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CONSUMER BRAND ENGAGEMENT: ROLE OF GAMIFICATION

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ABSTRACT

Gamification became a new attractive way to strengthen relations with consumers for companies and brands. Despite gamification is new and not clearly described phenomena companies apply different gamification techniques aiming to enhance consumers brand engagement. The paper explores gamification concepts and gamification techniques, successful gamification characteristic and gamification impact on different engagement dimensions. The proposed gamification impact on consumer brand engagement is tested empirically.

Keywords: Gamification, Game mechanics, Game components, Flow, Engagement.

INTRODUCTION

Gamification phenomena is gaining attention from practitioners and researchers. Gamification was identified as perspective technology by Gartner [16] [17] for several last years. This caused growing number of research and solutions aiming to explain gamification from various perspectives. Companies apply gamification in various activities such as user engagement, motivation, education of consumers and employees, innovation management, and personal development [17].

Gamification relates to game thinking application for companies activities in non gaming context [11]. According Gartner [17] gamification can be applied in consumer engagement, consumer and employs education, innovation management, personal improvement and others. The recent research of gamification demonstrates that gamification facilitate intrinsic motivation [12], participation [35] [33], creates better experience for consumers [14] [18]. These gamification benefits leads to long lasting relations establishment witch consumers.

Consumer–brand engagement is a recent concept in the marketing literature [32]. Practitioners conceive consumer brand engagement as establishing a strong and enduring bond between brand and consumers based on an ongoing effort of the brand to activate consumers through interaction, shared values, experiential contents and rewards [30] [15].

The aim of the article is to develop gamification impact on consumer brand engagement model and empirically test it in Lithuania market. In order to achieve this aim paper will analyze gamification definition and gamification elements, flow concept and consumer brand engagement concept. Basing on literature review the research model is established and empirically tested in Lithuania market. **Research method:** systemic and comparative analysis of the scientific literature was applied when developing the theoretical analysis, empirical data were collected through consumer survey.

This paper will extend the gamification impact on consumer brand engagement literature by integrating gamification, flow and consumer brand engagement constructs.

GAMIFICATION CONCEPT

Gamification and Game Elements

Despite growing attention to gamification as a new concept suggesting innovative approach to costumer relationship development, different elements of gamification have been used by companies for long time. Gamification deployment in physical market was complicated and ICT development created favorable preconditions for wider gamification used between various organizations. As gamification is relatively new phenome different approaches what is gamification can be found in academic and practical literature. One of the first definition of gamification were proposed by Deterding et al. [8]. Deterding et al. [8] suggested that gamification is based on use of gamefulness, gameful interaction, and gameful design for the specific purposes. Huotari and Hamari [24] suggested not to follow approach proposed by Deterding et al. [8] stating that gamification of activities is different from the full-fledged game. The authors recommend focusing on the user experience, regardless of what form gamified service or activity takes. According Werbach and Hunter [34] companies should develop products, services and systems from the game developer's perspective. Considering this Werbach and Hunter [34] define gamification as the adoption of game elements and game development techniques in a non-game context. Considering various researchers' perspectives broadly gamification can be defined as use of game elements (game mechanics, game dynamics and game components) in non-game context and in daily situations which are not related to games.

Another important direction in gamification research is attempt to provide systematic approach defining different elements and their interconnections. Typical practitioners approach to gamification is based on points, badges and leaderboards (so called PBL approach). Deterding and others [10] proposed game development taxonomy identifying five main components for gamification. As alternative practitioners suggested various frameworks enabling gamification of companies' activities – such as Octalyst framework [3], Gamification 2.0 framework [27], Gamification canvas [26].

