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Gamification

A possibility for ELT in the digital era

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Abstract

In this digital era, with technology having permeated almost every aspect of our students' lives from birth, it is important that teaching methods cater for emerging new needs. As a possible tool in this, *gamification*, the use of game design elements in non-game contexts, is proposed in this literary review. First, relevant, contemporary theories from various fields, such as Self-Determination Theory from psychology, are used to create a theoretical framework for gamification. Through this framework, the most common game design elements – points, badges and leaderboards – are explored, and some possible issues regarding their implementation are described. Moreover, the results from research on gamification in education are examined critically and with reference to the previously outlined theoretical background. Although there are indications of positive effects, some areas in need of attention are identified. Finally, the current state of gamification within the context of English Language Teaching is discussed, and some suggestions for future research are proposed.

Contents

1 Introduction

1.1 The digital students

Thirteen years have passed since Prensky (2001a, 2001b) coined the term *digital natives* to describe a new generation of young people going through school with completely different attitudes and ways of processing knowledge than before. This generation was claimed to be wired for multitasking, high-speed action and constant connectivity. As a result, teaching these students required a different educational design and recognition from the school system and the adult world, the *digital immigrants*. While still using Prensky's notions, researchers have since then provided a more complex picture (Bennett, Maton, Kervin, 2008; Selwyn, 2009; Smith, 2012). For example, it has been shown that digital natives are not homogenous in their technology use (Jones, Ramanau, Cross, & Healing, 2010), and the generational gap seems to be smaller than previously thought (Helsper & Eynon, 2010). Despite these insights, such research is still looking backwards. The digital natives then studied have now left school, and it is time to look ahead.

In the coming years, a new generation will reach secondary and higher education with its own unique background. These students have always had the internet at their fingertips and expect to use digital technology whenever help is needed. For example, recent statistics show that 94% of students in the Swedish upper secondary school now own their own computer (Stiftelsen för internetinfrastruktur, 2014). Furthermore, the world of tomorrow will constantly and rapidly be evolving, and this generation quickly responds to technological change. Over the past two years, the use of tablets has increased from 33% to 75%, and over the past three years smartphone ownership has increased from 44% to now surpass the computer at 98%. In addition, more than 90% of students aged 12-19 access the internet daily (Stiftelsen för internetinfrastruktur, 2014). To rephrase a famous movie quote: while the digital natives merely adopted the new technology, the students of today were born in it, moulded by it. In this light, the question of how education will embrace the new, technologically immersed generation is as vital as ever.

1.2 The educational use of video games

For as long as Computer-Assisted Language Learning (CALL) has been around, one answer to bridging the gap between education and the digital natives has been sought in the use of educational video games, an area called Digital Game-Based Learning (DGBL) (Van Eck, 2006). Sometimes, even commercial games have been used for educational purposes (Chen &

Yang, 2013; Kjell, 2008; Wu & Richards, 2012). The rationale has been increased student motivation, and to a large extent such claims have been corroborated (for reviews, see Kang & Liu, 2013 and Egenfeldt-Nielsen, 2006). Another hope within the field has been that DGBL would also promote greater learning outcomes; however, results have been inconclusive thus far (Egenfeldt-Nielsen, 2006; Kang & Liu, 2013; Ke, 2008; McClarty et al., 2012). In order to facilitate learning, some researchers validly argue that greater emphasis is needed on how games could be tailored to specific contexts and student needs (Chen & Yang, 2013; Ke, 2008; McClarty et al., 2012; Van Eck, 2006). For example, gender difference is believed to be an important variable affecting game design as well as learning outcomes (Paraskeva, Mysirlaki, & Papagianni, 2010). Unfortunately, the implementation of games often requires much time for optimal effect, perhaps more than schools are able to provide (Tüzün, Yılmaz-Soylu, Karakuş, İnal & Kızılkaya, 2009). In relation to time, Paraskeva et al. (2010) also advise against allowing games to take precedence over, rather than complementing, regular classroom activities.

Within English Language Teaching and English Language Learning (henceforth joined under the label ELT), Wu and Richards (2012) suggest that Massively Multiplayer Online Role-Playing Games (MMORPGs) are well suited for practising skills in the communicative classroom. In such games, communication in the target language is used for surviving and completing goals; meaningful purposes that language is used for in real life as well. Furthermore, two independent case studies have shown positive effects on English vocabulary acquisition from playing games in the target language (Chen & Yang, 2013; Kjell, 2008). Nevertheless, learning benefits from the use of games in ELT remain largely unexplored.

As games become more sophisticated and research proceeds to fill the current gaps, there seems to be no question that games within a learning context could motivate and engage students to a larger extent than the regular classroom. While CALL and DGBL will remain and may, indeed, be able to provide more answers in the foreseeable future, a related area could already have solved parts of the gaming equation: *gamification*.

