant literature of second language learning, individual differences variables influencing the process of second language learning, and gaming and its relevance to language learning, the broad aim of the present dissertation has been devised.

The investigations reported here and the overall research project primarily aimed to give insight into the language learning motivations, beliefs and attitudes of Hungarian English learners who engage in playing video games that, especially when compared to non-gamer learners, may explain the perceived advantages and disadvantages of video gaming for language learning with an intricate set of intrapersonal variables.

Secondly, with an eye to possible implications and advice for the practice of second language teaching, another aim was to take stock of Hungarian English teachers' experience, knowledge, attitudes and practices regarding video games and language learning. Data collection for this second point of interest served three aims: firstly, to provide experience-based insights from Hungarian teachers that can complement research findings from countries like Sweden or Finland that have a different linguistic landscape from Hungary; secondly, to understand Hungarian teachers' attitudes towards and beliefs about gaming and gamer-learners with due regard paid to intrapersonal factors influencing these

variables; and thirdly, to use teachers' insights and experience that, combined with theoretical underpinnings of learning research and findings of game-based or game-enhanced language learning, may be instrumental in drawing up pedagogical implications and devising proposals to ensure a deeper understanding of how video games may be applied to language learning education.

In line with the aims and research gaps stated in the above sections, three main research questions have been drawn up with a line of detailed sub-questions for each. The first broad research question focuses on the teachers and on drawing insights related to the potential of video games from teachers' experience. The second broad research question is at an intersection of teachers' and learners' perspectives as it attempts to compare both groups' usefulness beliefs related to in-school, out-of-school and gaming-mediated language learning. The third research question focuses entirely on the language learners and the dynamic network of intrapersonal variables (e.g., self-efficacy, motivation, self-authenticity) that may shed light on how gaming may have a positive influence on learners' attitudes and motivations towards learning English and their overall classroom engagement. It should be highlighted here that in order to avoid the constant use of such roundabout phrases as 'learners of English who engage in video games' or 'English learners who play video games', the terms 'gamers' and 'gamer-learners' will be used throughout the rest of the dissertation. The three main research questions of the study and the corresponding sub-questions are found below:

**RQ1.** What views do Hungarian teachers of English hold in relation to the potentials of commercial off-the-shelf (COTS) video games for language learning?

- 1.1 What are Hungarian teachers' views about the possible advantages and disadvantages of COTS video games with regards to language learning?
- 1.2 What possibilities do Hungarian teachers of English see feasible in terms of incorporating video games in their language teaching practice?
- 1.3 What are Hungarian teachers' views of language learners who they perceived as gamers in terms of their proficiency, motivation, self-confidence and in-class engagement?
- 1.4 Are there any differences in Hungarian teachers' contact with and perceptions of video games as compared to other out-of-school English-mediated activities?

- 1.5 To what extent are Hungarian teachers' attitudes towards recommending video games for language learning a function of their age, contact with video games and beliefs about the usefulness of gaming for language learning?

**RQ2.** What forms of English language use occur in the video games Hungarian gamer-learners report playing?
- 2.1 To what extent do Hungarian gamer-learners use the English language in in-game and beyond-game contexts?
- 2.2 How important is language use to the gameplay of the most popular video games for Hungarian gamers?
- 2.3 What forms of linguistic input and interaction is afforded by single-player games that Hungarian gamer-learners report to be playing?

**RQ3.** In what ways (if any) are gamer-learners different from their non-gamer counterparts in terms of variables influencing second language learning?
- 3.1 Are there any significant differences in self-efficacy beliefs, outcome expectations and perceived sense of authenticity of language learning between online gamers, offline gamers and non-gamers?
- 3.2 Are there any statistically significant differences in self-reported language learning motivation, self-confidence, boredom and engagement in classroom contexts between online gamers, offline gamers and non-gamers?
- 3.3 To what extent do gamers' language use experience in games predict their general language learning self-efficacy beliefs?
- 3.4 In what ways are the examined language learners' engagement and motivation a function of their outcome expectations, self-efficacy beliefs, self-authenticity, experience and L2 selves?
- 3.5 What differences are there between gamers and non gamers in the models of language learning motivation and engagement examined in RQ3.4?

### 3.2 Research methods

The study adopted a mixed-methods approach to its design with a section of qualitative interview data with 8 teachers and its subsequent content analysis informing later quantitative sections of the design, for example by helping the author refine scales and hypotheses for the questionnaire studies.

The first questionnaire study presented here involved 100 English language teachers from all around Hungary and elicited data related to their attitudes, experience and beliefs regarding video games and their usefulness in English language learning in order to connect it with their attitudes to possibly recommending video games for language learning.

The second part of the study involved a list of video games provided by a relatively large sample of learners from Hungary in a questionnaire and the subsequent analysis of said games by expert gamers/journalists for the importance of English to their enjoyment and the possible linguistic opportunities they provide, while also providing descriptive analysis of the English language contact the Hungarian learners in the sample are afforded by video games.

