Climate-related disclosures – how increase CSR communication with gamification?

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Abstract:

Although the gamification gained substantial interest over the last decade, the results of applying it into corporate social responsibility (CSR) communication are still very rare. The main goal of this study is to check the potential impact of using different gamification mechanisms on communicating climate-related issues. The choice of mechanisms was prepared based on self-determination theory (SDT) and needs involved in it (needs for competence, autonomy and social relatedness). Moreover, the examination was conducted concerning the correlations between income and education level and CSR communication effectiveness with three different groups of gamification mechanisms used. For the need of this study four various surveys were prepared, containing different gamification mechanisms with the purpose to promote the importance of climate-related risks.

Keywords: Gamification, Self-determination theory, CSR, CSR communication

Track: Social Responsibility & Ethics

1. Introduction

Humanity faces decreasing quality of the ecosystem and increasing environmental risks, including tipping the biosphere into a state where it would be difficult or even impossible to maintain the human civilization (Broman & Robèrt, 2017). Climate-related risks became an impossible to ignore problem not only locally. Taking scalar terms into account, ecological inclusiveness at the local level focuses mostly on protecting local access to and ownership of resources as well as protecting local ecosystems. At the national level tough, it requires that resources are well managed and the sustainability of ecosystem services is guaranteed. Finally, at the global level, ecological inclusiveness implies not causing harm to other countries and using common, but also differentiated responsibilities for dealing with global threats and problems (Gupta & Vegelin, 2016). A variety of environmental issues pose a gargantuan threat to sustainability including air pollution, deforestation and global warming (Gupta & Vegelin, 2016). To address worldwide climate concerns like those mentioned above, it is crucial to strengthen the awareness of sustainability, managed by changing relevant behaviours to promote environmental quality (Steg, Bolderdijk, Keizer, & Perlaviciute, 2014). Effective communication of sustainable initiatives is imperative for corporations due to increasing pressures from stakeholders (Wolf, 2014) including clients, suppliers, employees and even government. Especially, considering not only stakeholders' recommendations or even their demands, but also legal requirements concerning sustainability disclosures, such as the European Union (EU) Directive 95/2014 (Aureli, Del Baldo, Lombardi & Nappo, 2020). Most investors agree that financial and non-financial information should be integrated, what is becoming a new business trend as most of the non-financial information are disclosed together with the financial statements (Markota Vukić, Vuković, & Calace, 2018). Disclosure of environmental, social and governance (ESG) data included in the non-financial statement or in the separate report is expected to be verified by an independent assurance services provider, what can only prove that it is seriously taken area, crucial for stakeholders (Markota Vukić et al., 2018). The need for ESG reporting and accurate disclosure of non-financial information is undeniable.

It is inevitable that Corporate social responsibility (CSR) is not only a growing trend, but it is becoming an important part of our day-to-day reality (Lin, Padliansyah, & Lin, 2019). It is not only business that adapted to this change. As it comes to ways that sustainability influenced consumers many studies have been conducted (Barone, Rodrigues, Nogueira, Guimarães, & Behrens, 2020). Aspects that are critical for success when applying any sustainability goal and

need to be considered are among others: stakeholders' engagement and communication (Dale, Kline, Parish, & Eichler, 2019). One of the solutions how one can engage stakeholders and strengthen the communication could be another growing trend – gamification.

Gamification is described as the use of game design elements in contexts other than games (Deterding, Dixon, Khaled, & Nacke, 2011). This (not only) business phenomenon is gaining importance on the market and there is a high probability that companies will increasingly use gamified solutions in the near future (Lamphun, Lamphun, Patompak, & Chitpong, 2019). Gamification has clearly been gaining in importance since 2011 and there are many studies, cases and research concerning its vary implementations in enterprises, including HR (Küpper, Klein & Völckner, 2021) or marketing (Hofacker, De Ruyter, Lurie, Manchanda & Donaldson, 2016). However, the literature on the use of gamification in corporate social responsibility activities is still relatively scarce. One of very interesting actions in this area is CSR communication that has been assumed to provide an effective post-crisis strategy to mitigate the negative impact of crisis on the corporation and thereby realize the benefits of CSR (Ham & Kim, 2020) what can be very beneficial for companies considering current situation caused by COVID-19 pandemic. That is another reason why gamifying sustainability communication is a topic worth exploring.