The term is best described as "the use of game design elements in non-game contexts" (Deterding, Dixon, Khaled, & Nacke, 2011, p. 9). In other words, gamification, in contrast to DGBL, does not make use of any games, but rather tries to form the educational setting into one. Originally from marketing, the use of game mechanics has been shown to increase buyer or employee engagement and satisfaction (Zichermann & Linder, 2013). Concurrently, several studies have indicated benefits of its implementation in various other areas (Hamari, Koivisto, & Sarsa, 2014; Morford, Witts, Killingsworth, & Alavosius, 2014). In essence, the

concept has grown from being just a buzzword into a comprehensive, widespread methodology in business (Bunchball inc., 2014; Gartner, Inc., 2011; Zichermann & Linder, 2013).

Although the call for game design in education can be seen as early as 2005 (Gee, 2005; Prensky, 2005), it is only in recent years that gamification has been put forward as a real possibility, and sometimes a necessity, for our schools in the light of the new digital natives (Lee & Hammer, 2011). As the concept has gained interest, several websites and books, such as *gamification.org* (since 2010) and Kapp's (2012) *The Gamification of Learning and Instruction* have emerged, leading the teaching community towards the gamification of education with the same hopes of success marketing had a decade ago. Should this be proven to be true, gamification would provide teachers with an important tool for increasing student motivation and engagement. Consequently, it would assist the pedagogical endeavour of realising the potential of each student. However, within education in general, and language teaching in particular, little research has been undertaken. Instead, the language teacher is often left to sources arguing for or against gamification based on opinion and intuition, rather than on sound, critically evaluated evidence.

The goal of this paper is therefore twofold. Firstly, it seeks to conceptualise the current state of gamification through both theory and empirical research, with particular focus on education. Secondly, it aims to assess some contemporary suggestions for gamification in ELT, as well as to highlight areas in need of research.

2 Gamification

2.1 Conceptualisation

2.1.1 Theoretical framework

The novelty of the field could explain the limited number of empirical studies currently available. Instead, gamification has been investigated through various theoretical viewpoints. On the one hand, such a diverse range of thoughts, theories and interpretations may appear incompatible. On the other hand, these different lenses may also be viewed as essential parts in building a comprehensive conceptualisation of gamification.

At least there seems to be a consensus among researchers and authors to interpret gamification as "the use of game design elements in non-game contexts" (Deterding et al., 2011, p. 9). By this definition, *game* is a structured, goal-oriented effort in contrast to *play* which lacks clear boundaries and goals. *Game design elements* pertain to characteristic

features of games, ranging from the micro-level use of points to the macro-level utilisation of game-like constructions. *Non-game contexts* are taken to mean any other area except games. Thus encompassing gamification, several previous definitions are rendered obsolete in an attempt to create a theoretical framework for scientific discourse. Moreover, it is underlined that the definition should remain liberal and context-free in order to serve as a basis for gamification studies across different academic fields. Also note that while some authors may distinguish between *players*, *gamers*, *users* and *students*, these notions will, in this review, be used interchangeably to denote those targeted by gamification.

In attempting to define gamification from an educational perspective, Kapp (2012) introduces nine concepts. Primarily, and closely resembling Deterding et al.'s (2011) definition, gamification is *game-based*, incorporating challenges, rules, interactivity, feedback and evoking emotions. To create such a comprehensive gamified experience, not only are *mechanics* from games used, but also the visually appealing *aesthetics*. Furthermore, gamification needs to be an integrated and comprehensive approach deeply connected with the context of its implementation. It is argued that this metacognitive *game thinking* is "perhaps the most important element of gamification" (Kapp, 2012, p. 11). Lastly, the goal of gamification is mainly to *motivate action*, to *engage* the involved *people* in *solving problems*, individually and socially. Some of Kapp's theories will be returned to in section 2.2.1, where gamification as *promoting learning* is discussed.

A similar definition attempt has been made from a behavioural perspective (Morford et al., 2014). In gamification, players have a *direct impact on the game outcome and results* with immediate consequences, creating an atmosphere over which the gamers have control. In such an environment, there needs to be *clear goals and/or end conditions* which players themselves are able to formulate. Should the end goal be complex, sub-goals with a clear progression are required. In addition, players looking to improve towards their goals need to be encouraged to *develop strategies* to alter their game play. Furthermore, a good gamified environment has *rules and barriers* that provide a certain stability and predictability. At the same time, gamification should include a *probabilistic outcome* – a compelling and mysterious element of uncertainty. Finally, *noncoerced initiation* is put forward as the most crucial element; under no circumstances should players be forced to play. In addition to defining gamification, Morford et al. (2014) also theorise why players continue to play over extended periods. Firstly, the continuous supply of new content as reward for completed goals probably appeals to human curiosity. Secondly, cooperation and competition are predicted to act as social reinforcement. Still, a caveat is issued against using competition, since it contains inevitable

elements of negative reinforcement and could, as such, be demotivating for certain individuals.