Table 1. Gamification frameworks

Authors, framework	Gamification framework description
Deterding et al.(2011), Game development elements taxonomy	Game development elements taxonomy suggesting following elements – game interface development elements, game development structure and mechanics, game development principles and heuristic, game models and game development methods.
Werbach and Hunter (2012) , Gamification pyramid	Game elements frameworks suggesting three main elements – game dynamics, game mechanics and game components.
Chou (2015), Octalysis framework	Octalysis suggest gamification starts from motives identification and suggest 8 main motives. Gamification should consider different game stages and game players' types Game element relates to a specific motive to play games.
Killian (2013), Gamification 2.0 framework	The framework defines six primary motives to play games and secondary motives. Framework suggest game elements corresponding to specific motive, evaluation indicators and technologies. Game element might relates to several motives to play games.
Jiménez (2014), Gamification Canvas	Framework based on Osterwalder and Pigneur (2010) suggested Business Model Canvas and identify nine gamification elements. Game elements are based on Hunicke et al. (2004) proposed MDA model.

However, the most widely accepted gamification framework is Werbach and Hunter [34] proposed gamification pyramid:

- Dynamics encompasses the big picture aspects of a gamified system. At the top of the pyramid, they are the most high-level conceptual elements in a game or gamified system.
- The second group of elements is the Mechanics. These are the basic processes that drive users to engage with the content and continue to drive the action forward.
- Components make up the largest group of game elements. In many ways the components are more specific form of either Dynamics or Mechanics. These elements are less abstract than the first two categories and lead to actual tools that can be employed to begin to incorporate gamification in the environment of interest.

The main game dynamics, game mechanics and game component elements identified by Werbach and Hunter [34] are provided in Figure 1.

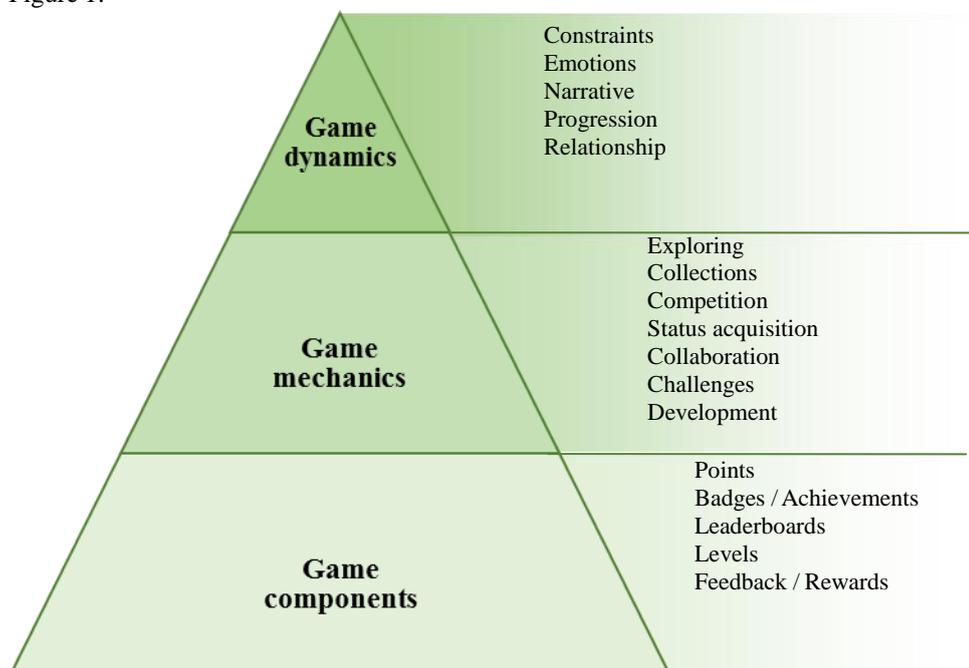


Figure 1. Gamification pyramid and most widely used game elements

Gamification and Flow

For the companies applying gamification is important to understand if gamification applied successfully. Typically, this assessment is made on consumers behavior, however video game theory successful game associate with flow. Csikszentmihalyi [5] proposed flow definition defining flow as a state of concentration or complete absorption with the activity at hand and the situation. It is a state in which people are so involved in an activity that nothing else seems to matter". Flow is characterized by challenges and skills balance otherwise user will experience boredom or anxiety.

