
GAMIFICATION IN MARKETING: ASPECTS INFLUENCING
INTENTION OF ENGAGEMENT AND BRAND ATTITUDE

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Dissertation
Master in Marketing

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2019

Acknowledgements

I would like to express my special appreciation and thanks to prof. Maria Antónia Rodrigues and prof. João Proença for their support and attention during the entire process. I would also like to thank prof. Luciano Moreira, prof. Miguel Pereira and prof. Pedro Campos for their help and availability.

I especially thank my family for motivating me, encouraging and supporting all my choices.

Abstract

Gamification is the application of game elements and mechanics in non-game context in order to boost loyalty, engagement and motivation. Nowadays this technique is more and more commonly used in various contexts. The market offers a number of gamified services that people use every day for multiple purposes, sometimes for pure pleasure, fun or because the applications support their goals and help them to progress in skills development. The goal of this dissertation is to study gamification in marketing context and to examine what aspects of gamification influence engagement and brand attitude. This study derives from technology acceptance and motivations literature and tests a model based on TAM and TRA adapted for marketing context. We used a quantitative methodology in order to examine users of Duolingo who regularly interact with the service to learn a language. The results of the statistical analysis reveal that perceived usefulness, perceived social influence and perceived enjoyment have a significant influence on intention of engagement. Additionally, we also concluded that perceived usefulness, perceived ease of use, perceived enjoyment and intention of engagement have a significant effect on brand attitude. This work can be useful for designers who create gamified experiences and contributes technology acceptance and marketing literature.

Keywords: gamification, brand attitude, usefulness, ease of use, engagement, playfulness, social influence

Resumo

A gamificação é a aplicação de elementos e mecânicas de jogo em contextos de não-jogo, promovendo a fidelização, o envolvimento e a motivação. Esta técnica é, hoje em dia, cada vez mais utilizada em diferentes contextos. O mercado oferece um grande número de serviços gamificados usados pelas pessoas todos os dias com diferentes objetivos. Quer para lazer ou diversão ou porque as aplicações ajudam a alcançar os seus objetivos e a desenvolver as suas capacidades. O objetivo desta dissertação é estudar a gamificação num contexto de marketing e examinar que aspetos da gamificação influenciam o envolvimento e a atitude perante a marca. Este estudo emerge da bibliografia de aceitação da tecnologia e motivações, testando um modelo baseado no TAM e TRA adaptado para um contexto de marketing. Usamos uma metodologia quantitativa para examinar utilizadores da Duolingo que regularmente interagem com o serviço de forma a aprenderem uma língua. Os resultados da análise estatística revelam que a perceção de utilidade, perceção da influência social e perceção de diversão têm uma influência significativa na intenção de envolvimento. Adicionalmente, concluímos que a perceção de utilidade, perceção de facilidade de utilização, perceção de diversão e intenção de envolvimento tem um efeito significativo na atitude perante a marca. Este trabalho pode ser útil para *designers* que criam experiências gamificadas e contribui para a teoria da aceitação de tecnologia e marketing.

Palavras-chave: gamificação, atitude perante a marca, utilidade, facilidade de utilização, envolvimento, diversão, influência social

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Chapter I Introduction

Development of technology and internet over the years has completely changed our world. Technology became essential in business, education, healthcare and entertainment. Access to information and education became available online and started expanding very quickly. A dynamic development and growth impacted customers' expectations and business became more challenging for the marketers who are forced to provide creative solutions and outstanding values. Customers became sensitive to design, ease of use and also certain playfulness and amusement when using products or services. This changing environment has brought a design focused on creating appealing and entertaining experiences to customers (Hall & Toke, 2018).

A successful development of numerous applications that involve game features has given a rise to a new trend: gamification, which became a common practice (Yang, Asaad, & Dwivedi, 2017). Gamification refers to a use of game elements to engage customers, to improve employee task performance, to increase usefulness and to reinforce motivation. Gamification has been applied to various contexts, for example to education, fitness, wellbeing, healthcare, travelling, sustainable consumption and consumer behaviour, crowdsourcing and data-collection (Hamari & Koivisto, 2015).

According to Hamari and Koivisto (2015), users perceive gamified services to be more advantageous, pleasant and helpful in capturing attention. Mentioned above advantages encourage people to use gamified services. Additionally considering the psychological and social gains from the traditional form of games, gamification positively influences motivation and supports learning and development for individuals (Coronado, 2014).

The major difficulty at this moment is that most of the studies are quite theoretical and they lack empirical evidence. A majority of studies focuses on the excellent outcomes of using gamification and they typically advocate that gamified systems present significantly better results than non-gamified ones. Commonly gamification is considered an effective tool to engage and motivate users (Rapp, Hopfgartner, Hamari, Linehan, & Cena, 2019).

The concept of gamification has been consequently promoted to eventually become an essential part for organizations to create customer loyalty and drive their marketing (Burke,

2012). The concept has been examined in human-computer interaction studies and in design contexts, but it is considered a powerful tool in marketing settings. Interestingly, marketing literature is not very rich in sources which would focus on gamification. At this point, literature is missing studies that explain customers' perception of gamification in the marketing context and its effects on brand (Yang, Asaad, & Dwivedi, 2017). Marketeers consider gamification a powerful tool to become closer to their customers, but the factors that influence positive results are not always clear. The concept is often applied in services therefore it is necessary to bring it in line with marketing and services literature (Huotari & Hamari, 2017) and gather insights into factors influencing success of gamification (Hamari, Koivisto, & Sarsa, 2014).

1.1. Research objectives and questions

This study aims to examine customer's perception of gamification in marketing context. The objective is to understand what aspects result in engagement and regular use of a gamified service as well as positive feelings about the brand.

This dissertation addresses users of a successful gamified service and it aims to answer the following questions:

1. What aspects influence intention of engagement with a gamified service?
2. What aspects influence brand attitude towards a gamified service brand?
3. Does intention of engagement influence brand attitude?

In order to answer these questions, we will examine the effect of enjoyable experiences, usefulness, ease of use and perceived social influence on intention of engagement and brand attitude and we will explore the relationship between engagement and the attitude towards a brand.

Chapter II Literature Review

A literature review was the first stage of development of this study and it helped to understand the relevant theory and existing concepts. This chapter integrates the definition of games and gamification, game design elements and the most important variables considered further in the study: perceived ease of use, usefulness, enjoyment, social influence, brand attitude and continuous use intention.

2.1 Game and gamification definition

Game industry has been very successful over the years thus it gave the foundation to the accumulative interest in applying game mechanics and design in other contexts. A common association with games is fun, playful activity with purely hedonic characteristics. Table 1 presents various definitions collected by Juul (2003), who gathered seven existing definitions, analysed their similarities and differences and based on this proposed his idea of game. The author concluded, that definitions from diverse researchers sound a little different, but they have much in common because they consider similar aspects articulated in different ways. While some authors mention conflicts, others refer to goals. Some discuss rules while others reference formal systems. Juul (2003) derived from all of them and proposed the following definition: "A game is a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable" (Juul, 2003, p. 5).

Author	Definition
Johan Huizinga 1950	"[...] a free activity standing quite consciously outside "ordinary" life as being "not serious", but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means."

Roger Caillois 1961	"[...] an activity which is essentially: Free (voluntary), separate [in time and space], uncertain, unproductive, governed by rules, make-believe."
Bernard Suits 1978	"To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favour of less efficient means, and where such rules are accepted just because they make possible such activity."
Avedon & Sutton Smith 1981	"At its most elementary level then we can define game as an exercise of voluntary control systems in which there is an opposition between forces, confined by a procedure and rules in order to produce a disequilibria outcome."
Chris Crawford 1981	"I perceive four common factors: representation ["a closed formal system that subjectively represents a subset of reality"], interaction, conflict, and safety ["the results of a game are always less harsh than the situations the game models"]."
David Kelley 1988	"A game is a form of recreation constituted by a set of rules that specify an object to be attained and the permissible means of attaining it."
Katie Salen & Eric Zimmerman 2003	"A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome."

Table 1. Definitions of game adapted from Juul (2003).

Besides playful activities, literature also identifies serious games, which are created for a different purpose than entertainment. Serious games are fully developed computer or video games that are not used for entertainment reasons but to teach or train people. They are used commonly in education, management, healthcare or military (Susi, Johannesson, & Backlund, 2007). Deterding et al. (2011) indicate that "Gamification may easily be confused with serious games, which are games made for non-entertainment purposes". In the contrary to serious games, gamification applies only single elements from games (i.e. ranks or achievements) and implements them into non-game applications to enhance marketing activities, but this will be further explored later in this dissertation.

The term gamification was originally created by Nick Pelling in 2002, but it started gaining more popularity in academia only several years later, around 2010 (Liu, Santhanam, & Webster, 2017). The ancestries of the concept of gamification and the curiosity in the topic go back to 1982. At that time, Thomas Malone studied why computer games were attractive to users and what game features could be applied to non-game interfaces with the same big success (Malone, 1982). In his work Malone (1982) concluded that challenge, fantasy, multiple layers of complexity, productive and involving metaphors can be incorporated to non-game interfaces to make them more successful and significantly improve attractiveness.

With time gamification has been gaining more and more attention but there is not only one definition of this concept, but more (Huotari & Hamari, 2017) One of the best known definitions states that: “Gamification is the use of game design elements in non-game contexts” (Deterding, Dixon, Khaled & Nacke, 2011) and another states: “Gamification is application of game characteristics or features to non-game context” (Robson , Plangger, Kietzmann, McCarthy, & Pitt, 2015).

In the context of services marketing, Hamari and Huotari (2017) propose that: “Gamification refers to a process of enhancing a service with affordances for gameful experiences in order to support users’ overall value creation”. This point of view draws attention to the task that gamification performs instead of the elements that it’s built of. The same authors also state that “gamification is a form of service packaging where a core service is enhanced by a rule-based service system that provides feedback and interaction mechanisms to the user with an aim to facilitate and support the users’ overall value creation” (Huotari & Hamari, 2011).

Gamification is used as a tool to increase customer’s satisfaction, benefits, loyalty and engagement. Gamified experiences can also strongly influence behaviours and encourage desired actions (Blohm & Leimeister, 2013) therefore nowadays plenty of organizations use gamification to stimulate customer motivation, improve employee performance, inspire and promote healthy lifestyle and fitness or motivate pupils and students to learn. (Deloitte, 2013).