In addition, the reasons for playing games have been explored in detail by game designers (Crawford, 1984; Rouse, 2005). Despite lacking empirical data and not describing gamification *per se*, they do provide a coherent picture of game elements relevant to this review. Firstly, games let players experience an immersive fantasy world where reality is momentarily suspended. This world provides opportunities to explore new roles and identities. In essence, players are allowed to act in ways not possible in the real world and are always in control of their own experience. Very often, a longing for challenges is the motivator, with individuals acquiring skills to overcome important obstacles. Furthermore, there is a social dimension to games. On the one hand, they facilitate the yearning to be somebody and encourage proving it, often in comparison to others. Competition, bragging rights and peer acknowledgement have potential benefits, but Crawford (1984) also warns about predicted demotivation in those who do not "perceive the [competitive] games to be safe" (p. 4). On the other hand, there is clear agreement that some simply play to socialise and interact with other people without competing. One area which Rouse (2005) highlights and Crawford (1984) leaves out is the search for emotional experiences; while other forms of entertainment can produce good stories, games are unique in allowing the players to be co-creators of the gameplay, thus amplifying attached emotions. In summary, games seem to be appealing on an individual, social and emotional level.

This is supported by Lee and Hammer (2011) who argue that gamification affects three different areas: *cognitive*, *emotional* and *social*. Connecting to the *cognitive* aspect, good gamification allows users to experiment and discover their way to mastery. This is done through clear but increasingly difficult goals paired with immediate and clear feedback on progress. Moreover, providing the choice of different paths towards the final goal is emphasised. This resembles the progression model used by Zichermann and Linder (2013) to describe players' journey from desire to mastery through incentives, rewards and feedback. In the *emotional* aspect, Lee and Hammer (2011) highlight the likely negative emotional impact of failure and argue that gamification should "[make] feedback cycles rapid and [keep] the stakes low" in order to create more positive learning experiences (p. 3). In terms of the *social* aspect, gamification is presented as a method that allows the players to take on different roles and explore their own identities in a safe environment.

Some theorists claim that Self-Determination Theory (SDT) from psychology could explain the effectiveness of gamification on motivation (Groh, 2012; Kapp, 2012). SDT

builds on the three core concepts of *autonomy, competence* and *relatedness*, which, when fulfilled, are intrinsically motivating (Rigby & Ryan, 2011). *Autonomy* is defined as a person's innate wish to have control over his/her own actions (Kapp, 2012). It fulfils our desire for freedom to act according to our own needs (Rigby & Ryan, 2011). In essence, Groh (2012) argues, it means that activities have to be conducted on a voluntary basis, which in reality often translates to "shared goals, but individual pursuit" (p. 43). *Competence* indicates our yearning for challenge and mastery (Kapp, 2012). It fulfils our desire to constantly improve our abilities (Rigby & Ryan, 2011). In essence, this means providing not only interesting challenges, but also immediate, informative and progressive feedback towards well-defined goals (Groh, 2012). *Relatedness* simply means feeling connected to others (Kapp, 2012). It is a human desire to want good relationships (Rigby & Ryan, 2011), and in Groh's (2012) opinion, it is achieved when we connect with meaningful goals, meaningful communities and meaningful stories.

Gamification theorist Andrej Marczewski (2013a, 2013b) contextualises these main drives within gamification by identifying four different gamification user types. These types – *socialisers*, *free spirits*, *achievers* and *philanthropists* – are divided based on their intrinsic motivations and preferred interactions with the gamified content. *Socialisers* are motivated by *relatedness* and want to communicate, cooperate and compete with content and other players. The *free spirits* yearn for *autonomy* and want to explore content and use their fantasy and creativity without too much restriction from the content. *Achievers* strive for *competence*, i.e. improvement and mastery, and appreciate a system with goals as well as significant obstacles that need strategies to be overcome. Lastly, *philanthropists* are altruistic and seek purpose and meaning. They are, therefore, not rooted in SDT, although it could be argued that they also strive for *relatedness* in wanting to give and help other players, albeit without expecting any rewards. Content-wise, *philanthropists* value repetition, rhythm and collecting meaningful experiences. These four user types are not fixed and often mixed, but a player usually has one dominant inclination; a view which broadens the perspective of SDT in not regarding the three concepts as universal set values, but rather as individual preferences on a scale. Regrettably, the existence of Marczewski's types is yet to be proven scientifically, although the idea resembles theories of personality types in education (see Oxford, 2003).

In conclusion, while the theoretical framework is weakly supported, it does highlight the multiple layers of motivation in relation to gamification. Any suggested implementation will clearly require the use of various game design elements to cater for individual needs. At the same time, players generally seem to be motivated by being in control of mastering

incremental challenges in a social environment, while receiving clear, immediate feedback. The logical step forward is now to clearly define examples of concrete game design elements and examine how they could realise the potential of gamification.

2.1.2 Game design elements

Somewhere between gamification theory and empirical research, numerous game design elements have been conceptualised. Hamari et al. (2014) found 10 in their comprehensive survey of peer-reviewed empirical studies on gamification (2014). Computer scientists Wang and Sun (2011), who have looked into the social aspects of rewards, discuss 10 different forms, many with connection to gamification. On the current version of the *Gamification Wiki,* there are 24 different game mechanics listed (Game Mechanics, n.d.).

