Gamification as a Process Class: The Dialetic of user Interaction

Washington Sales do Monte[1], Elis Regina Monte Feitosa[2], Mércia Cristiley Barreto Viana[3], Alexsandra Bezerra da Rocha[4], Robelius De-Bortoli[5]

[1]Postgraduate Program in Intellectual Property Science - PPGPI. Federal University of Sergipe, Brasil.
Email: wsalesmkt@gmail.com
[2]Department of Administration, Federal University of Semi-Arid, Brasil.
Email: elisrmf@gmail.com
[3]Department of Administration. Catholic College of Rio Grande do Norte, Brasil.
Email: profamerciac@gmail.com
[4]Department of Geography, Federal University of Campina Grande - PB, Brasil.
Email: elisrmf@hotmail.com
[5]Postgraduate Program in Intellectual Property Science - PPGPI. Federal University of Sergipe, Brasil.
Email: ladec.ufs@hotmail.com

Abstract— *The study of gamification as a process has been growing in a multidisciplinary way in various areas of knowledge, being applied to the development of products, services and interaction with users in a search to make their experience more meaningful and promote the change of their behavior. This paper aims to present a dialectical view on the concept of gamification as a process of its relationship with changing user behavior. Descriptive research, which used as analysis the dialectical method divided into three moments, syncresis, analysis and synthesis. The revision of the texts concludes with an interdisciplinary view of gamification as a process, as well as its development is linked to the intrinsic, extrinsic motivations and the behavioral change of users, especially when they are inserted actions and activities, whether products or services. Gamification it is not just a set of methods or game mechanics, but a process that increases the likelihood of user experiences seeking their behavior change.*
Keywords— *Users, Processes, Gamication, dialectic.*

Resumo— *TO estudo da gamification como processo vem crescendo de forma multidisciplinar em diversas áreas do conhecimento, sendo aplicado ao desenvolvimento de produtos, serviços e interação com os usuários, na busca de tornar sua experiência mais significativa e promover a mudança de seu comportamento. Este artigo tem como objetivo apresentar uma visão dialética do conceito de gamification como um processo de sua relação com a mudança de comportamento do usuário. Pesquisa descritiva, que utilizou como análise o método dialético dividido em três momentos, sincrese, análise e síntese. A revisão dos textos termina com uma visão interdisciplinar da gamification como um processo, bem como seu desenvolvimento está atrelado às motivações intrínsecas, extrínsecas e à mudança de comportamento dos usuários, principalmente quando inseridas ações e atividades, sejam produtos ou serviços. Gamification não é apenas um conjunto de métodos ou mecânica de jogo, mas um processo que aumenta a probabilidade de experiências do usuário buscando uma mudança de comportamento.*
Palavras-chave— *Usuário, Processos, Gamification; dialética.*

I. INTRODUCTION

Process understanding is becoming important to organizations in the current context. How transformations in the market, such as changes in consumer and user behavior, are constantly changing factors that are directly linked to process development. Considered as a set of activities performed in sequence defining a path to be followed, almost always resulting in a product or service, the study of processes has been gaining ground in both the academic and business environments.

Defining process is not a very easy task. According to etymology the word 'process' comes from the Latin procedure. The Portuguese language dictionary defines process as "Continuous and prolonged action, which

expresses continuity in the accomplishment of a given activity", the word is also used in various contexts: in legal, physics, chemistry, zoology. However, it is in the industry that it has been used to define a set of procedures related to product and service, seeking to improve results (ASSUNÇÃO; MENDES, 2000; CONEJO; GASPARIN; SILVA HOUNSELL, 2019).

Management studies understand the process as a sequence of activities performed to generate and create value for customers (HUOTARI, K.; HAMARI, 2012; KORN; SCHMIDT, 2015). This value creation is always related to other processes: creation, co-creation, development as well as product delivery. In a more holistic view, the processes in administration are managing the inputs, activities, infrastructure, and references needed to add user value (BRASIL; SANTOS; DIETRICH, 2010).

The processes are present in the development of new products and with the market strategies. For organizations product development is therefore a potential source of developing competitive advantage and differentiation, considered two essential processes for the survival of organizations, especially those inserted in highly competitive markets (BROWN; EISENHARD, 1995; PIMENTEL, et al., 2018).

In service development the process is related to meeting human needs. The services differ from the products in possessing: intangibility, are ideas and concepts, perishability, can not be stocked, besides variability, simultaneity. The execution of a service may or may not be related to a specific product (KELLER; KOTLER, 2006).