Although most of the existing studies draw attention to successful stories of gamification, there is also a discussion about the side effects and misuse of the technique. Hyrynsalmi, Kimppa, & Smed ran a comprehensive literature review to understand the side effects of gamification. They found out that applying game elements to provoke desired behaviour may

be unethical, harmful or cause addictions if used inappropriately (Hyrnsalmi, Kimppa, & Smed, 2017). It is remarkable that literature is missing critical observations on gamification and its' negative side effects, for example demotivation. It is definitely worth to understand what are the benefits and drawbacks of this concept (Rapp, Hopfgartner, Hamari, Linehan, & Cena, 2019; Leclercq, Hammedi & Poncin, 2018).

2.2 Game elements

Game elements are the key features for gamification design and they can be defined as construction blocks or the games (Deterding, Dixon, Khaled & Nacke, 2011). Game design elements are visual illustrations of feedback, points, ranks or badges situated in some specific context, with opportunity to progress by collecting different levels and achievement (Mekler, Brühlmann, Tuch & Opwis, 2017).

Points are one of the elementary components, which can be collected by users over time, when executing specific activities and tasks. They are customarily used as a motivation tool to reach desired goals and levels (Sailer, Hense, Mayr, & Mandl, 2017). Points are easy to evaluate, therefore they facilitate the task of keeping the score and of comparing progress between participants. Points are perfect means for providing feedback, which is a key component of good game design (Hall & Toke, 2018).

Werbach and Hunter (2012) define badges as “a visual representation of an achievement with the gamified process”. Badges are the rewards for accomplishments representing users' uniqueness. According to Hamari, Koivisto and Sarsa (2014) badges are one of the most commonly used elements and they can increase user activity and motivate the users to choose specific challenges in order to earn desired recognition. Gaining badges might also symbolize being a part of a social group with specific attributes and status (Werbach & Hunter, 2012).

Performance graphs and feedback presented on a progress bar are used to control the stages and achievements. They provide tracking of player's own performance over time focusing on presenting the improvement. According to motivation theory, this element supports mastery orientation, which encourages further progress (Sailer, Hense, Mayr, & Mandl, 2017).

A leader board ranks players depending on their success. It usually is a chart which presents a comparison of achievements of users who take part in a competition or a list that ranks the users according to a certain variable, for example, the number of points they gained. Leader boards are meant to motivate users to progress, however the real motivational power of leader boards is debateable. A leader board works as a good motivator whenever there are just a few points missing to progress to the next level, but creating a social pressure may have a negative influence on users who are on the bottom of the leader board. The effectiveness of this element is more likely to exist whenever the competitors are on a similar level. Otherwise there is a risk that users will feel discouraged and the effect will be negative and hold users or player from active participation (Sailer , Hense, Mayr, & Mandl, 2017).

Another widely held game element is self-representation with avatar, which is a personalized character. This element is commonly used in various kind of applications and services. By default avatars are designed or chosen by the users and they give players a chance to adopt or create their identity and are a way of self-expression in the context (Sailer , Hense, Mayr, & Mandl, 2017).

One additional element of the game is a narrative context which refers to the stories in the background. The narrative context is not related to the achievements of players, it only gives the game a character or a meaning providing for example a story in the background of the core activity. It may be an element of augmented reality, which helps to stimulate some activity, for example running (Deterding, Dixon, Khaled, & Nacke, 2011; Sailer , Hense, Mayr, & Mandl, 2017).

2.3 Gamification and motivation

Motivation is a crucial element for people's actions, it is an impulse, which provokes doings and influences behavioural decisions. People who feel a desire and head towards a specific goal or achievement are motivated, while people who do not feel this energy nor impulse are considered unmotivated (Deci & Ryan, 2000). One cannot generalize the strength of motivation, because it deepens on each person. People not only have various amounts of motivation but also different source of motivation. A person who decides to learn a language may be motivated to study in order to gain new skills because he or she sees a potential utility

in it or because learning could result in receiving a good grade or gaining points (Deci & Ryan, 2000)

According to self-determination theory (SDT) by Edward L. Deci and Richard Ryan it is possible to distinguish between divergent types of motivation based on the reasons that drive the actions. The psychological, innate needs which foster behaviours are the following: competence- the need to produce desired outcomes; autonomy- the need to feel in charge of one's behaviour; and relatedness- the desire to be connected with others. Subsequently, the SDT distinguishes between intrinsic and extrinsic motivations. With extrinsic motivation a person tends to perform a task, or participate in some activity in order to get rewarded or to avoid negative consequences, for example, a punishment from the external world. Intrinsic motivation, on the other hand, has to do with willingness to perform an activity purely because of enjoyment or fun (Deci & Ryan, 1985). Users' engagement in games is associated with intrinsic and extrinsic motivations that drive people for action. Gamified services are able to incorporate both kinds of stimulation to capture users' attention depending on the desired outcome (Coronado, 2014).

Firms apply gamification in order to influence stakeholders. They intend to engage and manage employees and customers to achieve desired goals and boost desired behaviours. (Liu, Santhanam, & Webster, 2017; Hamari & Koivisto, 2015). Through application of gamification to services organizations can build an emotional connection with players and encourage them to work towards desired goals (Robson, Plangger, Kietzmann, McCarthy, & Pitt, 2015).

Successful gamification helps to provide positive emotional outcomes through stimulation of motivational mechanisms. Effective gamified services support positive emotional outcomes and thanks to this, stimulate the creation of habits which result in repetitive actions. This suggests that engagement and continued use is a matter of habit which are created over time (Robson, Plangger, Kietzmann, McCarthy, & Pitt, 2015).

In the context of gamification and motivation is also important to look into technology adoption and acceptance literature. The literature focused on technology adoption identifies two groups of services and systems, based on the purpose of their use and depending on the tasks they have to perform. The first group are services, which aim to support achievement of goals, which are external to the service itself. They are considered utilitarian (Davis, 1989;

van der Heijden, 2004). On the other hand, the services which are used for fun and enjoyment are known as hedonic services (van der Heijden, 2004). Hamari and Koivisto (2015) emphasize that gamified services can influence motivation and engagement thanks to the hedonic and utilitarian benefits they deliver, therefore they can be powerful marketing tools.

According to Robson et al. (2015) all firms desire to motivate and involve their stakeholders and their target group could be various, for example customers, employees, voters or students and many others. Gamification is a method that helps them to achieve this through application of mechanisms from gaming industry to create an ambience that can motivate and engage people in non-game settings (Robson et al., 2015).

2.4 Perceived usefulness and ease of use

Perceived usefulness and ease of use, have their roots in technology acceptance literature. Perceived usefulness is traditionally seen as the evaluation of the utility of a specific system, especially in work environment where it is expected to perform specific tasks (Davis & Venkatesh, 2000). The evaluation of usefulness focuses on assessing whether the system can help to complete a task or a job, for example making the process easier, faster and more efficient (Davis, 1989).

According to studies on technology acceptance, perceived ease of use reflects “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989). Perceived usefulness has been found the most important determinant of acceptance in work environment (Davis, 1989). An application or a service, which is considered free from obstacles, becomes more interesting to users through promotion of a sense of efficiency, this means they are more likely to continue using it (Hamari & Koivisto, 2015).

Perceived ease of use is an important factor that influences people's intention or attitude, and has a significant influence on customer satisfaction (Yang, Asaad, & Dwivedi, 2017). It is confirmed, that ease of use plays an important role at the early stage of adoption, when one needs to put the efforts to learn and use a technology. User's evaluation of the difficulty in acquiring this new technology is essential for acceptance and further engagement (Davis, Bagozzi, & Warshaw, 1992; Venkatesh V. , 2000).

A recent study which addressed school students, focused on attitudes towards playing educational games reveals that ease of use does not contribute to student's attitude towards the games (Camilleri & Camilleri, 2019), however in work environment, ease of use plays a key role for adoption and use of a system (Davis, Bagozzi, & Warshaw, 1992). This adds to the discussion on ease of use, as there are various contradicting studies.

Engaging customers with gamified activities can be useful to increase brand awareness, change customers' brand attitude and influence the intention of purchase. There is also an evidence that perceived usefulness affects brand attitude and can predict people's attitude towards a new system or technology. More and more companies are applying gamification to influence their consumers' attitudes and behaviours (Yang, Asaad, & Dwivedi, 2017).

2.5 Perceived social influence

In the technology adoption literature, the social influence is described as a subjective norm, which corresponds to an individual's perception of how important others consider some specific behaviour or action, whether they recognize it and if they expect someone to perform it (Ajzen, 1991; Hamari & Koivisto, 2015). Subjective norm has been confirmed to be reliable predictor of human behaviour and attitudes (Ajzen, 1991)

Davis and Venkatesh (2000) examined perceived social influence in a workplace environment. They observed people's behaviour and attitude towards a mandatory use of a system and towards a voluntary use of a system. The authors concluded that social influence has a significant impact on both when considering a mandatory use of a system with utilitarian goal. This means that people are likely to use the system because it is clearly expected from them and it serves an external goal. On the other hand, the authors concluded, that social influence does not significantly impact attitude and intentions of use when the system is voluntary. This suggests that people do not rely on the social aspects when evaluating whether they want to use a system, in such case they rely more on their intrinsic motivations. Additionally, over time and with experience, social influence becomes a less and less important factor influencing continued use and usefulness (Davis & Venkatesh, 2000).

Lewis, Argwal and Sambamurthy (2003) also examined the influence of social aspects on the beliefs about the system and the use intention in a work environment. In line with Davis and

Venkatesh, they concluded that social influence has direct impact on the attitudes and the behavioural intentions which are influenced by attitude.

In gamification context, Hamari and Koivisto (2015) examined users of Fitocracy, an online gamified fitness service in order to understand what benefits motivate users to get engaged in gamification. The authors concluded that perceived social influence positively affects attitude, but not necessarily behaviour. This suggests that there could be a value- action gap which means that people express their enthusiasm about certain ideas or services because they find it desirable, but this attitude does not reflect in their actions. In other words, people express their support for certain ideas or behaviours but they do not act in accordance. Yang, Asaad, and Dwivedi (2017) suggest that there is a relationship between social influence and attitude, but it does not impact continued use intention.