It is an insurmountable task to analyse each element within the scope of this review, which warrants a selection of those most common. Werbach and Hunter (2012) claim that throughout their study of gamified implementations, three basic game mechanics almost always appear: *points*, *badges* and *leaderboards* (PBL). The same three are presented in Zichermann and Linder's (2013) description of the five game design elements, alongside *levels* and *rewards*. The latter two are not separate elements in the definition by Werbach and Hunter (2012), but could be seen as permeating PBL. Finally, the top-three elements in gamification research are: *points*, *leaderboards* and *achievements/badges* (Hamari et al., 2014). As a result, these three major game design elements require a more detailed description.

According to Zichermann and Linder (2013), *points* are rooted in our innate yearning to keep score and are the primary means of providing feedback on accomplishment in gamified environments. This is mainly conducted through assigning experience points (XP) for completed tasks, attainment of certain skill levels, or by showing desired behaviour. Points are most successful when redeemable for rewards or unlocking access to new content (cf. section 2.1.1). Werbach and Hunter (2012) add that points primarily appeal to collectors and competitors, which resemble *achievers* and *socialisers* (cf. section 2.1.1). It is further argued that points are excellent in providing immediate feedback on progression, with the attainment of levels unlocking certain benefits. In this way, the right behaviour increases the level, which, in turn, raises motivation. Furthermore, and in contrast to Zichermann and Linder (2013), it is concluded that points, while being good for motivation, are poor indicators of actual knowledge. Wang and Sun (2011) broaden the view of points by claiming that there is a difference between regular points, which indicate a player's ability of something and XP,

which are awarded solely on the basis of time and effort exerted. With this division, normal points would be used for scoring only, while XP could be used for unlocking new interesting content at certain levels. Another incentive could be granting the players special abilities within the gamified content. These rewards are argued to increase motivation since players "feel as though there is always something new to look forward to" (p. 5). There are no mentions of possible consequences.

Badges (sometimes referred to as *achievements*) are certain tokens signalling the attainment of a particular goal (Zichermann & Linder, 2013). As with points, badges are successful because they immediately respond to correct input by the users. In addition, these tokens provide a clear, visual indication of success and seem to work best for players driven by collection and competition, although no other groups of beneficiaries are discussed. Werbach and Hunter (2012) agree to a large extent, adding that achievements are a flexible tool, which, in contrast to points, can capture skills, and measure completion and acquisition in greater detail. Badges could easily be customised to specific goals and interests, which would reach a broader audience by "[appealing] to their interests in ways that a single points system cannot" (p. 75). Likewise, Wang and Sun (2011) consider badges an opportunity to reward deeper interaction with, and understanding of, the content, perhaps in novel, interesting ways. There also seems to be agreement among the authors that the "instant positive feedback … [creates] positive emotions" (p. 5) (cf. section 2.1.1). The use of badges for self and peer comparison is only briefly described, but it is concluded that having a public system through which these achievements are "easy to present and review" is essential (p. 6). Moreover, Lucas Blair (as cited in Kapp, 2012) lists additional considerations for using achievements. For them to be intrinsically motivating, they need to be "performance contingent", i.e. given in relation to how something was achieved, rather than ticking a completion box (p. 221). This is presented as a means for true mastery by shifting the focus towards the acquisition of skills and the quality of the product. Mastery is, indeed, one of the described tenets of SDT, although it mostly applies to *achievers* (cf. section 2.1.1). No other groups are discussed in relation to badges.

Leaderboards are, in essence, ranking lists, showing one's status in relation to others (Zichermann & Linder, 2013). Wang and Sun (2011) agree with this definition, but emphasise the use of leaderboards for self-assessment of long-term progress; however, few benefits are expanded upon apart from the provision of a system for determining a player's status. Zichermann and Linder (2013), even point out that while leaderboards are highly motivating for some, others may respond negatively (cf. section 2.1.1). In order to combat such effects, it

is suggested that leaderboards be individualised, allowing those at the bottom to compare themselves to those closest in rank, thus removing the frustration of comparing with the top. Whether this would convince those negative towards competition-driven methods remains to be explored. Werbach and Hunter (2012) maintain that the primary function of leaderboards is to provide clear and instantaneous feedback on progression (cf. section 2.1.1). However, they admit the possible danger of also encouraging students' reducing content to something to be completed quickly to gain rank, rather than to be understood. It is suggested that this could be countered by introducing multiple leaderboards, with softer values that target different aspects of the gamified experience and, consequently, reaching out to students with other goals than mastery, although no examples of such values are provided.

As a result of their current prominence, PBL have also garnered significant criticism. The primary objection focuses on the negative impact external rewards could have on intrinsic motivation (Deterding, 2012; Groh, 2012; Lee & Hammer, 2011). Groh (2012) refers to research that has been available for decades, indicating that rewards are punishing rather than being helpful. Similarly, Alfie Kohn, the author of the seminal book *Punished by Rewards*, argues that a significant body of research has shown how elaborate behavioural manipulation, such as rewards, significantly reduces interest in the topic, and how any intrinsic motivation shifts towards earning the reward in these cases (Brandt, 1995). Furthermore, it is argued that rewards are a simple way of trying to control behaviour, which humans tend to see through and dislike. The latter claim could be seen as supported by the theoretical framework, which clearly identified *autonomy* as an important aspect of motivation and gamification (cf. section 2.1.1).