Lastly, the third part of the study focused on finding differences between gamers (offline and online) and non-gamers in terms of a number of variables related to self-efficacy (outcome expectations and self-authenticity) and motivation using an online questionnaire of 461 students from over 10 schools in multiple locations in Hungary.

The qualitative parts of the study were interviews, which were promptly recorded and transcribed. A subsequent thematic analysis was performed on them using the *ATLAS.ti* computer-aided qualitative data analysis (CAQDAS) software for coding, categorizing and preparing. The quantitative parts of the study involved the collection of data from a relatively large population ($N_{teachers} = 100$; $N_{students} = 461$). The data collection was performed using online questionnaires in *Google Forms*; then, the raw data was cleaned, processed and analyzed using the *SPSS* statistical software package, which yielded descriptive and inferential statistical data. Later, structural equation modelling techniques were also applied to the data for confirmatory analysis using IBM's *AMOS* software.

**4 Results and discussion**

The analysis of the data collected for Research question 1 (RQ1) found a general sense of openness and positive attitudes on the teachers' part as regards video games and their relation to language learning, especially as related to the results of Chik (2011). While the quantitative and qualitative data showed that overall teachers lack the amount of experience necessary for implementing COTS games-based learning in their practice, they see video games as having potential as an outside-of-school activity that may help students improve their vocabulary and encounter language-related experience that may boost their self-efficacy and self-confidence. Furthermore, the findings of the quantitative analysis on teachers'

knowledge and beliefs showed that teachers are generally less knowledgeable about gaming and learners involved in gaming than in other out-of-school activities, and would be less likely to recommend gaming as a source of language learning than any other activity. Also, although age has been mentioned on many occasions as hindering teachers from dealing with video games, the results showed it is experience with video games (or contact) that is key to more positive attitudes about video games and more positive evaluations of their usefulness.

Findings for the second research question (RQ2) included important results related to the amount of English language contact gamers are provided via video games, especially online multiplayer games, which other than necessitating talk to others in the game in English, also facilitate beyond-game contact with foreign speakers of English in a shared affinity space. In addition, about 40% of the learners indicated a general willingness to create English content related to the game, which is an opportunity that may be harnessed by English language teachers. As for the English language input and interaction afforded by video games, expert raters judged single-player role playing games and multiplayer games to afford the most amount of opportunities for language learning, either through immersive gameplay, language-based options that influence the narrative or through the opportunity to talk to other speakers of English online and work with or compete against each other in a goal-oriented activity, where English serves as the main tool of mediation.

Lastly, the third part of the study found intriguing differences between online gamers, offline gamers and non-gamers. Offline gamers were invariably found to have lesser degrees of self-confidence, motivation and engagement than the two other groups, a finding that was further analyzed through statistical means; however, the data pointed to either a sampling error or a latent observed confounding variable, possibly personality-related, that may explain the differences. Online gamers were found to be more self-confident (as also attested by teachers) than the other groups; nevertheless, they held less positive outcome expectation beliefs regarding in-school language learning and were also found to be generally less motivated to learn English and less engaged in language lessons than non-gamers, which might be linked to sense of frustrated self-authenticity during in-school English lessons that do not provide the same levels of self-congruent stimulation as gaming does. Later, a simple structural model with acceptable goodness-of-fit indices were presented that showed that gamer-learners' English-related self-efficacy beliefs are indeed affected by mastery experience of using English while playing video games; however, due to a low reliability of a scale measuring flow experience while gaming and mastery experience derived from other outside-the-school activities, the model cannot be claimed to account for a large portion of

the effects of gaming on gamers' self-efficacy beliefs. Lastly, a more complex model was drawn up and presented, which integrated the construct of self-authenticity and outcome expectations (as a *Perceived usefulness of in-school learning* scale). The model was shown to have acceptably good fit with the data, but signs of caution were issued due to the lack of a scale integrating out-of-school activities into the model and due to the less-than-perfect model fit. Unfortunately, due to a small sample size for multi-group analysis, the same model could not be tested for online gamers and non-gamers for differences.

## 5 Conclusion

The results of the mixed-methods research section with language teachers shed light to a number of challenges and potentials regarding the integration of video games in the practice of language teaching. Both the quantitative and the qualitative parts of the study concerning the teachers pointed to relative openness to adopting elements of video games in language teaching while also uncovering one of the key obstacles: teachers' lack of relevant knowledge and experience with video games.

The second section of the research aimed to uncover some of the key language learning affordances of video games via a questionnaire and a short follow-up interview with gaming journalists. The respondents' resounding opinion was that it is online multiplayer games that involve the most language use (gamers need to communicate with each other to achieve goals), with single-player role-playing games coming second in importance due to the importance of understanding the narrative and dialogues for making the best decisions in the game. Also in this section, the gaming habits of the student respondents ($N = 461$) were discussed with focus on the conspicuous data surrounding the beyond-the-game context; e.g. that around one-fifth of all gamers have already created English-language gaming videos and 40% of them are interested in doing so.