Processes are important for work time and procedure optimization. Process engineering that seeks to understand and promote process improvement as: to form of working analyzing and improving the flow of information, storing, as well as performing organizational analyzes and indicators to support decision making regarding an organization's production system (GROVER; KETTINGER, 2000).

The processes are also present in the studies of psychology. Perception, attention, memory, thinking, language and learning are described as Basic Psychological Processes. Vygotsky, directed his studies to understand the Higher Psychological Functions, this is, processes constructed in the relationships that humans have with each other and with nature, for him these functions are developed through the mediation, that is, a process of teacher/student interaction during the teaching-learning process (STERNBERG, 2010; SABE; KASTRUP, 2011; LEE, 2019; LANDERS, 2019).

The process is also present in information theory. When observing the understanding of the process applied to information architecture during software construction, some elements are necessary as: the presence of a goal, the functions to reach that goal, the people involved, responsible actors, chronologies for carrying out the activities, as well as requirements, constraints, intentions or aspirations (PEDRAZA-GARCIA; ASTUDILLO; CORREAL, 2014; ALHAMMAD; MORENO, 2018; HERRANZ, et al., 2019).

Considering the need to debate the concept of gamification and its definition as a process class, The aim of this research is to present a dialectical view on the concept of gamification as a process its relation to user behavior change. The research is considered as a descriptive exploratory research, developed from the dialectical method. This method is based on the search for the construction of knowledge from the understanding and abstraction of thought. The dialectic theory of knowledge occurs basically in three great moments: Syncresis, Analysis and Synthesis (VASCONCELOS, 1992).

II.   PROCESS AS GAMIFICATION, CONCEPT DIALETICS

The definition of the concept of gamification is the subject of investigation by several authors from different fields of knowledge. Marketing, psychology, interactive technologies, the social sciences, healthcare and even public policy, all interested in how to use gamification as a way of modifying user behavior and engaging them in activities and processes in a pleasurable way.

For the authors, Robert Mitchell, Lisa Schuster and Judy Drennan (2017), The study of gamification applied to social marketing is understood as a process that has the ability to improve a particular service and thus support the creation of value for the user. Gamification is linked in the authors' view to the significant increase in intrinsic motivation of individuals, Thus, as a process gamification directly impacts the maintenance of behavior and can thus be measured according to the increase of this motivation, always supporting the change in human behavior.

This perspective corroborates the authors Huotari and Hamari (2012). For these authors, gamification is a process that enhances a service with gaming features and experiences, with the purpose of supporting user value creation. The authors argue that gamification cannot be understood solely as a set of methods or game mechanics, but, as a process that increases the likelihood of gaming experiences, thus becoming a co-creation process between developer and players. What can be highlighted

in their study is the separation of service concepts and systems for gamification application as a process class.

Huotari and Hamari (2012), present that services are linked to game design elements, that is, corresponds to a set of specialized competences, knowledge and skills, thus relating the actions of. Thus, systems are understood as the use of resources, namely: people, technologies and information to improve one's own situation or others.

For Swacha and Ittermann (2017), start from the idea that everyday actions can be playful. These authors present that gamification is a thinking process and game mechanics that aims to engage users and solve problems. Within this context, game design elements seek to achieve different goals by supporting user engagement and experience. The importance of extrinsic and intrinsic motivations are also presented by the authors. DIn this way, games are human resources that change behavior and gamification is seen as a process improvement technique.

Gamification has been the subject of study in educational processes for some time in Brazil (ALVES; MINHO; DINIZ, 2014; DA SILVA, A. R. L., et al., 2014). The authors Oliveira and Cruz (2018), present the concept of gamification from the reflection on the structure of Octalysis, a framework created by Yu-kai Chou, which has as its center the human being composed of eight axes, each axis represents a dimension of different meanings, empowerment of creativity, social influence, unpredictability, restraint, scarcity , possession and achievement, with the positives at the top and bottom the negative aspects (Black Hat); on the right the extrinsic motivation factors, on the left the intrinsic motivation factors (SANCHEZ-GORDÓN; COLOMO-PALACIOS; HERRANZ, 2016; FERREIRA; MORGADO; MIRANDA, 2018).

Oliveira and Cruz (2018), present gamification as a technology that can be inserted into the teaching-learning process for better student interaction. As a result the authors proved that gamification can promote the development of skill transformations in primary English teaching.