Csikszentmihalyi [5] identify nine important flow characteristics:

- Clear objectives
- Immediate feedback
- Equilibrium between the level of challenge and personal skill
- Merging of action and awareness
- Focused concentration
- Sense of potential control
- Loss of self-consciousness
- Time distortion
- Autotelic or self-rewarding experience

According various researchers and practitioners flow is important construct in gamification research [1], [7], [19], [20], [34]. Flow can be interpreted as mono-dimensional or multidimensional construct. Researchers interpreting flow as mono-dimensional treat flow as independent construct as well as constructs of antecedents and gamification results. There are several attempts to develop gamification flow measuring scale. However, Hoffman and Novak [21] suggested to analyze flow as multi-dimensional construct and proposed that every dimension of flow should be measured independently.

In our research we consider flow as characteristics of successfully gamified companies activities and interpret it as mono-dimensional construct.

CONSUMER BRAND ENGAGEMENT

Gamification often is applied to increase consumers engagement in order to create long lasting relations. Hollebeek [22] defines “customer brand engagement” as “the level of a customer’s motivational, brand-related, and context-dependent state of mind characterized by specific levels of cognitive, emotional, and behavioral activity in brand interactions.” Javornik and Mandelli [25] identified four perspectives for the main research streams of the customer engagement in the academic literature:

- Behavioral perspective;
- Psychological (cognitive and affective) perspective;
- Multidimensional perspective;
- Social perspective.

Cognitive, emotional and behavioural dimensions are most commonly identified in scientific literature related to consumer engagement studies [22], [23]:

- Cognitive dimension: consumer's level of engagement object related through processing, concentration and interest in specific object (business enterprise, brand, online social network, brand community).
- Emotional dimension: a state of emotional activity also known as the feeling of inspiration or pride related to and caused by engagement object.
- Behavioural dimension: a state of consumer behaviour related to engagement object and understood as endeavor and energy given for interaction.

Considering the virtual environment, it is important to note that the experience of consumer gains an important role. According to Calder et al. [2], the fundamental insight is that engagement comes from experiencing a website in a certain way. As typically companies use websites, social networking platforms or applications to deliver gamified activities, consumer experience in using these tools refers to consumer engagement. According to Calder et al. [2] online consumer engagement can be understood to its fullest only after a thorough examination of different experiences that the consumer gets during the interaction with the site, social networking platforms or application.

From the point of gamification consumer experiences could be created and delivered through different game elements and game elements combinations. Robson et al. [29] suggested that gamified experience can be analyzed through participation and connection perspectives:

- Participation (active vs passive) perspective. Player participation describes the extent to which the individual is either passively involved in the experience or actively contributes to it.
- Connection (absorbed vs immersive) perspective. Player connection describes the type of environmental relationship that unites the individual with the experience. In absorption, the experience unfolds before the person and occupies the person’s mind, whereas in immersion a person becomes part of the experience itself.

The gamified engagement is important as according to Fischer [13], engaged consumers tend to bring together a group of other consumers that has identical or very similar interests. The engaged consumers are tend to become loyal consumers, act as company advocates and more actively participate in various company's initiatives.

RESEARCH MODEL

The research aims to test the impact of gamification on consumer brand engagement. Based on literature review, it is assumed that successful gamification of business activities would lead to Flow state. It is also assumed that consumers who get into Flow state are likely to have higher brand engagement. Research model was constructed following these assumptions (see Figure 2).