Another part of the criticism claims that PBL oversimplifies and corrupts true gamification (Bogost, 2011; Chorney, 2012; Kapp, 2012; Pihl, 2012). Kapp (2012) describes PBL as the "least useful elements" and suggests that true gamification is built on engagement, storytelling, visualisation of characters and problem solving instead (p. 12). Furthermore, some argue that PBL is a dysfunctional quick fix to make up for inadequate content. For example, game designer Ian Bogost (2011) discards the approach of using only a few popular elements, claiming it to be an easy way for those in power to trick others to believe that the product is improving when the real goal is to make more money (para. 11). Similarly, both Chorney (2012) and Pihl (2012) lament the use of simplified gamification, which focuses on a few mechanics and not at all on content, as a means for monetary gain. While all of the above criticise the motives behind the application of PBL on ethical grounds, which is another discussion, no one attempts to prove the actual positive and negative effects of PBL.

In summary, *points, badges* and *leaderboards* are the most popular among several game mechanics. While some aspects of these, such as providing clear, instantaneous feedback, seem to be anchored to the theoretical framework, this section's strong basis in opinion indicates the need for empirical evidence on the outcomes of implementing various game design elements and reward systems, as well as studying the effects of the interaction between these in a more comprehensive approach. With the theoretical conceptualisation above in mind, it is now time to examine gamification in context, namely in education.

2.2 Gamification in education

2.2.1 Theory

Over the past few years, several theories of how gamification could be combined with education have been presented. Although gamification had not yet been conceptualised, Gee (2005) listed twelve good principles of learning, indicating the points where game elements could be used in education. Since then, he and several other authors have refined such principles and broadened their scope.

Most recently, Kapp (2012) has explored several learning domains and how game thinking could increase these types of knowledge. Firstly, *declarative knowledge*, i.e. knowing facts and relations between facts would benefit from the possibility to replay tasks as much at needed. Moreover, embedding such knowledge into stories and actively looking for common denominators are claimed to aid learning. The mental grouping of ideas into *conceptual knowledge* could, likewise, be aided by the search for commonality, although memorisation should be replaced by allowing students to experience the notions or examples they are trying to learn. The acquisition of *rule-based knowledge* similarly requires experiencing the effects of something not adhering to the rule for the best results. In addition, all subsequent concepts should, when applicable, be related back to the rule. Rules are also present in *procedural knowledge*, but need to be complemented by an action by the user. To aid learning these skills, gamified activities should first clearly define each step and then include challenges to overcome one by one, preferably under demanding conditions (cf. section 2.1.1). Another suggestion is using tutorials, which are common in many games. Far from the concrete domains above, *soft skills,* such as leadership, are of a social nature and often based on principles. This context-dependency requires rigorous practice in various settings, especially when the effects can be experienced by the learner, for example through role playing. Moreover, education should, apart from teaching facts and skills, promote certain attitudes among the students, which is labelled *affective knowledge*. Here, one useful

game design element could be creating an immersive experience which requires the students to act on the desired beliefs, regardless of whether they truly agree or not. When students achieve success while adopting these attitudes, it is claimed that their own attitudes change. Furthermore, the positive effects of endorsements from highly esteemed characters, real or fictive, should not be underestimated. Finally, the *psychomotor domain*, the combination of thinking and physical movement, could effectively be improved by continuous practice combined with various opportunities to observe. While tutorials could be used in this case, they would not be as effective as with soft skills; instead, valuable learning results from the use of physical tools, so called "haptic devices", which provide instant feedback (p. 188). Despite successfully broadening gamification beyond PBL, few claims seem to be substantiated by empirical data, resulting in diminished validity. Nevertheless, the thorough description of several domains indicates where gamification could be possible and should be studied further.

While not presenting a new theory, Glover (2013) contributes to the field a number of pragmatic considerations for implementing gamification in education. Firstly, since the primary focus of gamification is motivation, the teacher has to assess whether motivation truly is the issue and not something else in need of a different treatment. Secondly, the behaviour to encourage and discourage needs to be identifiable and identified. Teachers should also consider whether the activity can be gamified, i.e. whether it could be divided into goals and sub-goals without distorting valuable content. Furthermore, it is vital to make sure that gamified systems are not interpreted by teachers or students as devices for grading; since increasing motivation and assessing knowledge are different aspects, they should be kept apart. In addition, the teacher must predict which students will be motivated and demotivated by certain game design elements, and, in such cases, consider having the gamified elements voluntary. Similarly, it is important to consider players' individual motivations and tailor rewards accordingly. Possibly, students could be offered to buy rewards of their own choice with points as currency. For clarity and fairness, there needs to be clear information regarding the maximum points on different activities, and these should be proportionate to the difficulty of, and time spent on, the task. By Marczewski's (2013a, 2013b) definition, this system seems to motivate mostly reward-driven *achievers*, although cleverly devised rewards might fit the preferences of other user types. Finally, Glover (2013) warns about reward inflation, which could threaten students' initial engagement with the system, and it is suggested that teachers only award achievements that require significant effort to complete.

With a firm affirmation that gamification should be implemented in teaching, complemented with a significant theoretical background, it is also necessary for teachers to appraise what empirical research has shown so far and interpret the effects of such studies.