Authors like Korn, Schmidt (2015), help understand gamification applied to business processes. These authors demonstrate that concept study is still beginning to settle in industry and service. Gamification is a social technology that seeks to improve human experiences, user engagement and satisfaction. When applied to business

gamification helps in visualizing management by objectives, while in industry it helps in measurability and service improvement. As presented in the aforementioned studies, the authors also view gamification as a process that helps support the creation of user value.

Gamification should be viewed as a process. The teacher Werbach (2014), from the University of Pennsylvania in your article (Re)Defining Gamification: A Process Approach, stresses that gamification is the use of game design elements in non-game context. However, the author points out that not everything that includes a game element can be considered a gamification. For this author, gamification is defined as a process of making activities closer and more like games. This concept validates the ideas of the authors Huotari and Hamari (2012), where gamification is seen as a process that enhances services making it the most fun experiences ever seeking to create user value.

As a practical example of how gamification is a process that can be applied to various contexts, Inchamnan (2019), presents a gamification proposal used for behavior change for older people in Thailand. This author discusses gamification as a persuasive tool that can be used to change people's mentality and culture. Gamification engages people to change their behavior, which can only be done by providing information that encourages desired behavior. For this author, engagement can be characterized by the intensity of behavior and emotional quality, as well as the active involvement of a person during a task.

The concept of gamification is seen as a process that has the ability to improve the organizational environment. The authors Oprescu, Jones e Katsikitis (2014), reinforce that the work environment has stress levels, social capital, loyalty, rapid change and workforce demographics. These elements are important for gamification system implementation. For these authors gamification can be used to turn some of their work processes into a gaming experience.

Huotari and Hamari (2017), argue that the study of gamification has been the subject of research by both industry and academia. When applied to the service, gamification has the ability to promote behavior change and enable valuable experiences. The authors present that players in their action of interaction with service systems create value by becoming co-creators of the process. Figure 01 seeks to represent this view of the authors.
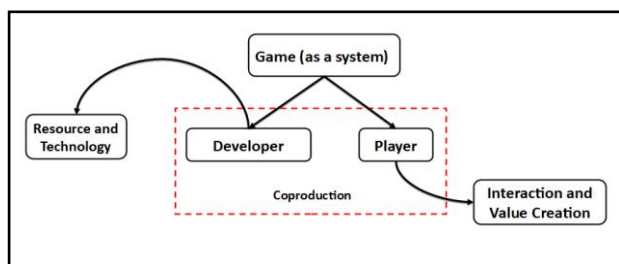
Fig. 1: User Interaction with Gamified System

The authors point out that systems are seen as a set of features that enable the user to accomplish their related goals. This way gamification lets you render new meanings to existing features. Service here is understood as any system that promotes interaction resulting in a value proposition. As such, (game) design elements can be described as services and games as service systems.

III. CONCLUSION

Dialectics as a methodological principle helps to understand the concept of gamification as a process. In general, the idea of gamified system development is related to the use of non-game game design. This principle is related to the change of user behavior in different categories of products or services seeking to promote engagement and involving the user in value building.

It is possible to realize that the word process evokes many meanings and can be applied to different scenarios, management, health, education, sports, among others. Process can have many meanings, however, what can be observed in the authors' view is a similarity in all contexts, There are always action stocks and input transformations (abstract quantities) that are processed from established objectives (gamified system), being dynamic and possible to apply them in different scenarios.

Understanding the concept of gamification as a process contributes to the understanding of how its application can be used to change human behavior. Defined by an interdisciplinary point of view, gamification seeks to promote an integrative view with systems (products or services), as well as user interaction in value creation.

REFERENCES

[1] ALHAMMAD, M. M.; MORENO, A. M. Gamification in software engineering education: A systematic mapping. Journal of Systems and Software, v. 141, p. 131-150, 2018

[2] ALVES, L. R. G.; MINHO, M. R. S.; DINIZ, M. V. C. Gamificação: diálogos com a educação. In: FADEL, Luciane Maria et al.(Org.). Gamificação na educação. São Paulo: Pimenta Cultural, 2014, p. 74-97.

[3] ASSUNÇÃO, M. A.; MENDES, P. J. V. Mudança e Gestão de Processo em Organização Pública. Congresso Internacional del CLAD. Anais... Santo Domingo: CLAD, p. 14, 2000.