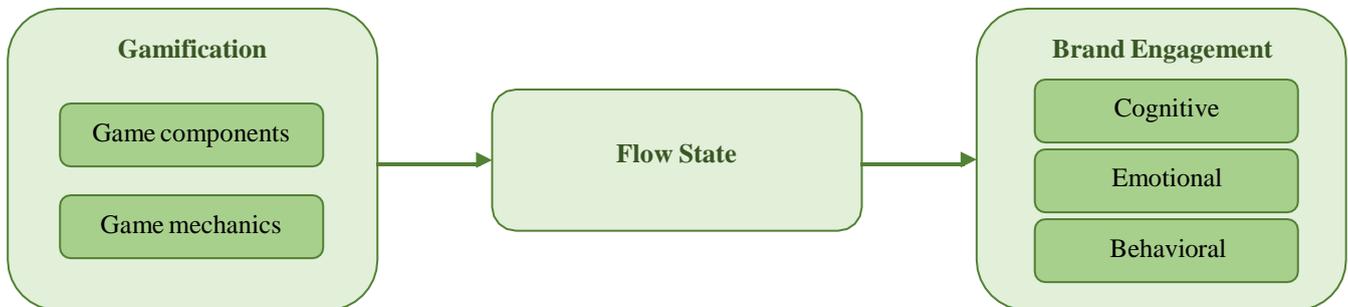


Figure 2. Conceptual research model

A quantitative research approach is fitting to achieve above mentioned research aim, therefore, the quantitative online survey method was selected for primary data collection. Survey covered wider array of questions but only aspects related to above presented research model will be discussed in detail in this paper. The questionnaire was developed based on the nature of information needed and thus it was made of multi-item 5 point rating scales ranging from 1 – “completely disagree” to 5 – “completely agree”. For gamification two separate scales were employed to cover game mechanics and game components. Scale for measuring game mechanics consisted of 7 items and scale for game components consisted of 5 items, both developed based on findings of literature review (see summarized in Figure 1). Game elements of game dynamics level are not covered in this research as those game elements are invisible to consumers therefore impossible to assess by surveying them. Flow state is treated as a mono-dimensional construct and the scale for measuring it includes 7 items: 5 items adopted from Choi and Kim [3] 6 item scale and the last item was replaced by 2 items from Rheinberg, Vollmeyer ir Engeser [28] short Flow scale. The scale for consumer brand engagement includes 11 items, adapted from So, King and Sparks [31] and Hollebeek, Glynn and Brodie [23]. Three items of this scale reflect the cognitive brand engagement dimension, five items cover emotional dimension and remaining three items represent behavioral dimension. Testing with Cronbach alpha coefficients showed high internal consistency of developed scales. People, who were engaged in some business activities through gamification anytime in the past six months, were the population of interest for this research, but no specific brands or activities there indicated to respondents. The respondents for this survey were selected by non-probability convenience sampling method.

EMPIRICAL RESEARCH RESULTS

Answers from 749 respondents were received in the online survey. Less than half of them (46.3 %) stated they were engaged in some gamified business activities though. Therefore, data analysis and the research findings are based on data from 347 respondents. Females were dominating (about 75 %) among respondents, and more than 62 % of respondents were of age between 26 and 35 years old (see Table 2).

Table 2. Demographic characteristics of respondents

Characteristic		N	%
Gender	Male	87	25,1
	Female	260	74,9
Age	25 years or younger	69	19,9
	26–35 years	216	62,2
	older than 35	62	17,9

Descriptive statistics analysis of attractiveness of game elements is summarised in Tables 3 and 4. Survey participants find gamified business activities having the development function, motivating to explore, acquire knowledge, and develop (Table 3). The least attractive to survey respondents are gamified business activities encouraging them to collect.

Table 3. Attractiveness of different game mechanics

Item	Mean	Standard deviation
Development	4.32	0.655
Exploration	4.24	0.736
Challenge	3.66	0.839
Competition	3.62	0.821
Status achievement	3.21	0.934
Collaboration	3.12	1.023
Collection	2.98	1.001

N – 324

Table 4. Importance of game components

Item	Mean	Standard deviation
Levels	3.90	0.721
Points	3.85	0.745
Feedback / reward	3.76	0.817
Achievement / badges	3.65	0.865
Leader board	3.56	0.973

N – 331

In respect to game components, survey respondents evaluated levels and points as the most important ones, which partly matches the PBL referred to as game elements used most often for gamifying business activities. The importance itself is lower than four on five point scale though, but the importance of each game component was rated higher on average than the 3 points representing neutral attitude (see Table 4).

First research model assumption of gamification leading to Flow state was checked by analysing correlation between gamification and Flow state. Results of this analysis prove positive statistically relevant relation between these constructs though relation is of average strength (see Table 5).