2.2.2 Research

Several studies have been conducted on gamification in education. In an attempt to survey this body of knowledge, a recent review examined the available peer-reviewed empirical studies with a clear method section and explicit focus on gamification elements (Hamari et al., 2014). The survey, which encompassed eight databases, yielded nine articles within the educational field. Out of these, six were quantitative with group sizes ranging from 26 to 1031, one was qualitative with 11 participants, and two were of mixed methods with groups of 14 and 20. Only two studies used control groups. Overall, implementation was the standard method for collecting data, although this was often complemented by questionnaires. The majority of the studies looked at badges, leaderboards (possibly including points) and narrative stories, and examined how these affected engagement and enjoyment on a psychological level, and performance and learning outcomes on a behavioural level. In conclusion, while four studies lacked clear indications, five were reported to show partially positive results.

Despite not giving detailed descriptions of the results and methods used, Hamari et al. (2014) do adequately survey research so far by indicating trends from these studies. It is also clear that more game design elements need to be examined and results corroborated with larger populations; since the majority of the studies were conducted on fairly small experimental groups without any control groups, generalisations lack validity. Moreover, the preference for quantitative studies highlights the need for qualitative insights in order to accurately measure the effects of gamification in education.

There are, however, a number of additional empirical studies available. These may have been excluded from Hamari et al.'s (2014) by not appearing in any of the eight databases surveyed, or due to the restrictive search criteria. A likely result of the former case, these peer-reviewed studies may well contribute further to the current body of research and will be analysed in terms of their method, main takeaways and possible weaknesses.

Cronk (2012) investigated whether the implementation of a virtual tree in a management information systems course at college level would increase student engagement in class discussion. As students interacted with the class activities according to certain criteria, leaves and other ornaments were added to their personal tree. Since the trees were

publicly displayed, they also acted as leaderboards. A questionnaire by 27 out of 28 students showed that 82% felt that the virtual tree had increased their engagement, and 77% reported the main motivators to be the "sense of fun, friendly competition and status or peer recognition of achievement" (p. 314). The author also claims to have perceived an increase in students' engagement with tasks in general, while admitting its limited generalizability. Furthermore, it is reported that some students did not understand the virtual tree, which probably skewed the results further and highlights the importance of clarity when introducing new systems. In conclusion, while there seems to have been some increased engagement from the virtual tree in this context, many basic methodological criteria were not accounted for, and, therefore, the usefulness of the results is very limited.

Lin (2014) also implemented an achievement-based system, but in one middle school and one high school class. The goal was to explore whether student performance would increase and whether assessment would become more objective compared with regular education. The system awarded points for positive behaviour and deducted points for negative behaviour. These points could then be used to buy certain benefits. Unfortunately, several key methodological circumstances were not accounted for, such as the number and composition of students in the classes. Furthermore, the rationale behind allowing students to use points to "Raise Quarter Grade by one Letter" and deducting points for "Not Staying on Topics" was surprisingly non-existent (pp. 1773-1774). It could, conversely, be argued that such a system is counterproductive to objective grading and student encouragement respectively. Main takeaways reported by students were it being a "fun system" and "a good addition to [their] learning" (p. 1776); nevertheless, it is impossible to draw any such conclusions, since the representativeness and anonymity of the questionnaire were unaccounted for. However, the ideas of class achievements and rewards for positive out-of-class behaviour are interesting points to consider for future research.

Similar to Lin (2014), Goehle (2013) integrated points, levels and achievements into the mathematics homework programme *WeBWorK* to increase student engagement. For every completed problem, points were instantly added to the students' score, and as they reached certain levels they were awarded special titles. Thus, the achievement system was "constructed to reward students for practising good homework habits" (p. 240). Unearned badges and level titles were also displayed, allowing students to track their goals as well as past achievements. The results were evaluated qualitatively through a voluntary survey in which 29 out of 60 participated. Almost all reported using the system for tracking progress and striving to earn more achievements, indicating that "at least half of the students using the

[achievement] system found it engaging" (p. 242). Moreover, provided samples of student responses indicated that the possibility to track their progress as well as being rewarded for hard work was motivating. However, there were no reported benefits to the students' learning outcomes and few issues were discussed. Moreover, since the methodology was not described to such an extent that replication would be possible, and since it was a qualitative study, the generalizability of the findings are limited; although, the student responses seem to indicate motivational gains from using an achievement system.

Another qualitative study, this time on two independent college courses, focused on the effects of introducing points, leaderboards and an overarching narrative structure over six weeks, with an optional extension (Nicholson, 2013). This system quickly grew to be the preference of a few high-achievers while many others were demotivated, possibly by the "very little chance of upwards mobility" (p. 2) (cf. section 2.1.2). At the end of the period, students even voted to change the system, and to focus more on the overarching narrative and individual goal-setting instead. The narrative was also described as the most successful element by engaging learners to take on identities and perform tasks in context (cf. section 2.1.1). On the other hand, using points for grading was firmly dismissed, since acquiring higher grades in this system required finishing optional assignments and focused on quantity over quality. Nicholson (2013) therefore suggests that all assignments be obligatory, while allowing students to choose freely between alternatives instead, and concludes that gamification should "support and encourage the weaker students" (p. 6). The weakness of this study is the lack of clarity on how the students' thoughts were collected and the evidence seems anecdotal. Furthermore, questions could be raised regarding the ethics of changing the gamified system mid-term, when many students had invested much in it. In all, the main takeaway from this study is the prospect of using a narrative structure in addition to other game mechanics.