Another study completed by Hamari and Koivisto (2013) was focused on examining how social factors predict attitude towards gamification and intention to continue using gamified services. Once again, they considered Fitocracy, the fitness tracking application. The results revealed that “social factors are strong predictors for how gamification is perceived and whether the user intends to continue using the service and/or recommending it to others”. The results indicate that attitude towards a gamification service is a solid determinant of user’s intention.

When interacting with the community, a customer hypothetically gets recognized by other users (Cheung, Chiu, & Lee, 2011; Hamari & Koivisto, 2015). As a consequence, a service becomes potentially more attractive when the user feels recognized (Hamari & Koivisto, 2015). Existing literature confirms, that people naturally seek for recognition and acceptance from the ones around them. Using a specific service and repeating particular behaviour can sometimes help them to gain such positive feeling. A service which provides desired social outcomes generates a positive sensation and, therefore, also the intention to continue using it (Hamari & Koivisto, 2015). This thesis assumes that the social aspect directly influences attitude and the intention of continued use.

2.6 Perceived enjoyment

Enjoyment refers to a positive feeling of pleasure when performing activities. According to Davis, Bagozzi, & Warshaw (1992) enjoyment is an intrinsic compensation obtained thanks

to the use of technology. These authors found that enjoyment significantly affects adoption intention, therefore they provided a solid evidence that enjoyment is an important factor that motivates people to practice some behaviours or ideas or quit them. Hernik and Jaworska (2018) believe that having a pleasant experience while learning is one of the crucial conditions for a successful learning process. They completed a study at the University of Western Pomerania, where they compared amusing classes and traditional ones and they concluded that students were happier and more engaged when classes were entertaining. It is evidenced, that good emotions can positively influence people's physical and psychological state, therefore people usually aim to perform tasks which they find interesting and which help them to maximize enjoyment (Hernik & Jaworska, 2018; Ryan, Rigby & Przybylski, 2006; Harwood & Garry, 2015)

Van der Heijden (2004) studied differences in acceptance of utilitarian and hedonic information systems and he confirmed that ease of use and enjoyment have more significant influence on adoption of hedonic systems, while perceived usefulness is more valuable for utilitarian ones. This is because utilitarian services aim to make the goal more efficiently achievable while hedonic services focus on providing intrinsic rewards and through enjoyment they promote engagement (van der Heijden, 2004).

Previous study focused on task performance proves that gamification positively influences work, motivation and engagement through feeling of accomplishment and enjoyment. (Cardador, Northcraft, & Whicker, 2017). It was concluded, that gamification has the power to engage because it incorporates "something borrowed – from video games, something cool – namely tasks that are more game-like, and thus more enjoyable" (Cardador, Northcraft, & Whicker, 2017) thanks to enjoyable experiences it generates positive effects on engagement with specific objects, for example brands or activities (Harwood & Garry, 2015; Cardador, Northcraft, & Whicker, 2017).

Yang et al. (2017) suggest that "perceived enjoyment of a new marketing system is closely related to the attitude towards that system, and people's attitude towards that system is also possibly related to their attitude towards the brand embedded in that system". This suggests that positive feelings towards marketing systems are linked with attitude and that this is likely to generate a positive attitude towards a brand of the system.

2.7 Intention of engagement and brand attitude

Attitude is a lasting overall evaluation of an object, people, events, issues and products. It influences consumers' behaviour, intentions and opinions (Madichie, 2012). The attitudes can be positive or negative and they can last for a long time and be influenced by various factors. The aspects that impact the attitude are for example communication, quality and experience and they can be altered over time (Madichie, 2012). Marketeers need to recognize consumers' attitudes in different contexts and to plan what measures to employ in order to make sure that users will adopt positive attitude towards an offer (Madichie, 2012). The psychology literature maintains that beliefs and attitudes related to a defined technology strongly influence intention to use it.

Attitude towards brands is a well-studied subject in marketing literature. According to Machado, Lencastre, Carvalho and Costa (2012) brand attitude is a relatively simple unidimensional construct, based just on the affect attached to a brand. The traditional understanding of brand attitude assumes that the attitude is based on three different dimensions: Affective- emotions and feelings towards the brand; Behavioural- intentions to act towards the brand; Cognitive- beliefs and thoughts about the brand (Seitz & Aldebasi, 2016). Literature also specifies, that brand attitude can be considered an affective reaction of audience to brand, which includes that the stakeholders feel that the brand is good or bad, favourable or not, wise or foolish (Najmi, Atefi, & Mirbagheri, 2012).

Literature indicates that engagement is related to user experience which delivers feelings of challenge, feedback, novelty, interactivity, user control. Nowadays, there are applications that evidence that when there is gamification involved, the collaboration level and willingness to engage and share information is very high (Coronado, 2014). Yang et al. (2017) examined the influence of attitude on engagement. Traditionally, the literature is focused on the contrary, however the study found positive effect of the intention of engagement on brand attitude in the context of gamification marketing.

Gamification in marketing is considered a very promising tool to engage and manage customers (Harwood & Garry, 2015). According to Lucassen and Jansen (2014) marketers have very high hopes for gamification, considering it an interesting addition to the marketing activities and brands because it increases brand awareness, improves attitudes and engagement through a positive interaction. According to the research of the same authors,

marketeers believe that gamification can help them to be closer to their customers and users of services, build loyalty and collaboration. However, is not clear how to build successful gamification. Lucassen and Jansen (2014) call attention to the fact that marketing literature lacks in studies focused on adoption of gamification in marketing, it does not provide answers on how to create successful experiences in various contexts and how do specific mechanisms really influence marketing outcomes.

Engaged customers are very desired by companies, as they demonstrate a stronger brand trust, loyalty and satisfaction. They are more likely to contribute to the development of services or goods, be a source of positive word of mouth that can attract other customers (Leclercq , Hammedi, & Poncin, 2018).

2.8. The summary of literature review

Game industry has been very successful during many years and this is what inspired designers to apply game elements and mechanics to non-game reality. Application of game elements like points, badges, leader boards, progress bars and others helps to improve attractiveness of services and applications and motivates users to perform specific tasks, take desired actions, progress and compete with others. Gamification positively influences usefulness and ease of use because it combines both hedonic and utilitarian aspects. Gamified services are able to increase the user's activity and motivations to work towards goals and also make processes more appealing interesting and enjoyable thanks to the entertaining elements.

The technology acceptance literature and human-computer interaction studies are quite rich in sources and analysis of benefits and mechanics of gamification. Technology acceptance literature is a good source of information about the influence of perceived usefulness, ease of use, social influence and enjoyment on adoption and attitudes towards new systems. There is a lack of studies that would evaluate the same factors in marketing context considering gamified service brands. There is a lot of opportunities to develop new concepts around gamification in marketing setting. It is worth to look into the marketing outcomes of using gamification, from the perspective of relationship marketing, customer loyalty and engagement. Gamification is widely applied by multiple organizations and recognized by marketers however there is a lack of studies that would prove that gamification is beneficial for marketing outcomes.

Chapter III Research

This chapter includes the description of the methodology, research model and hypothesis to explore, as well as the description of the platform of study, a language learning service that was examined in this dissertation. This chapter also contains the description of the process of data collection, the characteristics of a sample and conducted analysis.

3.1 Research model and hypothesis

In this dissertation we aim to identify the variables that influence customers' intention to engage with the gamified service and to explore the relationship between the engagement and the attitude.

From the historical point of view the antecedents of the Technology Acceptance Model (TAM) are in the Theory of Reasoned Action (TRA), a model that emerged in psychology and was proposed by Fishbein and Ajzen (1975). According to these authors before people take any actions, they do consider their consequences and implications. Human activity is rational and logic and the information that people can capture is evaluated and creates attitudes and behavioural decisions.

According to TAM, there are two major predictors of intention of use: perceived usefulness and perceived ease of use. According to Davis (1989) perceived usefulness is the belief that using a specific system improves work performance, and on the other hand, perceived ease of use is a belief that using the system is free from effort (Davis, 1989). Both elements are included in the model considered in our study. They allow to understand the user's perception on usefulness and ease of use of the gamified system. TAM was criticized by latter researches for omitting some important factors, among them social influence (Davis & Venkatesh, 2000). Social aspects in the literature focused on technology adoption are usually considered as perceived social influence and it refers to what others think about the target behaviour (Hamari & Koivisto, 2015).

The research model used in this dissertation was defined by Yang, Asaad and Dwivedi (2017). It is based both on TAM and TRA, however it intends to examine gamification in the marketing context. Instead of the attitude towards a system, this model incorporates brand attitude and the intention to use is replaced by intention of engagement. Intention of

engagement in this context can be understood as the willingness to continuously use gamified service. Social influence and enjoyment are included in the model as additional factors to better understand the use of gamification (Davis & Venkatesh, 2000).

Yang, Asaad and Dwivedi tested the same model in the context of a game created by Oreo (a popular cookie brand) with embedded product brand. They invited college students to play a game associated with these cookies and immediately after this activity they asked them to complete a survey which would help to understand their attitude towards Oreo brand and behavioural intentions towards the game after the playful experience.

In our study, we are testing the same model and hypothesis but in a different context. First of all, we are applying this model to an utilitarian service, secondly the focus is on examining a different target group- customers who actively and continuously have been using the service. Third, gamification in this dissertation is perceived as a form of service packaging, in which the service core is enhanced by rules, feedback, progress, rewards and recognition, as defined by Huotari and Hamari (2011).

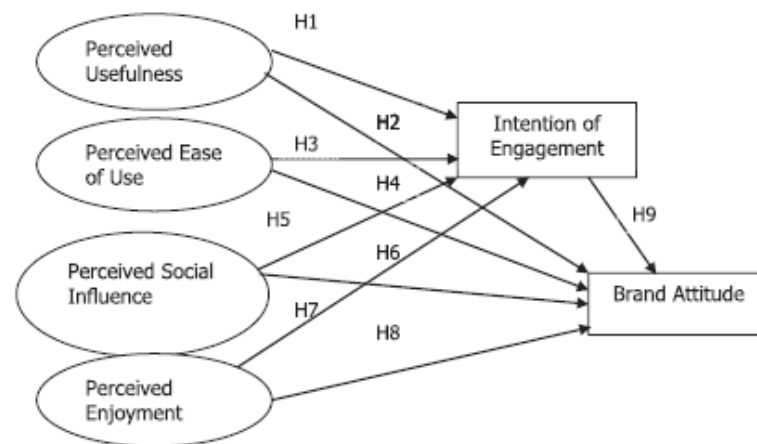


Figure 1. Research model used in our study adapted from Yang, Asaad, & Dwivedi (2017).