Table 5. Correlation between gamification dimensions and Flow state

	Game mechanics	Game components	Overall Gamification
Flow state	0,393**	0,392**	0,443**

** $p < 0,001$, Spearman's rho correlation coefficient

Before checking the second assumption of research model, it is worth to overview the measures of consumer brand engagement (see Table 6). Analysis of descriptive statistics presented in table shows that overall consumer brand engagement is relatively low. Survey respondents on average evaluated items related to cognitive engagement most positively. Emotional engagement was evaluated on average nearly as high, meanwhile items of behavioural engagement were evaluated rather negatively.

Table 6. Measures of consumer brand engagement

Item	Mean	Standard deviation
Cognitive engagement	3.0504	0.862
Emotional engagement	3.0254	0.800
Behavioural engagement	2.6606	0.934
Consumer brand engagement	2.9145	0.778

N – 329

Regression analysis was applied to check flow impact to consumer brand engagement. Flow state was used as independent variable and consumer engagement – dependent variable. However, determination coefficient $R^2 = 0,096$ of regression model ($F(1,326) = 34,650$; $p < 0,000$) is way smaller that recommended minimal interpretable value ($R^2 < 0,2$). Therefore, for this research assumption of consumers achieving Flow state, while participating in gamified business activities, more likely engage more with brand was not supported by evidence.

Table 7. Correlation between game elements and consumer brand engagement

	Game elements	Game mechanics	Game components	Consumer engagement	Cognitive	Emotional	Behavioural
Game elements	1.000	0.837**	0.884**	0.255**	0.275**	0.256**	0.173**
Game mechanics		1.000	0.490**	0.202**	0.210**	0.210**	0.150**
Game components			1.000	0.237**	0.265**	0.239**	0.146**
Consumer engagement				1.000	0.890**	0.880**	0.878**

Cognitive					1.000	0.753**	0.641**
Emotional						1.000	0.658**
Behavioural							1.000

** - $p < 0.001$, Spearman's rho correlation coefficient

In order to explore direct relations between gamification and consumer engagement, without mediation impact of Flow state, correlation analysis was performed. Correlation between the combined constructs of gamification and consumer engagement have weak positive significant relation ($r = 0.255$, $p < 0.001$). Both game mechanics and game components were found to be positively related with consumer engagement ($r = 0.202$, $p < 0.001$ and $r = 0.237$, $p < 0.001$, respectively), though the relation found was weak. Correlation between separate game gamification and consumer engagement dimensions was found to have positive, but weak relations (see Table 7). The strongest relation was found between gamification and cognitive engagement ($r = 0.275$, $p < 0.001$), and the weakest – between gamification and behavioural engagement ($r = 0.173$, $p < 0.001$). Thus overall assumption of research presented in this paper of gamification positively impacting consumer brand engagement can be confirmed. However, the relation between those constructs is weak and game components are found to have a little bit stronger relationship with consumer brand engagement and dimensions of it compared to game mechanics.

CONCLUSIONS

Gamification is an increasingly popular mean to establish better relations with consumers and develop consumer engagement. Gamification can be defined as use of game elements (game mechanics, game dynamics and game components) in non-game context and in daily situations which are not related to games. There are several approaches to develop gamification elements systems, but the most popular one is Werbach and Hunter proposed gamification pyramid approach. Gamification pyramid concept defines key game element types- game dynamics, game mechanics and game components.

Gamification is treated as successful mean to facilitate consumer brand engagement. Consumer brand engagement is considered as multi-dimensional construct defined through three dimensions – cognitive, behavioral and emotional. Gamification created engaged experience which leads to beneficial consumer behavior towards company.

Literature review suggest gamification impact on consumer brand engagement model. Gamification construct is defined through game mechanics and game components. Successful gamification leads to flow and flow results in higher consumer brand engagement.

These assumptions were empirically tested with online survey in Lithuanian market. The data collected supports only part of assumptions. Gamification was found to have a significant relationship to Flow state, though of average strength. Positive relationship was also found between constructs of gamification and consumer brand engagement, though relationship is found to be weak. However assumption of Flow state to have positive impact to consumer brand engagement was not supported by evidence.