In summary, research on gamification in education indicates positive motivational gains limited to specific contexts. Furthermore, there is a tendency to study easily implementable and observable game elements, such as PBL, which needs to be broadened in the future, for example with narrative structures. Consequently, it becomes apparent that research within various contexts is required in order to substantiate claims about gamification as a general method. In the following section, one such context will be examined: ELT.

2.3 Gamification and ELT

The use of Gamification in ELT is very alive, but not well researched. From Hamari et al.'s (2014) review it could be concluded that no peer-reviewed empirical studies on the implementation of gamification in ELT seem to have been published. This significant gap in research needs to be filled in the coming years in order to ensure informed use within educational contexts. Currently, teachers looking for practical guidance can either seek to adapt on their own the theoretical aspects of gamification to the local curricula, teaching principles and students' needs, or they could access the plethora of resources available on the Internet. To present a comprehensive analysis of this material is beyond the scope of this review; however, in order to exemplify currently available options, some common types of resources will be described through the previously outlined theoretical framework.

Firstly, teachers could turn to *semi-relevant articles*. These may be relevant in theory, but lack empirical evidence from actual implementations of gamification in the English language classroom. For instance, DuBravac (2012) has described some applicable game mechanics in relation to second language acquisition in particular. It is argued that PBL could be used, with some reservations regarding the motivational benefits of leaderboards, as long as the implementation is comprehensive and allowed to take time. Such a system would be motivating for *achievers*, who desire something to aim at, as well as *free spirits*, who enjoy exploring newly unlocked content (cf. section 2.1.1). As a result of the strong motivational effect, DuBravac (2012) suggests that teachers opting to remove PBL systems at a later stage need to carefully do so in order to avoid demotivation in students who had invested much time and effort (cf. section 2.2.2). Another possibility is introducing a goal and achievement-based system which encourages *competence* by conveying progress directly and instantly to the students (cf. section 2.1.1). A concrete example would be rebranding tasks as quests, with clear objectives that involve developing or using certain language abilities to complete, either individually or by cooperating. One step further in encouraging collaboration is rewarding students for providing their peers with "help and feedback, sharing awards, and evaluating feedback given by others", which is claimed to be similar to practices in social media (p. 88). In relation to language learning, *appointments* are proposed as a valuable new element. It rewards short but frequent interaction with the content, and this feedback is claimed to increase language retention. While the motivational effects of such feedback can be found in the framework (cf. section 2.1), increased retention is not empirically substantiated by either DuBravac (2012) or the literature reviewed. In the end, some pitfalls of gamification are

briefly discussed, such as frustration with the lack or excess of rewards as well as possible detrimental effects on intrinsic motivation. These are seen as the result of an "unbalanced system" rather than the mechanics themselves (p. 92). Meanwhile, modifiers, i.e. boosting rewards such as the use of dictionaries during tests, are encouraged – a practice which would inherently distort the fairness of assessment. In summary, most of the arguments outlined, although not often explicitly connected to ELT, seem to be anchored to the theoretical framework to some extent, and could, therefore, be valid and useful for gamifying ELT. However, until these points have been corroborated and their pitfalls have been explored by empirical research, it is a leap of faith to recommend any educational scenarios on this basis. Consequently, such articles may, for now, only serve as sources of inspiration for teachers, encouraging testing, not immediately implementing, gamification.

Secondly, there are *advice websites* that clearly aim to aid teachers seeking information. For example, the TESOL International Association has provided a resource to help familiarise teachers with gamification (Healey, 2012). After a brief introduction to the field, some game mechanics and their current equivalents in the non-gamified classroom are described, followed by a list of other game elements that could be implemented. For example, *countdowns*, very limited time-frames, could be used in any activity to level out individual differences and allow more students to succeed, although this connection is not elaborated upon in great detail. *Levels* could be used for rewarding good behaviour and perhaps even be used for grading. Visually illustrating *progression* is also argued as being vital in making the abstract language teaching goals more concrete. Furthermore, *ownership*, the feeling of control could be reached by allowing students to choose topics for tasks and by asking them to publish their work outside of class. Moreover, it is suggested that project-based and task-based learning embody the search for meaning through group and single player quests found in gamification. At the end, several sources are provided, albeit not with specific reference. However, the theoretical framework shows that many of these ideas could be considered gamification (cf. section 2.1.1). Allowing students to choose topics is well in line with our innate need for *autonomy*, collaborating on projects satisfies the need for *relatedness* and would probably motivate both *socialisers* and *philanthropists*, and publishing work would certainly appeal to those closest to *achievers* on a scale, but not as much to *philanthropists*. On the other hand, there is no clear logic behind the proposed use of levels for grading purposes, since points and levels only measure behaviour and progression, not the learner's actual knowledge (cf. section 2.2).