Based on the literature review we formulated several hypothesis which are presented in a short summary:

Technology acceptance literature confirmed that perceived usefulness has a positive effect on intentions and attitudes and is one of critical factors which determine whether people decide to use a system or not (Davis, 1989). According to Hamari and Koivisto (2015)

Usefulness predicts intention of engagement especially for utilitarian systems. Gamification has the power to increase brand awareness and influence the attitude (Lucassen & Jansen, 2014), therefore we assume that the same would apply to marketing context and we assume that:

H1. Perceived usefulness positively influences intention of engagement.

H2. Perceived usefulness positively influences brand attitude.

People are more likely to use a technology whenever they consider it easy. Consequently, the literature confirms that ease of use influences attitudes and behavioural intentions (Davis, 1989). It is also confirmed that ease of use plays an important role at the initial stage of use and has influence on further engagement (Davis, Bagozzi, & Warshaw, 1992) and It is significant for overall satisfaction (Yang, Asaad, & Dwivedi, 2017). Consequently we propose the following hypothesis:

H3. Perceived ease of use positively influences intention of engagement.

H4. Perceived ease of use positively influences brand attitude.

It is confirmed that perceived social influence is a reliable predictor of human behaviour and attitude (Ajzen, 1991). People are likely to perform specific actions when they believe that one or more people around them expect them to do so, especially in the work environment and with mandatory systems (Davis & Venkatesh, 2000; Lewis, Agarwal, & Sambamurthy, 2003). Although the aspect of social influence seems arguable, considering that some studies did not confirm its' significance on engagement and continued use (Yang, Asaad, & Dwivedi, 2017; Hamari & Koivisto, 2015) we consider the object of our study as a utilitarian service, therefore we propose the following hypothesis:

H5. Perceived social influence positively influences intention of engagement

H6. Perceived social influence positively effects brand attitude

An important motivation for playing games is pleasure. If users do not enjoy certain activity they will avoid it and whenever it is entertaining, they will more likely engage and use it. Users will be more eager to continue using a system which satisfies their hedonic needs than a system which does not gratify them in this dimension (van der Heijden, 2004). Pleasant experiences generate positive emotions and it's confirmed that this helps to positively influence people's physical and psychological state, therefore people usually aim to perform tasks which they find interesting and which help them to maximize enjoyment (Hernik & Jaworska, 2018; Ryan, Rigby & Przybylski, 2006; Harwood & Garry, 2015) therefore we propose that:

H7. Perceived enjoyment influence positively effects intention of engagement

H8. Perceived enjoyment positively influences brand attitude

In general, literature is focused on measuring the impact of attitude on behavioural intention and it confirms that attitude is a predictor of behavioural intentions. In this dissertation we evaluate brand attitude based on the overall evaluation of the service usage (Ajzen, 1991). Yang, Asaad, and Dwivedi (2017) proposed that intention of engagement in marketing activities creates emotional ties between the brand and the user, therefore we assume that:

H9. Intention of engagement positively influences brand attitude

3.2 Research methodology and data collection

The first step before data collection was a comprehensive literature review. The analysis of the literature gives the opportunity to understand established models and existing concepts and helps to understand current debates, theories and gaps. Based on the analysis of existing studies, one can notice that most of the literature is focused on design and human computer interaction. There is only one study, which examined gamification in relation to brand attitude and intention of engagement and it was focused on a retail brand. There is a lack of studies in various contexts.

Next it was decided that the study will have a quantitative approach, which is the best option to answer the research questions of this dissertation. Data collection run through an online questionnaire. According to Bhattacharjee (2012) survey research has several advantages. It

is a perfect tool to measure unobserved data like preferences, characteristics, attitudes, behaviours and beliefs. Secondly this choice enables to obtain a large sample size from a big population, for example entire country or world and collect data remotely. Third, they are preferred by some respondents due to their discrete and convenient character.

In order to reach users of the platform, the questionnaire was available online in multiple groups on Facebook, for example: Duolingo English Spanish, Duolingo Norwegian Learners, Duolingo Italian Learners, Duolingo Greek Learners, Duolingo Hebrew Learners, Duolingo Polish Learners, etc.

3.3 Platform of study- Duolingo

At some point of the work it was necessary to decide what service or application should be considered in the study and at that time Duolingo was considered a good example to examine. Firstly, Duolingo is confirmed to be a gamified learning platform (Huynh, Zuo, & Iida, 2016). Additionally, according to their website, Duolingo is the most popular language-learning platform and the most downloaded education application in the world (Duolingo, n.d.). Besides this, the interest in Duolingo in this dissertation emerged from active observation of Duolingo groups on Facebook. These groups, which one can find in social media, have a lot of inter-user dynamics. Members of these virtual spaces are Duolingo users who seek for support and who want to share their experience, progress and achievements. It is worth to notice, that many of these groups have more than 25 posts a day with multiple comments and discussions. The content suggests that people are really engaged, they use the platform for a long time, and they are motivated to gain rewards and enjoy the experience of Duolingo and competition. Seeing many cases like below on **Figure 2** confirmed that Duolingo is worthy of attention. The screenshots presented in this dissertation (**Figure 2**) show only a small sample of the messages one can see in the online groups every day. They evidence that users of Duolingo are very engaged, they are able to study for 500 days in a row, without missing a day and they are determined to compete with others and to complete their goals with much determination.

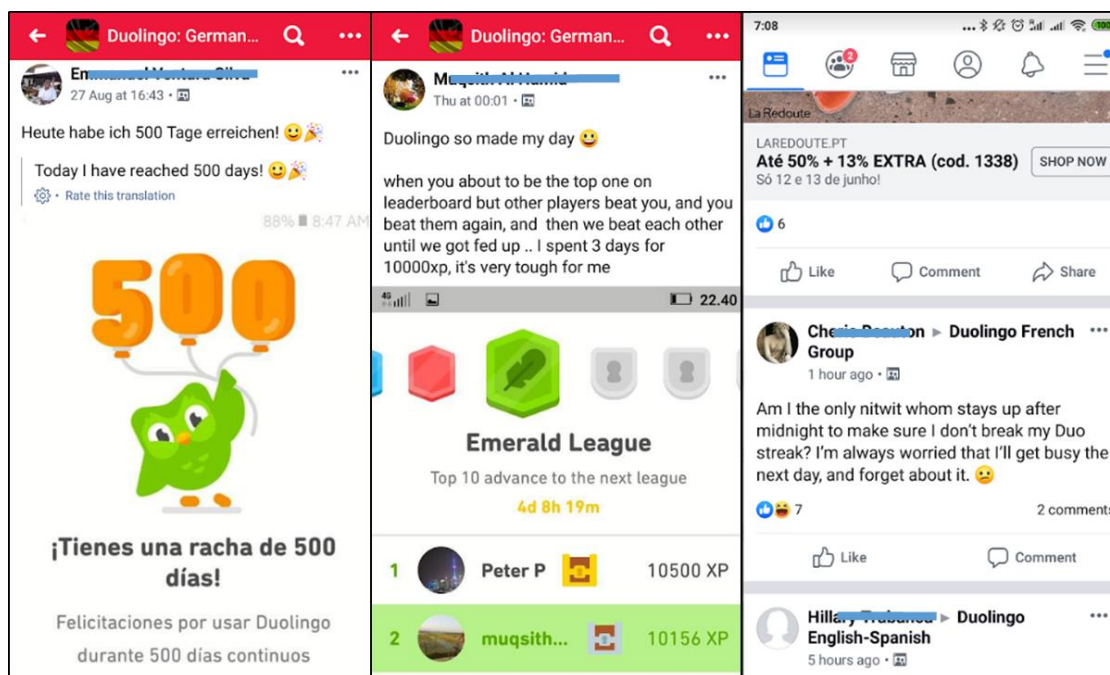


Figure 2. Screenshots from Duolingo groups. Source: Facebook

According to their website, Duolingo is a free science-based language learning platform that has organically become the most popular way to learn languages online. It has currently 300 million users worldwide and offers 90 total language courses for more than 30 distinct languages. The company has raised US\$108.3 million in total and is currently valued at US\$700 million. It's mission is making language education free, fun and accessible for everyone in the world (Duolingo, n.d.). The service was founded by Luis Von Ahn, a serial entrepreneur and computer science professor, and his student Severin Hacker. The system allows users to learn foreign languages while helping Duolingo in translation. The service became publicly available in 2012 and gained quickly over 300000 users (Huynh, Zuo, & Iida, 2016). Duolingo applies machine learning to provide personalized adaptive lessons based on the users progress. Duolingo content is free and completely interactive and game-like: users compete with friends, have streaks, get points, level up and earn a virtual currency through learning (Duolingo, n.d.). A study conducted at the City University of New York has shown that 34 hours on Duolingo are equivalent to a university semester of language classes (Grego & Vesselinov, 2012).

The authors of Duolingo efficiently apply gamification into their system in order to capture user's engagement and motivation. They have used the following game-elements in their system: rewards, badges, leader boards and levels. Detailed description of the elements is presented in Table 2.