2. Theoretical and research background

According to Liu, Santhanam and Webster (2017), gamification founds its application in many different theories, including economical, marketing and psychological ones. The most common theory among gamification studies is the self-determination theory (SDT) (Krath, Schürmann & von Korflesch, 2021). It is an empirically based theory of human motivation, that focuses on motivation types that affect e.g., performance (Deci & Ryan, 2002). Self-determination theory distinguishes between controlled and autonomous motivation. With the former, people experience pressure to think, feel, or behave in particular ways, while in the latter, they experience volition, or a self-endorsement of their actions. Three main intrinsic needs involved in self-determination include the need for competence, autonomy, and psychological (social) relatedness (Liu et al., 2017). One of the best-found research on combining these needs with gamification is "How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction" (Sailer, Hense, Mayr, & Mandl, 2017). Authors made a basic assumption that game design elements can deliberately be used to modify non-game contexts and thus can purposefully

address motivational mechanisms. To investigate the effects of such modifications, psychological need satisfaction theory can be applied. From a theoretical perspective, therefore, the emerging question is which specific psychological needs can be addressed by which specific game design elements. The authors found the answer to this question by matching several gamification mechanisms with psychological needs that they can address. The authors assumed that the need for competence can be addressed by such mechanisms as points, badges or leaderboards. Points provide the player with granular feedback, that can be directly connected to the player's actions. Badges and leaderboards assess a series of actions and provide cumulative feedback. Taking that into account, essentially, it is the feedback function of these mechanisms that can evoke feelings of competence. Going further, the need for autonomy includes two aspects: experiences of task meaningfulness and experiences of decision freedom. In the first aspect (autonomy regarding task meaningfulness), stories play an important role, because of their potential help with experiencing players' own actions as meaningful and volitionally engaging, regardless of whether choices are available. In the second aspect (autonomy regarding freedom of decision), avatars are very relevant, as they offer the players freedom of choice. Lastly, the need for social relatedness can also be affected by a story, but only if it offers a narrative frame in which the player is given a meaningful role. Together with teammates, who can be real co-players or non-player characters, a sense of relevance can be evoked by emphasizing the importance of the players' actions for the group's results. A shared goal, that can be conveyed within a meaningful story, can also foster experiences of social relatedness. Given these motivations and mechanisms one can see the similarity with Bartle's types of players (1996). In this work, the players will not be described in detail, but it is worth mentioning, that when preparing application of gamification, one should consider that different mechanisms motivate particular types of players and the best gamified solutions should have something for all types of players, not just selected ones (e.g., achievers), although that is the goal in the beginning in the particular situation (e.g., recruitment process).

As it comes to the topic of gamifying CSR communication, it has not been well investigated so far. The literature concerning this area is very new and not exactly complete, even comparing to some other gamification field e.g., gamification of education that is much better investigated (Van Roy & Zaman, 2018; Klock, Gasparini, Pimenta & Hamari, 2020). Although there are many examples of using games design elements in the CSR area among others describing behaviour change intervention on household electricity savings (Wemyss, Cellina, Lobsiger-Kägi, De Luca & Castri, 2019).

One of the most interesting examples of gamifying Corporate Social Responsibility communication was presented by Maltseva, Fieseler and Trittin-Ulbrich (2019). The authors conducted three different questionnaires to examine their thesis. All of them were in the form of the survey, but every questionnaire was concerning different topic (combating deforestation, reducing the ecological footprint of food and preserving bird habitats). The study could help to understand how this kind of CSR communication can be gamified effectively. Despite the ambivalence of the research results, authors strongly believe that the research adds new insights to literature both on CSR communications and on gamification work. One of the conclusions from this study is the following: one of the findings of the research shows that gamification may not be a suitable tool to educate about sustainability issues. One of the experiment's results (with a gamified vs non-gamified survey) illustrated that the gamification of communication did not interest the participants with the deforestation problem more than conventional, non-gamified framing. The interesting hypothesis is that gamification causes cognitive fatigue and people just don't have the energy to keep doing anything. But, according to authors' opinion, it seems that gamification, due to its association with having fun and good time (what took place in all three experiments) is not a suitable tool for communicating severe topics. Perhaps such tasks mean that serious environmental problems contrast with the form in which they are administered, and the result is dissonance and negative outcome of the study.

Although, the topic has not been investigated enough, there are some studies that can confirm gamification of CSR communication to be possible (Khan, Yadav, Beena & Kumar, 2019; Wanick & Bui, 2019; Gnauk, Dannecker & Hahmann, 2012). The area that this study shall cover in the first instance is effectiveness of gamifying CSR communication.

3. Research questions and methodology

Considering research presented above, one can ask how the results of the gamified survey could look like if different mechanisms were implemented. Another crucial aspect to investigate is understanding "effectiveness" of communication. For the purposes of this study, effectiveness was divided into 3 factors: engagement in the survey (if people are more engaged in filling a survey, they should read the text more carefully, remember more and maybe even make some actions concerning the issue, even though they do not believe in it 100%), perception of the problem (what do they think about the problem? Do they think that the issue is important?) and tendency to recommend it to a friend (maybe they didn't engage and do not take the problem seriously, but if they send the survey to a friend, maybe he/she will). All those

components should help improve CSR communication effectiveness depending on what goal is to be achieved.

After the literature review, there are still many blank points in the gamification of CSR communication area. The following Research Questions (RQs) were prepared to fill some of them:

- Research Question 1: What impact has gamification on the survey participations' engagement?
- Research Question 2: What impact has gamification on the survey participations' perception of the problem?
- Research Question 3: What impact has gamification on the survey participations' tendency to recommend the questionnaire to a friend?