While the TESOL webpage is based on theory, there are other sources that may not be. For instance, *Digital Play* essentially compiles information regarding the use of "computer games and other digital resources for language learning" (Mawer & Stanley, 2014, para. 1). A search for *gamification* on this site provides links to proposed language lessons, informational websites, as well as various other external sources. Although the information might be relevant, there are rarely any references to either theories or research, and no critical evaluations are made. When using such pages, the teacher looking to gamify has to consider carefully the possible implications of any methods suggested.

Thirdly, there are *websites on gamification in use*. One such example is provided by Dodgson (2012), who in his blog describes his implementation of achievements in the classroom. First, the positive class behaviour to reinforce was decided together with the students. From there, goals were devised, and, subsequently, also rewards. The latter were then translated by the teacher into succinct titles with a touch of humour. The attainment of the achievements would reward the class as a whole with higher levels. Although awarded manually, it seems that accomplished achievements were somehow possible for the students to track, which was appreciated. Several aspects can be connected to the theoretical framework (cf. section 2.1.1). For example, students were *co-creators* of the content and there was a levelling-up progression with the ability to track past achievements. It also seems that having achievements on a class level removed the predicted issue of competition between students. However, it is wise to keep in mind the cautions against using game elements in isolation, achievements included (cf. section 2.1.2). Moreover, the only theoretical foundation is a suggestion from the *Digital Play* website and few details are provided about the methods used. In all, while such implementations may or may not work in individual classrooms, it is not sufficient to generalise by scientific standards.

In conclusion, there is a large quantity of information available on the Internet, with varying degrees of underlying theory and research. The lack of sources, clear procedures, and, most prominently, empirical research poses serious questions regarding the validity of almost any gamified approach to the English language classroom. While these resources, in line with gamification theory, may serve as an inspiration and encourage local testing, much research is needed before gamification can be considered a comprehensive methodology in ELT.

3 Conclusion

This review began by describing the digital natives and hypothesised the needs of the current generation. As a possible tool in meeting these future demands, gamification was presented

and conceptualised in the first part, with emphasis on certain game design elements. The second part explored gamification in relation to education and English Language Teaching (ELT). In general, there seems to be sufficient evidence of increased student motivation, while not demanding excessive effort from the teacher, to suggest implementing gamification theory in the classroom. In this conclusion, the main results will be elaborated upon and some issues will be discussed.

Firstly, several contemporary theories, such as Self-Determination Theory (SDT), were examined. In arguing from different viewpoints and by looking at various aspects of gamification, these theorists were all seen as complementing the central definition by Deterding et al. (2011). One area with significant overlaps was the focus on points, badges and leaderboards (PBL), and a brief description of these as well as some points of criticism was provided. While it was concluded that being in control of mastering goal-oriented tasks and receiving clear, instantaneous feedback seem to be successful motivators, research has to examine the possibilities of many more game design elements, especially those not easily testable. Furthermore, for gamification to evolve into a comprehensive methodology, theories and game design elements need to be integrated and researched in different contexts and over longer periods. One starting point for such an endeavour could be to confirm and refine Marczewski's (2013a, 2013b) gamification user types.

Secondly, the current state of gamification in education was established with a theoretical focus on Kapp's (2012) most recent work on knowledge domains, complemented by Glover's (2013) practical considerations. From there, an overview of the available studies was presented, pointing out serious gaps in the current state of research, such as the lack of qualitative studies and sound scientific methodology. While once more stressing the need for research into various game design elements, there were several indications of motivational gains from using gamification mechanics in education, and it could, therefore, be argued that teachers should try to implement some gamified elements in their classrooms. Issues still to be resolved include whether and how PBL should be used, especially since their competitive nature seems to influence some students negatively. Furthermore, there is an apparent conflict between the individual need for autonomy and noncoerced initiation on the one hand, and the externally imposed gamified systems on the other – a problem which needs to be resolved in both theory and practice. One final note is that many studies were dependent on websites and programmes for the implementation of gamification in school, and the effectiveness and adequacy of these should be evaluated by future research.

Thirdly, due to the absence of empirical studies, some online resources regarding gamification within ELT were evaluated through the theoretical framework. The conclusion is that the area is scientifically uncharted, with teachers of English being left to navigate without a compass. Thus, the limitations of the current state of research are even greater in this context. Additionally, valuable information could be gained from investigating how various game design elements could be combined with existing theories and methods of ELT. Examples of possible areas for such research include measuring the benefits of using quests as task-based learning and saving progress in portfolios. Similarly, the core concept of clear, immediate feedback within gamification would stand to benefit from validation from existing research on feedback.

Lastly, while points used for grading and leaderboards for competition could possibly impact the classroom negatively, achievements appear to be useful and should be explored further, especially class achievements not focusing on competition but cooperation, which is essential today. Furthermore, among many elements in need of study, the narrative structure could possibly connect well to most concepts of SDT and ELT, and would be an interesting topic for future research. Finally, when implementing gamification methods from marketing in school, the importance of both ethical and pedagogical caution cannot be stressed enough. After all, education is not about selling, but about learning.

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