Game element	Obtaining way	Purpose	Description
Experience point and level	It is necessary to complete activity, such as lesson or a part of a section	It's a reward and it delivers feedback to control daily activity and compare to other learners	Experience point stands for language level. It is evaluated based on the work one has put into learning
Badge	It is necessary to complete all lessons in one category	It encourages users to complete lessons to pass to next levels	Badge is a reward for completing a series of tasks and gaining new skills
Leader board	The more XP one accumulates, the better result one can have when compared to others	Driving motivation by encouraging competition	Leader board provides users' feedback on their performance compared to others
Winning streak	To achieve certain XP level by midnight each day	It motivates users to study regularly every day	Streak visualizes regularity of learning. It begins at 0 and it rises each day if the user keeps studying, otherwise it drops to 0 again
Golden badge	Users must improve their weakest points	It helps to memorize, to review program, test the knowledge	Duolingo recommends to complete all lessons in a skill and after that come back to review them
Lingot	User must complete a new skill, progress to the next level, or keep the streak	Additional reward to increase motivation, virtual currency	One can buy support tools in Duolingo store using the Lingots

Table 2. Game elements identified in Duolingo. Adapted from Huynh (2018, p. 18)

3.4 Questionnaire

The questionnaire that was released to Duolingo users to collect the data included 15 questions. The first part of the questionnaire was meant to gather the demographic information like age, gender, education level and employment status. The second part of the questionnaire was determined to understand the frequency and intensity of the use of Duolingo while allowing to eliminate respondents who do not use Duolingo or those who use it less than once a week. The last part of the questionnaire was constructed to understand the user's perception about ease of use, usefulness, enjoyment, perceived social influence, brand attitude and intention of engagement. All of the items mentioned above were evaluated with 4 questions. Only Usefulness was evaluated based on 5 questions. Each variable was measured with a 5-point Likert scale (1- I totally disagree, 2- I agree, 3- Neutral, 4- I agree, 5- I totally agree). All the measurements, were adapted from previously published sources (Table 3) therefore it is safe to consider them relevant. The questionnaire details can be found in Appendix A.

Before the official release of the questionnaire 10 people were invited to test it and identify possible errors related to the textual interpretation of the questions. The suggestions were analysed and contributed to improve the final version of the questionnaire.

Perceived Usefulness	(Davis, 1989)
Perceived ease of use	(Davis, 1989)
Perceived social influence	(Ajzen, 1991)
Enjoyment	(van der Heijden, 2004)
Intention of engagement	(Davis & Venkatesh, 2000)
Brand Attitude	(Ajzen, 1991)

Table 3. Sources of measurement for variables used in section 3 of the questionnaire

Chapter IV Results and Findings

This chapter includes details of the analysis that were conducted in this dissertation: factor analysis, reliability analysis using Cronbach's Alpha and standard multiple regression analysis. At the end of this part of our work, we present the results of hypothesis testing.

4.1 Sample Characteristics

The total number of answers to the questionnaire was 1504, and 1096 of them were considered valid for our study. The observations that were eliminated were considered not relevant for the study because of a low frequency of use (less often than once a week) or due to interrupted use of the service (people who used to learn using Duolingo, but they no longer do it).

The demographic questions helped to understand that the users who submitted their answers were from 85 different countries, but the biggest group of respondents was from the United States of America (USA) (30 %) and the United Kingdom (UK) (15%). Other Nationalities captured in the study were from various continents: Europe, South America, Asia, Africa and Australia.

58% of the respondents were female and 42% male. The biggest group of respondents are users who are 50 years old or more (25%). The second largest group are those between 25-29 years old (16%) followed by the third largest group within an age range of 20-24 (15%). Most of the users have higher education degree (63%), followed by users with secondary education or high school (20%) and other educational backgrounds in last (17%). Based on the collected data, we conclude that the vast majority of our sample are older and professionally active, with 48 % of respondents being employed, 19% being students and 9% being working students.

We found that 54% of respondents have been using the application for more than 18 months and also 54 % of respondents use the application from 5 to 9 times a week. This documents the fact that Duolingo is able to keep users engaged considering a long term perspective, with continuous use on a regular basis.

4.2 Factor analysis

After the data collection, all analysis have been executed using SPSS. It was necessary to run factor analyses in order to confirm that the measures used in the questionnaire are reliable and indeed measure the desired construct (Field, 2009).

Examining the correlation matrix was an essential step which helped to confirm that factor analysis are reasonable for our data. A correlation matrix is a set of correlation coefficients among all the variables being considered in the study. Factoring is only useful if there is a significant number of large correlations between all the variables being considered (Field, 2009). It was confirmed that there is a number of correlating factors between 0,3 and 0,8, therefore it was reasonable to continue with the analysis.

In this study, we ran three separate analysis to confirm whether the measures of dependent and independent variables are reliable. The procedures are explained next in this chapter.

Firstly we ran a factor analysis of independent variables and it was conducted on 17 items. The results indicated only three factors, therefore it was decided to force four factors.

A principal component analysis (PCA) was conducted on 17 items with orthogonal rotation (varimax). The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis, KMO = 0,935 (excellent, according to Kaiser (1974)). Bartlett's test of sphericity $\chi^2(135) = 3888,90$, $p < 0,001$, indicated that correlations between items were sufficiently large for PCA and we concluded that factor analysis is a suitable statistical method to confirm the measurements (Field, 2009).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,935
Bartlett's Test of Sphericity	Approx. Chi-Square	13888,90
	df	136
	Sig.	0,000

Table 4. KMO and Bartlett's Test I – concerning independent variables

Further, we looked into the eigenvalues, which helped to extract the components (Appendix B). Four components had eigenvalues over Kaiser's criterion of 1 and one component had eigenvalue equal to 0,847. A combination of these four factors explained 74,929% of the variance.

The factor loading is a Pearson correlation between a factor and a variable (Field, 2009). Table 5 shows the rotated factor loadings for each variable onto each factor. The items that cluster on the same components suggest that component 1 represents usefulness, component 2 stands for social influence, component 3 enjoyment and component 4 ease of use.

	Component			
	1	2	3	4
Usefulness [Using Duolingo enables me to accomplish more with regards to learning]	0,813			
Usefulness [I feel more effective with regards to learning when using Duolingo.]	0,789			
Usefulness [I find Duolingo useful.]	0,719			
Usefulness [Using Duolingo is useful for purposes of exercise.]	0,679			
Usefulness [Using Duolingo makes it easier for me to start learning]	0,632			
Social influence [People who I appreciate would encourage me to use Duolingo.]		0,863		
Social influence [People who are important to me would think positively of me using Duolingo.]		0,835		
Social influence [My friends would think using Duolingo is a good idea.]		0,810		
Social influence [People who influence my attitudes would recommend Duolingo]		0,762		
Enjoyment [I find the experience of learning and the related Duolingo use enjoyable.]			0,771	
Enjoyment [I find the experience of learning and the related Duolingo use interesting.]			0,764	
Enjoyment [I find the experience of learning and the related Duolingo use pleasant.]			0,752	
Enjoyment [I find the experience of learning and the related Duolingo use exciting.]			0,750	

Ease of use [The interaction with Duolingo is clear and understandable.]				0,794
Ease of use [Using Duolingo interface does not require a lot of mental effort.]				0,789
Ease of use [I find Duolingo easy to use.]				0,762
Ease of use [I find it easy to get the interface of Duolingo to do what I want it to do.]				0,738

Table 5. Rotated component matrix I

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization

It was necessary to run an exploratory factor analysis to confirm whether the measurement items of brand attitude are reliable. The analysis in this case was conducted on 4 items. The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis, KMO = 0,861 (meritorious, according to Kaiser (1974)). Bartlett’s test of sphericity $\chi^2(6) = 5092,99$, $p < 0,001$, indicated that correlations between items were sufficiently large and we concluded that factor analysis is appropriate (Field, 2009).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,861
Bartlett's Test of Sphericity	Approx. Chi-Square	5092,992
	df	6
	Sig.	0,000

Table 6. KMO and Bartlett's Test II

One component had eigenvalue over Kaiser’s criterion of 1 and it explained 89,156% of the variance (Appendix C).

Table 7 shows the factor loadings. It is confirmed that for a sample bigger than 1000, the loading should be greater than 0,162 (Field, 2009), therefore all of the loadings are in a fair range. The items confirm, that component 1 represents brand attitude.

Brand Attitude [All things considered, I find using Duolingo to be a wise thing to do.]	0,925
Brand Attitude [All things considered, I find using Duolingo to be a good idea.]	0,958
Brand Attitude [All things considered, I find using Duolingo to be a positive thing.]	0,948
Brand Attitude [All things considered, I find using Duolingo to be favorable.]	0,945

Table 7. Component matrix- factor loadings I

Extraction Method: Principal Component Analysis.

The third factor analysis was done to test the reliability of measure of intention of engagement. Firstly, a correlation analysis confirmed that it is reasonable to advance with further tests because all correlations were found significant. . A PCA was conducted on 4 items with no rotation. The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis, KMO = 0,665 (mediocre, according to Kaiser (1974)). Bartlett's test of sphericity $\chi^2(6) = 2467,590$, $p < 0,001$, indicated that correlations between items were sufficiently large for PCA and we conclude that factor analysis is also appropriate in this case (Field, 2009).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,665
Bartlett's Test of Sphericity	Approx. Chi-Square	2467,590
	df	6
	Sig.	0,000

Table 8. KMO and Bartlett's Test III

Further analysis of indicated that one component had eigenvalue over Kaiser's criterion of 1 and the explained 69,445% of the variance (Appendix D).

Table 9 shows the factor loadings. All of them are in a desired range (above 0,162). The analysis confirms that the factor measures intention of engagement.

Intention of Engagement [I predict that I will keep using Duolingo in the future at least as much as I have used it lately.]	0,826
Intention of Engagement [I intend to use Duolingo at least as often within the next three months as I have previously used.]	0,797
Intention of Engagement [I predict that I will use Duolingo more frequently rather than less frequently.]	0,855
Intention of Engagement [It is likely that I will use Duolingo more often rather than less often during the next couple months.]	0,854

Table 9 Component matrix- factor loadings II

Extraction Method: Principal Component Analysis

We concluded that the factor analysis confirmed the reliability of measures of variables.

4.3 Data analysis

After factor analysis, the overall validity of the questionnaire was evaluated with Cronbach's alpha (Alpha). This measure is the most common measure of scale reliability and helps to understand whether the items in the questionnaire truly reflect the construct that they are supposed to measure (Field, 2009). All of the convergent validity metrics were greater than the thresholds cited in relevant literature (Cronbach's alpha >0.7) and this indicates a good reliability (Field, 2009). Only well-established measurement items were used thus we can conclude that the convergent requirements of validity and reliability for the model were met.

Item	Cronbach's Alpha	N of Items
Perceived usefulness	0,902	5,000
Perceived ease of use	0,858	4,000
Perceived social influence	0,879	4,000
Perceived enjoyment	0,905	4,000
Intention of engagement	0,853	4,000
Brand attitude	0,959	4,000

Table 10. Reliability Statistics

In this dissertation, the goal is to understand what aspects of gamification contribute to intention of engagement and the brand attitude. According to literature, multiple regression analysis allows to test to which extent each independent variable can predict the value of the dependent variable (Miller, Acton, & Fullerton, 2002), therefore multiple regression analysis was considered a good method to apply to this dissertation.