REFERENCES

- [1] Aparicio, A. F., Vela, F. L. G., Sánchez, J. L. G., & Montes, J. L. I. (2012) 'Analysis and application of gamification', In *Proceedings of the 13th International Conference on Interacción Persona-Ordenador (p. 17)*, ACM, doi: 10.1145/2379636.2379653.
- [2] Calder, B. J., Malthouse, E. C., & Schaedel, U. (2009) 'An experimental study of the relationship between online engagement and advertising effectiveness', *Journal of Interactive Marketing*, Vol.23, No. 4, pp. 321–331, doi:10.1016/j.intmar.2009.07.002.
- [3] Choi, D., & Kim, J. (2004) 'Why people continue to play online games: In search of critical design factors to increase customer loyalty to online contents', *Cyberpsychology & Behavior*, Vol. 7, No. 1, pp. 11–24, doi: 10.1089/109493104322820066.
- [4] Chou, Y.-K. (2015) *Actionable gamification: Beyond points, badges, and leaderboards*, Octalysis Media.
- [5] Csikszentmihalyi, M. (1990) *Flow: The psychology of optimal experience*, New York: Harper and Row.
- [6] Deterding, S. (2011) 'Situational affordances of game elements: a conceptual model', CHI, Vancouver, Canada, 7-12 May 2011.
- [7] Deterding, S., (2014) 'Eudaimonic design, or: Six invitations to rethink gamification', In M. Fuchs et al., eds. *Rethinking Gamification*. Lüneburg: meson press, pp. 305–323.
- [8] Deterding, S., Dixon, D., Khaled, R. & Nacke, L. (2011) 'From game design elements to gamefulness: Defining “gamification”', In: *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, ACM, Tampere, Finland, pp. 9–15, doi: 10.1145/2181037.2181040.
- [9] Deterding, S., Dixon, D., Khaled, R. & Nacke, L. (2011) 'From game design elements to gamefulness: Defining “gamification”', In: *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, ACM, Tampere, Finland, pp. 9–15, doi: 10.1145/2181037.2181040.
- [10] Deterding, S., Khaled, R., Nacke, L.E., & Dixon, D., (2011) 'Gamification: Toward a definition', In: *Proceedings of the 2011 annual conference extended abstracts on Human factors in computing systems - CHI EA '11*, New York, New York, USA: ACM Press.