Lastly, the third section aimed to uncover individual difference-based differences between gamers (with online and offline gamers emerging as two separate groups) and non-gamers in relation to language learning. The study found interesting differences that showed that online gamers reported higher levels of linguistic self confidence and self-efficacy related to language learning but also less positive beliefs about the efficiency of in-school language learning.

**5.1 Limitations**

Throughout the results and discussion sections in the present dissertation, a number of limitations were discussed that should be taken into account when interpreting the robustness of the analyses and the generalizability of the findings.

Firstly, it is was felt that longer and more in-depth interviews with a larger sample of teachers could have provided better data for subsequent analysis, and possibly an even less structured interview guide should be used in further studies investigating teachers' beliefs, attitudes and knowledge related to computer games as the present guide may have been too profoundly influenced by extant findings related to teachers' cognition.

As for the teachers' questionnaire, it has already been mentioned that the sample size of 100 was not adequate to create a structural model with confirmatory factor analysis. Besides, as snowball sampling was used to draw in respondents for the questionnaire, a possible sampling bias also might have had an effect in skewing the data as most probably it was more proactive teachers who filled out the questionnaire and thus cannot be claimed to adequately represent the population of Hungarian English language teachers. In order to obtain more robust findings, random sampling procedures should later be used to find teachers who are willing to participate; however, such procedures would definitely necessitate ample financial and institutional resources.

Regarding the linguistic input and interaction afforded by computer games, it must be emphasized that only two raters were asked to provide judgments on the importance of language in video games. However, due to a general lack of research related to categorizing video games based on linguistic affordances, it is argued that the present study managed to fill some of the existing research gap and provide useful data for teachers. Nevertheless, it is deemed important that later studies also involve a sample of the student gamer population as the raters' judgments might have been distorted due to the differences in age and education between them and the students. Also, observational case study designs and designs involving corpus analysis and discourse analysis may be useful for creating a more in-depth understanding of English language use in video games.

As for the largest quantitative part of the study, an important limitation was the sample size, which even at 461 was inadequate to provide good model fit indices for structural equation modelling with multiple groups. For a replication of the study, a sample size of at least 600 is desirable, in which each group involves 200 learners. Furthermore, two important constructs (flow and mastery experiences in out-of-school settings) were eliminated from the data analysis due to poor reliability. This was a major setback for the

planned structural equation modelling, and it was felt that a large portion of the variance is left unexplained due to the lack of items measuring flow-related positive experiences while gaming and mastery experiences while using language outside-the-school. Also, an intriguing difference between offline gamers and all other learners in the sample was found, which was unexplained by the observed data. It has been hypothesized that a background variable such as personality may be responsible for the difference, which is a variable that needs to be addressed in further analyses.

## 5.2 Pedagogical implications

As a study involving large samples of language teachers and current language learners, there are  evidently numerous possible implications of the findings presented here that are relevant to classroom practice, teachers' professional development and teacher training.

Firstly, a highly important implication of the findings related to the answers of Research question 1 is that teachers should become aware of what English-related activities learners are involved in in their free time to aptly assess any point where they intervene to facilitate language learning. However, this recommendation has two separate facets: firstly, teachers should get acquainted with video games and the gaming world in general with the help of friends, relatives, students or professional development training as a way of developing an understanding of what gaming entails and what possibilities it might hold for language learners; and secondly, teachers should actively seek to gain insight into their own students' out-of-school English-mediated activities by conducting short surveys to get information. Such an understanding of gaming and individual students' preferences and gaming practices may equip teachers with the information necessary to create engaging and creative activities that take into account learners' varied interests.

Related to the question of student engagement, as the results and theories regarding the issue self-authenticity in language learning especially for gamers showed, it is felt important based on the advice of Henry *et al.* (2018) that teachers adopt motivational strategies and teaching techniques that accommodate the vast array of out-of-school learning experiences of their students. In order for teachers to avoid their students from perceiving the English lessons as useful due to a lack of congruence with their identities formed by cognitively and emotionally stimulating, personally relevant language use, English lessons need to incorporate creative activities that learners feel are authentic with how they want to

use the language. As such, teachers should consider giving project-based work for their gamer students that involves activities learners feel relevant to gaming and congruent with their identities, such as creating videos in English, subtitling English gaming videos for Hungarian viewers (or vice versa), writing walkthroughs and guides for other learners and players, peer teaching about computer games or creating tests and word lists for other gamers in the class.

Most interview participants and questionnaire respondents were in agreement as to whether video games themselves could be used in the context of classroom learning due to a general lack of resources and computer rooms for language teachers, and were also wary of the affordability of video games. However, as for practices not involving gaming *per se* in the classroom, numerous teachers also mentioned that they are unsure where to start with incorporating gaming into their teaching practice. Thus, it is imperative that teachers can get access to good practices over the course of teacher training and through professional development workshops and conferences. It is the general impression of the author that current language teacher training in Hungary does not provide skills for pre-service teachers that would help them with understanding their changing role in a world increasingly mediated through English and with catering for students engaged in activities such as gaming. Research conducted by pre-service teachers with experience in gaming may also have numerous merits and as such should be motivated and made accessible to language teachers in practical teaching-related articles and workshops.

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