Due to the fact that the model contains two different dependent variables, it was necessary to split it in two parts and to do two separate analysis:

1. Analysis of the first model - considering intention of engagement as a dependent variable and perceived usefulness, ease of use, perceived social influence and enjoyment as independent variables.
2. Analysis of the second model - The second analysis considered brand attitude as a dependent variable and perceived usefulness, ease of use, perceived social influence, enjoyment and intention of engagement as independent variables.

In order to carry out a multiple regression analysis it was necessary to test several assumptions. Firstly, the assumption of independence of residuals was tested with Durbin-Watson statistics. The result fell within a desired range, a value close to 2 which indicates non-autocorrelation, therefore the assumption of no autocorrelation of residuals has been met (Field, 2009). Linearity and homogeneity were assessed visually in a scatterplot. The scatterplots of standardized residual on standardized predicted value did not funnel out or curve. Therefore, we can conclude that the assumptions of linearity and homoscedasticity have been met as well. The assumption of normality of residuals was tested visually on a histogram and the data seems to be approximately normal. As a result we can say that the assumptions of normality, linearity, homogeneity and independence of residuals are met.

4.4 Results: First multiple regression analysis:

The first analysis considered continued use intention as a dependent variable, and enjoyment, perceived social influence, usefulness, ease of use as predictors.

In order to evaluate whether a model which predicts continued use intention is successful, the model summary has been analysed (Field, 2009) and the details are presented in Table 11. The adjusted R square indicates how well the model can be generalised in a population. The R square is 0,375 and it means that 37,5% of the variance in continued use intention is explained by the combination of independent variables. The model reached significance ($p < 0,001$), meaning that it successfully predicted continued use intention (Table 12).

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
,612	0,375	0,372	0,66679	1,917

Table 11. Model summary. (Dependent variable: intention of engagement; predictors: enjoyment, perceived social influence, usefulness, ease of use)

Sum of Squares	df	Mean Square	F	Sig.
290,620	4	72,655	163,362	0

Table 12. ANOVA global model significance. (Dependent variable: continued use intention)

The next step was regression analysis, Table 13 presents the summary or regression coefficients. The results indicate, that enjoyment positively influences continued use intention ($\beta=0,326$, $p < 0,001$). Also usefulness has a positive significant influence on intention of engagement. ($\beta=0,316$, $p < 0,001$), and besides this, perceived social influence affects positively continued use intention ($\beta=0,109$, $p < 0,001$). Perceived ease of use does not significantly influence intention of engagement ($p > 0,05$).

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	0,585	0,133		4,406	0,000
Perceived Enjoyment	0,326	0,042	0,295	7,833	0,000
Perceived Ease of use	0,027	0,034	0,025	0,802	0,423
Perceived Usefulness	0,316	0,044	0,281	7,178	0,000
Perceived Social influence	0,109	0,031	0,098	3,486	0,001

Table 13. Regression coefficients: dependent variable: intention of engagement

Based on the results presented above (Table 13) we conclude that ease of use is not a significant variable and we ultimately present the readjusted model, including only significant factors in the Table 14.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	0,617	0,127		4,863	0,000
Perceived usefulness	0,327	0,042	0,291	7,806	0,000
Perceived enjoyment	0,333	0,040	0,302	8,232	0,000
Perceived social influence	0,110	0,031	0,099	3,529	0,000

Table 14. Regression coefficients. Final model with: dependent variable: intention of engagement

4.5 Results: Second multiple regression analysis

The second regression analysis considers brand attitude as a dependent variable and enjoyment, perceived social influence, usefulness, ease of use and intention of engagement as independent variables. The procedure was the same as in the previous analysis.

The model summary (Table 15) indicated that the R square in is 0,542 and it means that 54,2% of the variance in brand attitude was explained by the combination of independent variables. The model reached significance ($p < 0,001$) meaning that it successfully predicted brand attitude (Table 16).

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
,736	0,542	0,540	0,54992	1,952

Table 15. Model summary. Dependent variable: brand attitude; predictors: enjoyment, perceived social influence, usefulness, ease of use, intention of engagement.

Sum of Squares	df	Mean Square	F	Sig.
390,575	5	78,115	258,305	,000

Table 16. ANOVA global model significance. (Dependent variable: brand attitude)

The analysis of relationships between the dependent and independent variables presented in Table 17 indicate, that again this time, each of the scales contributes to the model, except one, which is perceived social influence. Intention of engagement has a positive influence on brand attitude ($\beta=0,087$ $p < 0,001$). Enjoyment positively influences brand attitude ($\beta=0,248$ $p < 0,001$), and it is also confirmed that ease of use influences positively brand attitude ($\beta=0,162$ $p < 0,001$). Similarly, usefulness is a significant predictor of brand attitude ($\beta=0,380$ $p < 0,001$). Only perceived social influence was not found as significant ($p > 0,05$).

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,626	0,111		5,666	0,000
Continued use intention	0,087	0,025	0,090	3,489	0,001
Perceived Enjoyment	0,248	0,035	0,233	7,033	0,000
Perceived Ease of use	0,162	0,028	0,155	5,804	0,000
Perceived Usefulness	0,380	0,037	0,351	10,227	0,000
Perceived Social influence	0,040	0,026	0,037	1,546	0,122

Table 17. Regression coefficients: dependent variable: brand attitude

Based on the results obtained from the above mentioned analysis (Table 17) we conclude that perceived social influence is not a significant variable. We ultimately present the readjusted model, including only significant factors in Table 18.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,675	0,106		6,370	0,000
Perceived Continued use intention	0,091	0,025	0,095	3,669	0,000
Perceived Enjoyment	0,255	0,035	0,240	7,291	0,000
Perceived Ease of use	0,164	0,028	0,157	5,876	0,000
Perceived Usefulness	0,390	0,036	0,361	10,697	0,000

Table 18. Regression coefficients. Final model with: dependent variable: brand attitude

Based on the regression analysis we can conclude that (Table 19):

1. Perceived usefulness positively influences both intention of engagement and brand attitude, therefore H1 and H2 are confirmed.
2. Perceived ease of use does not influence intention of engagement, but it does have a positive impact on brand attitude, consequently H3 is rejected and H4 is confirmed.
3. Perceived social influence has a positive effect on intention of engagement, but does not impact the brand attitude, thus H5 is rejected and H6 is confirmed.
4. Enjoyment was confirmed to have a positive effect on both intention of engagement and brand attitude, therefore H7 and H8 are confirmed.
5. The analysis also confirmed, that intention of engagement influences positively brand attitude, hence H9 is confirmed.

Hypothesis	Result
H1. Perceived usefulness positively influences intention of engagement	Confirmed
H2. Perceived usefulness positively influences brand attitude	Confirmed
H3. Perceived ease of use positively influences intention of engagement	Not confirmed
H4. Perceived ease of use positively influences brand attitude	Confirmed
H5. Perceived social influence positively influences intention of engagement	Confirmed
H6. Perceived social influence positively influences brand attitude	Not confirmed
H7. Perceived enjoyment influence positively influences intention of engagement	Confirmed
H8. Perceived enjoyment positively influences brand attitude	Confirmed
H9. Intention of engagement positively influences brand attitude	Confirmed

Table 19. Summary of results

Chapter V Discussion and conclusions

This is the last section of this dissertation and it provides findings, discussion of the results, limitations and opportunities for further development of the study.

5.1 Discussion of results

This dissertation examined several aspects of gamification in a language learning service on the intention of engagement and brand attitude in a learning service context. In this work the observations were focused on:

1. The effects of perceived ease of use, perceived usefulness, enjoyment and perceived social influence on the intention of engagement with gamification in an utilitarian service;
2. The effects of perceived ease of use, perceived usefulness, enjoyment, perceived social influence and the intention of engagement on the brand attitude of a gamified service.

A total of 1504 users of Duolingo filled out an online questionnaire and 1096 responses were considered in the statistical analysis. The results of multiple regression indicate that all hypothesis were confirmed except H3 and H6. For an easier reading hypothesis will be discussed one by one in the following paragraphs.

H1. Perceived usefulness positively influences intention of engagement; H2. Perceived usefulness positively influences brand attitude.

Perceived usefulness was found to positively influence users' intention of engagement. This finding is in line with TAM literature, which indicates that perceived usefulness is a predictor of continued use intention (Davis, Bagozzi, & Warshaw, 1992; Venkatesh V. , 2000; Davis F., 1989) and intention of engagement (Yang, Asaad, & Dwivedi, 2017). This implies that users who find gamification useful are more likely to engage in using the service than user's who do not consider it useful. Usefulness is an important predictor of users' behaviour. In case of Duolingo, the service is useful for acquiring new language skills. It is confirmed that Duolingo provides an efficient way of studying (Grego & Vesselinov, 2012) and consequently the users consider it useful and want to continue using it.

In the same way perceived usefulness was found to be a significant positive predictor of brand attitude. This is in line with previous studies, which also found perceived usefulness relevant for attitude towards a system (Yang, Asaad, & Dwivedi, 2017; Davis F., 1989; Hamari & Koivisto, 2015). The result implies that people who find the service useful also tend to have more positive attitude towards a brand embedded in this service. We can infer that gamification which is useful is more likely to produce a positive effect on brand attitude.

H3. Perceived ease of use positively influences intention of engagement; H4. Perceived ease of use positively influences brand attitude.

Contrary to the original assumptions supported by previous studies that described ease of use as an important factor when predicting willingness to use a system (Davis, 1989), our findings revealed that ease of use was not a significant predictor of intention of engagement. Our findings, however, are in line with a study of van der Heijden (2004) who concluded that ease of use is not a critical factor in utilitarian system use. Duolingo, examined in this study, is a language learning application with utilitarian purpose, as it helps users to develop their language skills. Also Yang, Asaad, and Dwivedi (2017) confirmed that perceived ease of use has a potential to influence attitude, however this does not mean that users will be interested in engaging with the service in a long term perspective. Ease of use is an important factor at the initial stage of use, when a service or system is unknown. Over time users get to know it better and better and understand the real benefits that the use provides them.