- [11] Deterding, S., Sicart, M., Nacke, L., O'Hara, K., & Dixon, D. (2011) 'Gamification: Using game-design elements in non-gaming contexts', In *Proceedings of the 2011 annual conference extended abstracts on Human factors in computing systems - CHI EA '11*, New York, New York, USA: ACM Press, pp. 2425–2428, doi:10.1145/1979742.1979575.
- [12] Domínguez, A., Saenz-de-Navarrete, J., de-Marcos, L., Fernández-Sanz, L., Pagés, C., & Martínez-Herráiz, J.-J. (2013) 'Gamifying learning experiences: practical implications and outcomes', *Computers & Education*, Vol. 63, pp. 380–392, doi: 10.1016/j.compedu.2012.12.020.
- [13] Fischer, L. (2011) 'Exploring online engagement through the lens of PR theory: Investigating its communal orientation in a case study on edelman', *Doctoral dissertation*. Leed Metropolitan University.
- [14] Flatla, D. R., Gutwin, C., Nacke, L. E., Bateman, S., & Mandryk, R. L. (2011) 'Calibration games: making calibration tasks enjoyable by adding motivating game elements'. In *Proceedings of the 24th annual ACM symposium on User interface software and technology*, ACM, pp. 403-412, doi: 10.1145/2047196.2047248.
- [15] Gambetti, R. C., Graffigna, G., & Biraghi, S. (2012) 'The grounded theory approach to consumer-brand engagement', *International Journal of Market Research*, Vol. 54, No. 5, pp. 659-687.
- [16] Gartner (2011) 'Gartner predicts over 70 percent of global 2000 organisations will have at least one gamified application by 2014', Accessed 2014/01/15, <http://www.gartner.com/newsroom/id/1844115>.
- [17] Gartner (2012) 'Gartner says by 2014, 80 percent of current gamified applications will fail to meet business objectives primarily due to poor design', Accessed 2015/07/28, <http://www.gartner.com/newsroom/id/2251015>.
- [18] Gnauk, B., Dannecker, L., & Hahmann, M., (2012) 'Leveraging gamification in demand dispatch systems', In: *Proceedings of the 2012 Joint EDBT/ICDT Workshops*, ACM, Berlin, Germany, pp. 103–110, doi: 10.1145/2320765.2320799.
- [19] Groh, F. (2012) 'Gamification: State of the art definition and utilization', In N. Asaj, B. Konings, M. Poguntke, F. Schaub, B. Wiedersheim, & M. Weber (Eds.), *Proceedings of the 4th Seminar on Research Trends in Media Informatics*, pp. 39–46.
- [20] Herzig, P., Strahringer, S., & Ameling, M. (2012) 'Gamification of ERP systems-exploring gamification effects on user acceptance constructs. In *Multikonferenz Wirtschaftsinformatik*, pp. 793–804.
- [21] Hoffman, D. L. & Novak, T. P. (2009) 'Flow online: Lessons learned and future prospects', *Journal of Interactive Marketing*, Vol. 23, No. 1, pp. 23–34, doi: 10.1016/j.intmar.2008.10.003.
- [22] Hollebeek, L. (2011) 'Exploring customer brand engagement: Definition and themes', *Journal of strategic Marketing*, Vol. 19, No. 7, pp. 555-573, doi: 10.1080/0965254X.2011.599493.
- [23] Hollebeek, L. D., Glynn, M. S., & Brodie, R. J. (2014) 'Consumer brand engagement in social media: Conceptualization, scale development and validation', *Journal of Interactive Marketing*, Vol. 28, No. 2, pp. 149-165.
- [24] Huotari, K., & Hamari, J. (2012) *Defining gamification: a service marketing perspective*. In *Proceeding of the 16th International Academic MindTrek Conference on - MindTrek '12*, New York, New York, USA: ACM Press, pp. 17, doi: 10.1145/2393132.2393137.
- [25] Javornik, A., & Mandelli, A. (2013) *Research categories in studying customer engagement*, In AM2013 Academy of Marketing Conference, Cardiff.
- [26] Jiménez, S. (2014) 'Gamification Model Canvas', available at Game On lab <http://www.gameonlab.com/canvas/>.
- [27] Killian, E. (2013) *Gamification 2.0 - A concept*, Eamonn Killian.
- [28] Rheinberg, F., Vollmeyer, R., & Engeser, S. (2003) *Die erfassung des flow-erlebens*, na.
- [29] Robson, K., Plangger, K., Kietzmann, J., McCarthy, I., & Pitt, L. (2014) 'Understanding gamification of consumer experiences', *Advances in Consumer Research*, Vol.42.
- [30] Schultz, D.E. (2007) 'Focus on brand changes rules of engagement', *Marketing News*, Vol. 15, August, pp.7–8.
- [31] So, K. K. F., King, C., & Sparks, B. (2014) 'Customer engagement with tourism brands scale development and validation', *Journal of Hospitality & Tourism Research*, Vol. 38, No. 3, pp. 304-329, doi: 10.1177/1096348012451456.
- [32] Vivek, S.D., Beatty, S.E. & Morgan, R.M. (2011) 'Consumer engagement: exploring customer relationships beyond purchase', *Journal of Marketing Theory and Practice*, Vol. 20, No. 2, pp. 122–146.
- [33] Von Ahn, L., & Dabbish, L. (2008) 'Designing games with a purpose', *Communications of the ACM*, Vol. 51, No. 8, pp. 58-67, doi: 10.1145/1378704.1378719.
- [34] Werbach, K., & Hunter D. (2012) *For the Win: How game thinking can revolutionize your business*, Wharton Digital Press.
- [35] Witt, M., Scheiner, C., & Robra-Bissantz, S. (2011) 'Gamification of online idea competitions: Insights from an explorative case', In: *Proceedings of INFORMA-TIK 2011–Informatik Schafft Communities*, Lecture Notes in Informatics. Berlin, Germany, pp. 192.