[4] BRASIL, V. S.; SANTOS, C.; DIETRICH, J. F. Co-Criação de valor: proposição de uma estrutura de análise dos elementos influenciadores da criação compartilhada de valor nas empresas. Anais do EMA–IV Encontro de Marketing da ANPAD, Florianópolis, 2010.

[5] BROWN, S. L.; EISENHARDT, K. M. Product development: Past research, present findings, and future directions. Academy of management review, v. 20, n. 2, p. 343-378, 1995.

[6] CONEJO, G. G.; GASPARINI, I.; SILVA HOUNSELL, M. Detailing Motivation in a Gamification Process. In: 2019 IEEE 19th International Conference on Advanced Learning Technologies (ICALT). IEEE, 2019. p. 89-91

[7] DA SILVA, A. R. L., et al. Gamificação na educação. Pimenta Cultural, 2014.

[8] FERREIRA, M.; MORGADO, L.; MIRANDA, G. L. Análise das funcionalidades de gamificação nos ambientes de aprendizagem Classcraft e Moodle à luz da framework Octalysis. 4º Encontro sobre Jogos e Mobile Learning, p. 117-130, 2018.

[9] HERRANZ, Eduardo et al. Gamification for software process improvement: a practical approach. ET Software, v. 13, n. 2, p. 112-121, 2018.

[10] HUOTARI, K.; HAMARI, J. Defining gamification: a service marketing perspective. In: Proceeding of the 16th international academic MindTrek conference. ACM, 2012. p. 17-22.

[11] _____. A definition for gamification: anchoring gamification in the service marketing literature. Electronic Markets, v. 27, n. 1, p. 21-31, 2017.

[12] JOENK, I. K. Uma Introdução ao Pensamento de Vygotsky (An Introduction to the Thought of Vygotsky). Revista Linhas, v. 3, n. 1, 2002.

[13] KOTLER, P., KELLER, K. Administração de Marketing. Pearson - Prentice Hall, 2006.

[14] LANDERS, Richard N. Gamification misunderstood: how badly executed and rhetorical gamification obscures its transformative potential. Journal of Management inquiry, v. 28, n. 2, p. 137-140, 2019.

[15] LEE, B. C. The Effect of Gamification on Psychological and Behavioral Outcomes: Implications for Cruise Tourism Destinations. Sustainability, v. 11, n. 11, p. 3002, 2019

[16] MITCHELL, R.; SCHUSTER, L.; DRENNAN, J. Understanding how gamification influences behaviour in

social marketing. Australasian Marketing Journal (AMJ), v. 25, n. 1, p. 12-19, 2017.

[17] OPRESCU, F. JONES, C.; KATSIKITIS, M.. I PLAY AT WORK—ten principles for transforming work processes through gamification. Frontiers in psychology, v. 5, p. 14, 2014.

[18] PEDRAZA-GARCIA, G.; ASTUDILLO, H.; CORREAL, D. Modeling Software Architecture Process with a Decision-Making Approach. In: 2014 33rd International Conference of the Chilean Computer Science Society (SCCC). IEEE, 2014. p. 1-6.

[19] PIMENTEL, J. et al. A gamified requirements inspection process for goal models. In: Proceedings of the 33rd Annual ACM Symposium on Applied Computing. ACM, 2018. p. 1300-1307.

[20] SANCHEZ-GORDÓN, M.; COLOMO-PALACIOS, R.; HERRANZ, E. Gamification and human factors in quality management systems: mapping from octalysis framework to ISO 10018. In: European Conference on Software Process Improvement. Springer, Cham, 2016. p. 234-241.

[21] KORN, O.; SCHMIDT, A. Gamification of business processes: Re-designing work in production and service industry. Procedia Manufacturing, v. 3, p. 3424-3431, 2015.

[22] SADE, C.; KASTRUP, V. Atenção a si: da auto-observação à autoprodução. Estudos de Psicologia, Rio de Janeiro, v. 16, n. 2, p.139-146, 01 maio 2011.

[23] STERNBERG, R. J. Psicologia Cognitiva. 5ª ed. São Paulo: Cengage Learning, 2010.

[24] SWACHA, J.; ITTERMANN, R. Enhancing the tourist attraction visiting process with gamification: key concepts. Engineering Management in Production and Services, v. 9, n. 4, p. 59-66, 2017.

[25] WERBACH, K. (Re) defining gamification: A process approach. In: International conference on persuasive technology. Springer, Cham, 2014. p. 266-272.