H5. Perceived social influence positively influences intention of engagement; H6. Perceived social influence positively effects brand attitude

Perceived social influence was found to influence positively the intention of engagement. This finding is in line with prior studies (Ajzen, 1991; Davis & Venkatesh, 2000; Lewis, Agarwal, & Sambamurthy, 2003; Hamari & Koivisto, 2013). On the other hand, perceived social influence in our analysis is not considered a significant predictor of brand attitude. This outcome contradicts previous findings. The reason of such disproportion can be the nature of the service and the motivation for using it. The use of a system can be voluntary or mandatory (Davis & Venkatesh, 2000). Duolingo is a utilitarian service and its' use is voluntary. When using a system voluntarily, users are more likely to have intrinsic motivation rather than to be affected by external social influence (Davis & Venkatesh, 2000). In today's world it seems obligatory to speak foreign languages, very often even more than one. This

pressure quite frequently comes from the external world, people feel that they need to learn languages especially to be able to develop a successful career. This could indicate that people get engaged because they feel social pressure, but their attitude towards the system is intrinsic. Our results, we can conclude, to be in line with Davis and Venkatesh (2000) who stated that social influence does not significantly impact attitude when using a system is voluntary.

H7. Perceived enjoyment influence positively effects intention of engagement; H8. Perceived enjoyment positively influences brand attitude

Perceived enjoyment was found to have statistically significant positive correlation with intention of engagement and brand attitude. This implies that gamification enhances enjoyment and users, who perceive the service as playful activity, are more likely to engage and have positive feelings about the brand associated to the service. This finding is in line with previous studies, which suggest that enjoyment is a fundamental aspect which contributes to successful engagement. (Hernik & Jaworska, 2018; Ryan, Rigby & Przybylski, 2006; Harwood & Garry, 2015; Davis F., 1989).

H9. Intention of engagement positively influences brand attitude

Traditionally, literature examines this relationship in a reversed version, considering that the attitude influences intention of engagement. However, in this dissertation we can conclude that intention of engagement is a positive significant predictor of brand attitude. Customers who have been loyal to the service and have been using it for extended periods of time with satisfying results are likely to have positive attitude towards the brand. We can say that because of the continuous use, users understand if a service helps them achieve a given goal or simply provides a mean of entertainment. This engagement it is what helps users generate a positive feeling and attitude towards a brand based on their experience. This makes users willing to share their experiences with others. In a more general perspective, when a user is engaged and has a positive attitude, he or she is likely to spread a positive word of mouth that can be beneficial for a brand.

5.2 Conclusions and limitation

The present study looked into customer's perception of gamification in marketing context. We examined the effect of enjoyable experiences, usefulness, ease of use, and perceived social influence on intention of engagement and brand attitude. Additionally it looked into the relationship between engagement and the attitude towards a brand.

A quantitative research focused on users of a successful gamification service – Duolingo - helped to find out what are the most important benefits and motivators for the users and how do they reflect in their behaviour and their attitude towards the brand. Factor analysis confirmed measurement scales used in the questionnaire and regression analysis was a helpful statistical method which facilitated the evaluation of relationships between dependent and independent variables.

The results of this dissertation confirm that an effective gamification is able to support customer engagement and positive brand attitude. The results contribute to the literature by identifying the most influential aspects in the context of a voluntary use of a utilitarian service.

To the contrary of several previous studies, social influence was not considered a predictor of brand attitude. This finding is particularly important because it indicates that it is crucial to understand what motivates people and what the main purpose behind the use of gamification is. Users who are driven by intrinsic motivations evaluate a brand or service with their own criteria. This finding calls attention of designers and marketers to the importance of the task that gamification has and in what context is it going to be used.

This dissertation helps to understand that, when creating a gamified service, it is crucial to realize what its' key role is, and then make sure that it really is useful for the players. It is particularly important that we examined users who have been involved in a gamified service on a regular basis during a certain period of time. Our findings help to understand that the significant factors for engagement and positive attitude towards a brand are perceived enjoyment and perceived usefulness.

This work can be useful for designers and marketers who create gamification and are interested in knowing what are the most important aspects that have an impact on effectiveness of gamification. This dissertation also contributes to gamification literature by providing insights on the topic in learning services and marketing context, which has not

been studied until now. Additionally, our findings contribute to literature regarding TAM, proving that this model can be applied to different subjects, not only to technology. Overall, this study strengthens the empirical evidence in favor of gamification as a powerful tool to engage and create positive association in customers' minds.

One source of limitation in this study is that it was focused on a single service brand, while the market offers several options. It would be interesting to examine what makes Duolingo the most successful of gamified language learning services when compared to other providers. Another good opportunity for further research is to examine how demographic characteristics influence results of the study. In the sample, we gathered answers from 85 different countries. It could be insightful to compare results from various countries or regions. Another interesting path would be to examine what are the factors that make users stop using this service and why gamification stops being engaging after a certain period of time. An additional path, which could contribute to literature, is to examine what game elements are particularly important for the users and how do they reinforce engagement and attitudes.

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Appendix A. Questionnaire Statements

Brand Attitude (Ajzen, 1991)

1. All things considered, I find using Duolingo to be a wise thing to do.
2. All things considered, I find using Duolingo to be a good idea.
3. All things considered, I find using Duolingo to be a positive thing.
4. All things considered, I find using Duolingo to be favorable.

Intention of Engagement (Davis & Venkatesh, 2000)

1. I predict that I will keep using Duolingo in the future at least as much as I have used it lately.
2. I intend to use Duolingo at least as often within the next three months as I have previously used.
3. I predict that I will use Duolingo more frequently rather than less frequently.
4. It is likely that I will use Duolingo more often rather than less often during the next couple months.

Perceived Enjoyment (van der Heijden, 2004)

1. I find the experience of learning and the related Duolingo use enjoyable.
2. I find the experience of learning and the related Duolingo use pleasant.
3. I find the experience of learning and the related Duolingo use exciting.
4. I find the experience of learning and the related Duolingo use interesting.

Perceived Ease of use (Davis, 1989)

1. Using Duolingo interface does not require a lot of mental effort.
2. The interaction with Duolingo is clear and understandable.
3. I find Duolingo easy to use.
4. I find it easy to get the interface of Duolingo to do what I want it to do.

Perceived Usefulness (Davis, 1989)

1. Using Duolingo makes it easier for me to start learning.
2. Using Duolingo is useful for purposes of exercise.
3. Using Duolingo enables me to accomplish more with regards to learning.
4. I feel more effective with regards to learning when using Duolingo.

5. I find Duolingo useful.

Perceived Social influence (Ajzen, 1991)

1. People who influence my attitudes would recommend Duolingo.
2. People who are important to me would think positively of me using Duolingo.
3. People who I appreciate would encourage me to use Duolingo.
4. My friends would think using Duolingo is a good idea.

Appendix B. Factor analysis I

Factor analysis of independent variables conducted on 17 items.

Comp.	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Loadings		Total	Loadings		Total	Loadings	
		% of	Cumulative		% of	Cumulative		% of	Cumulative
		Variance	%		Variance	%		Variance	%
1	8,616	50,685	50,685	8,616	50,685	50,685	3,463	20,371	20,371
2	1,958	11,517	62,202	1,958	11,517	62,202	3,110	18,297	38,668
3	1,317	7,745	69,947	1,317	7,745	69,947	3,106	18,269	56,937
4	,847	4,982	74,929	,847	4,982	74,929	3,059	17,992	74,929
5	,571	3,360	78,289						
6	,530	3,121	81,409						
7	,478	2,811	84,220						
8	,448	2,635	86,855						
9	,391	2,298	89,153						
10	,316	1,861	91,013						
11	,311	1,827	92,840						
12	,261	1,533	94,373						
13	,236	1,389	95,762						
14	,221	1,302	97,064						
15	,187	1,100	98,164						
16	,172	1,009	99,173						
17	,141	,827	100,000						

Table 20. Total variance explained (independent variables), extraction method: principal component analysis.

	Initial	Extraction
Enjoyment [I find the experience of learning and the related Duolingo use enjoyable.]	1,000	,837
Enjoyment [I find the experience of learning and the related Duolingo use pleasant.]	1,000	,826
Enjoyment [I find the experience of learning and the related Duolingo use exciting.]	1,000	,707
Enjoyment [I find the experience of learning and the related Duolingo use interesting.]	1,000	,811
Ease of use [Using Duolingo interface does not require a lot of mental effort.]	1,000	,648
Ease of use [The interaction with Duolingo is clear and understandable.]	1,000	,791
Ease of use [I find Duolingo easy to use.]	1,000	,826
Ease of use [I find it easy to get the interface of Duolingo to do what I want it to do.]	1,000	,685
Usefulness [Using Duolingo makes it easier for me to start learning]	1,000	,660
Usefulness [Using Duolingo is useful for purposes of exercise.]	1,000	,626
Usefulness [Using Duolingo enables me to accomplish more with regards to learning]	1,000	,818
Usefulness [I feel more effective with regards to learning when using Duolingo.]	1,000	,782
Usefulness [I find Duolingo useful.]	1,000	,779
Social influence [People who influence my attitudes would recommend Duolingo]	1,000	,620
Social influence [People who are important to me would think positively of me using Duolingo.]	1,000	,781
Social influence [People who I appreciate would encourage me to use Duolingo.]	1,000	,820
Social influence [My friends would think using Duolingo is a good idea.]	1,000	,722

Table 21. Communalities (independent virables), extraction method: principal component analysis.

Appendix C. Factor analysis II

Factor analysis of a dependent variable brand attitude.

	Brand attitude [All things considered, I find using Duolingo to be a wise thing to do.]	Brand attitude [All things considered, I find using Duolingo to be a good idea.]	Brand attitude [All things considered, I find using Duolingo to be a positive thing.]	Brand attitude [All things considered, I find using Duolingo to be favorable.]
Brand attitude [All things considered, I find using Duolingo to be a wise thing to do.]	1,000	,856	,812	,829
Brand attitude [All things considered, I find using Duolingo to be a good idea.]	,856	1,000	,894	,865
Brand attitude [All things considered, I find using Duolingo to be a positive thing.]	,812	,894	1,000	,874
Brand attitude [All things considered, I find using Duolingo to be favorable.]	,829	,865	,874	1,000

Table 22. Correlations (variable brand attitude)

	Initial	Extraction
Brand attitude [All things considered, I find using Duolingo to be a wise thing to do.]	1,000	,856
Brand attitude [All things considered, I find using Duolingo to be a good idea.]	1,000	,917
Brand attitude [All things considered, I find using Duolingo to be a positive thing.]	1,000	,899
Brand attitude [All things considered, I find using Duolingo to be favorable.]	1,000	,893

Table 23. Communalities (variable brand attitude); extraction method: principal component analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,566	89,156	89,156	3,566	89,156	89,156
2	,199	4,971	94,127			
3	,139	3,469	97,596			
4	,096	2,404	100,000			

Table 24. Total variance explained (variable brand attitude); extraction method: principal component analysis.