Study sample was based on an online survey of 208 respondents (59% female) who were recruited online via Facebook. Respondents are citizens Poland who were willing to fill the survey. 65% of participants were between 21-25 years old during the study.

The participants were randomly divided into four groups - three experimental and one control, 52 participants each. The difference was the introduction of specific gamification mechanisms and dynamics. First group was introduced with points and badges (the need for competence), second with avatars and story (the need for autonomy) and third with story regarding being part of a team (the need for social relatedness). The control group had similar structure, but no gamification mechanism was introduced.

The participants of the study were given a text to read concerning climate-related risks. Later, they were given questions to the text, checking whether they had read the text carefully. At the end, the participants evaluated how they perceive the problem of climate-related risks and to what extent they would be willing to recommend a friend filling out the questionnaire, both using Likert scale 1-10.

The surveys were conducted on June 1-10, 2021. The participants of the study did not report any problems with understanding the instructions, but there were individual questions about the purpose of the study, which was incomprehensible to the participants (what was understandable, as they did not have access to the questionnaires of the other groups). No participant reported technical issues.

The narration in this survey was implemented by adding additional "slides" with GIFs and the text in the beginning of the survey and between the questions. After that a respondent answered questions concerning his/her gender, age. When that happened, in 2 two of the experimental groups another "slide" with the story appeared. In the group concerning the need for competence, the badges were given after completing the first set of questions and at the end, depending on a score. If the participant gained 5 out of 5 points – he/she was given a gold badge and a short text with congratulations. If the score was 4 – the badge was silver and bronze, if the score was 3. If the participants scored 2 or less points, the text with feedback appeared, but there was no badge. The number of scored points (and the total possible amount to score) was available to be seen next to every question, so the participants were able to gain immediate feedback after every answer they gave (in the group regarding need for competence).

4. Results

To check if the variables were likely to be normally distributed, the Kolmogorov-Smirnov test was conducted. Out of all sets of data, only 2 were normally distributed, both being the control groups (in questions regarding perception of the problem and potential recommendation to a friend). Because of those results, ANOVA test could not be conducted, so Kruskal-Wallis was selected to find a statistical significance.

A Kruskal-Wallis Test was performed to determine if median perception of the problem was the same for four different groups (3 gamified and 1 control group). A total of 208 responses were received in the analysis. Number of participants in each group equalled 52. Due to relatively small number of participants per group, p value was estimated as 0.1.

As it comes to the first research aspect – perception of the problem, the test revealed that the median perception of the problem was the same (H = 3.44, p = 0.328) among the four groups. That is, there was a statistically insignificant difference in median perception of the problem among two or more groups.

As it comes to the next research aspect – tendency to recommend a survey to a friend, the test revealed that the median perception of the problem was not the same (H = 7.55, p = 0.056) among the four groups. That is, there was a statistically significant difference in median perception of the problem among two or more groups.

As it comes to the last research aspect – engagement, the test revealed that the median perception of the problem was the same (H = 0.73, p = 0.867) among the four groups. That is,

there was a statistically insignificant difference in median perception of the problem among two or more groups.

Summing up the results of all the mentioned aspects, only tendency to recommend the survey was statistically significant. What is even more interesting, that summing up the results, in this more "social' category, the group with gamification mechanisms addressing need for social relatedness had the lowest number of points from all 3 gamified groups (control group had the lowest number in all categories). So, it is important not to be mistaken that tendency to recommend the survey is caused by mechanisms addressing social relatedness.

5. Conclusions

Given the described results, there is some proof that gamification could help in improving CSR communication. However, one should be very cautious about arriving at any confident conclusion.

After examining the results, the list of conclusions can be stated as follows: Gamification can slightly improve CSR communication effectiveness, especially as it comes to spreading the news. The improvement can be also visible in terms of perception of a problem, but only when addressing the need for competence. Gamification can slightly improve CSR communication effectiveness but depending on what goal author wants to achieve. If it is concerns spreading the news, gamification could be an effective tool. But as it comes to drawing attention to the climate-related risks problem or engaging participants into reading a text, then, it may not be the most suitable solution.

6. Limitations and further research

The first and probably most important limitation is the groups' strength (N=52). If the number of participants in each group was twice or three times bigger, the conclusions could be more specific and more reliable. Second thing worth looking into was choice of the gamification mechanisms that were applied. For example, in the need for competence group, points and badges were used, but if e.g., leaderboards or performance graphs were introduced, maybe the results would have been different. Also, it is worth mentioning that if other p-value was estimated (such as 0.05 or 0.01), all of the results would be statistically insignificant, so futher studies with biggest research sample is required.

As it comes to further research, it is worth examining the differences between particular gamified groups, not only if there is statistical significance with the control one.

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