Appendix D. Factor analysis III

	Intention of engagement [I predict that I will keep using Duolingo in the future at least as much as I have used it lately.]	Intention of engagement [I intend to use Duolingo at least as often within the next three months as I have previously used.]	Intention of engagement [I predict that I will use Duolingo more frequently rather than less frequently.]	Intention of engagement [It is likely that I will use Duolingo more often rather than less often during the next couple months.]
Intention of engagement [I predict that I will keep using Duolingo in the future at least as much as I have used it lately.]	1,000	0,712	0,553	0,502
Intention of engagement [I intend to use Duolingo at least as often within the next three months as I have previously used.]	0,712	1,000	0,460	0,509
Intention of engagement [I predict that I will use Duolingo more frequently rather than less frequently.]	0,553	0,460	1,000	0,816
Intention of engagement [It is likely that I will use Duolingo more often rather than less often during the next couple months.]	0,502	0,509	0,816	1,000

Table 25. Correlations (variable intention of engagement)

	Initial	Extraction
Intention of engagement [I predict that I will keep using Duolingo in the future at least as much as I have used it lately.]	1,000	,683
Intention of engagement [I intend to use Duolingo at least as often within the next three months as I have previously used.]	1,000	,634
Intention of engagement [I predict that I will use Duolingo more frequently rather than less frequently.]	1,000	,731
Intention of engagement [It is likely that I will use Duolingo more often rather than less often during the next couple months.]	1,000	,729

Table 26. Communalities (variable intention of engagement); Extraction Method: principal component analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,778	69,449	69,449	2,778	69,449	69,449
2	,752	18,809	88,258			
3	,306	7,660	95,918			
4	,163	4,082	100,000			

Table 27. Total variance explained (variable intention of engagement); extraction method: principal component analysis.

Appendix E. Multiple regression I

Standard multiple regression assumptions testing for the first model, where intention of engagement is considered a dependent viable and perceived usefulness, perceived ease of use, perceived social influence and perceived enjoyment are dependent variables.

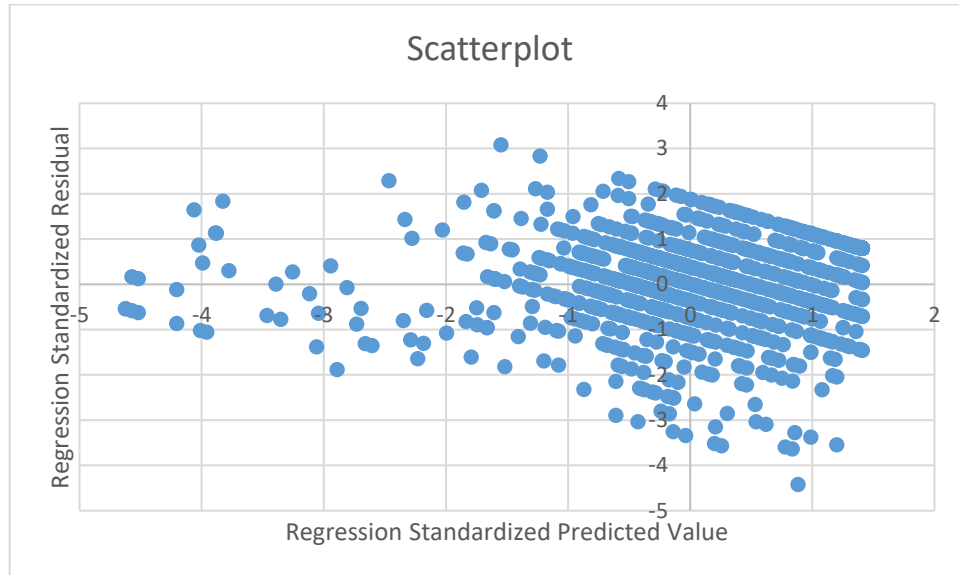


Figure 3. Linearity and homogeneity I (for the first model, where intention of engagement is considered a dependent viable)

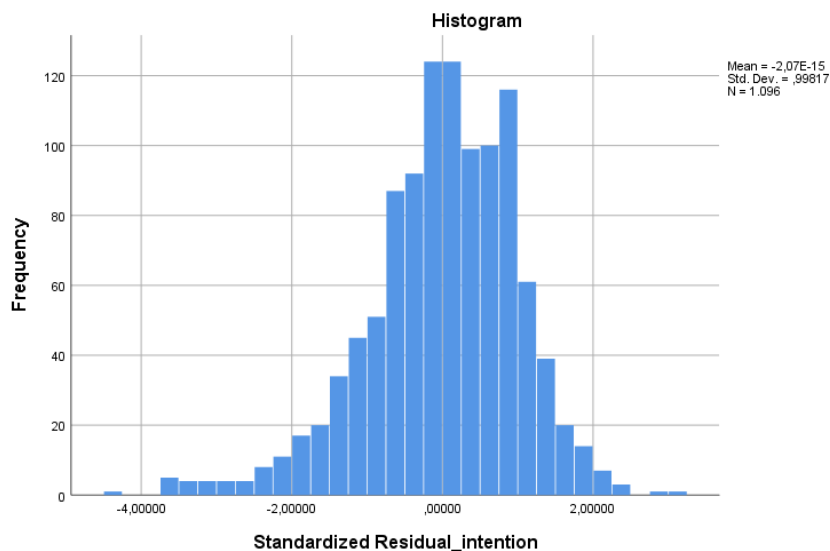


Figure 4. Standardized residual normality plot I (intention of engagement as a dependent variable)

Appendix F. Multiple regression II

Standard multiple regression assumptions testing, where brand attitude is considered a dependent variable perceived usefulness, perceived ease of use, perceived social influence and perceived enjoyment are dependent variables.

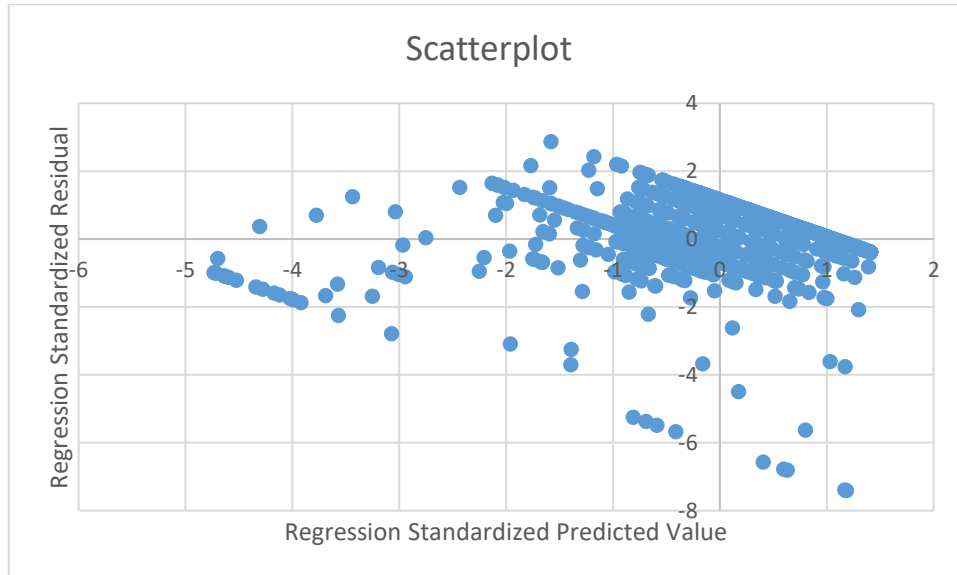


Figure 5. Linearity and homogeneity II (for the first model, where brand attitude is considered a dependent viable)

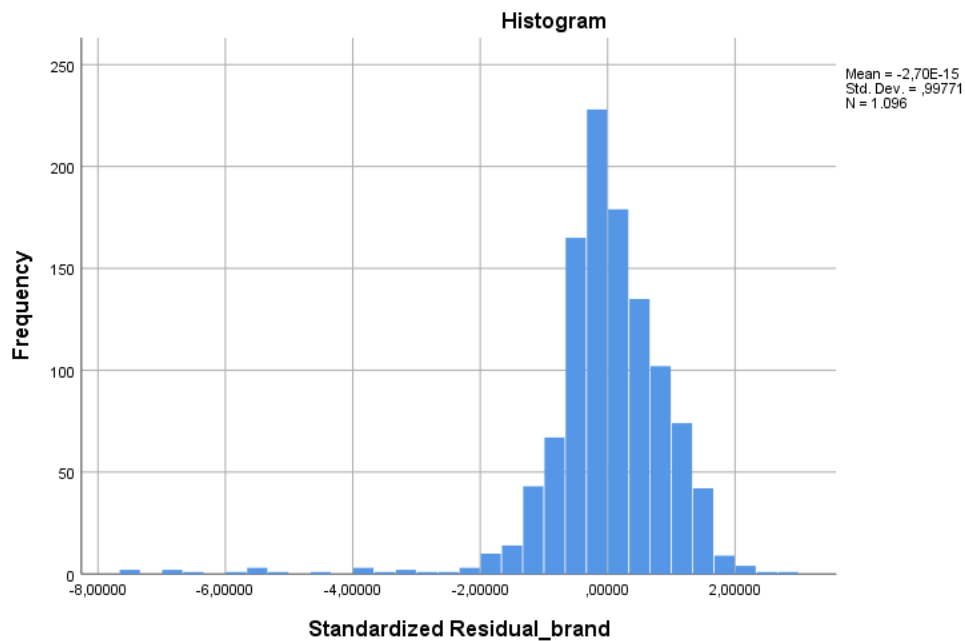


Figure 6. Standardized residual normality plot II (brand attitude as a dependent variable)