SOLVING THE SOCIAL CHALLENGE OF DEEP POVERTY THROUGH GAMIFICATION

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Abstract

The main goal of the publication is to understand and bring closer the issue of extreme poverty among the social challenges through the help of gamification and to find the necessary tools to overcome it. In my work, I examine the role gamification can play in social awareness. My key question was how a gamification program can contribute to enabling people to imagine themselves in the lives of their disadvantaged peers and thus become sensitive to their problems. I also wanted to find out if such a game can motivate participants to take real action and initiate actual assistance. In my research, I examine the experiences of a two-round sensitization program involving participants. The method of investigation includes observation and structured questionnaire surveys. Throughout the process, I summarize the findings in professional roundtable discussions with the stakeholders.

Keywords: *gamification, extreme poverty, sensitization, attitude formation*

1. Introduction

One of the most pressing issues among social challenges is deep poverty, which is defined as follows: The poverty *"may be defined as a human condition characterized by sustained or chronic deprivation of the resources, capabilities, choices, security, and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political, and social rights"*. (United Nations, 2001: 5) From an economic perspective, many accept the value provided by the Worldbank, which currently considers income below \$2.15 per day as the absolute poverty threshold – defined in 2017 prices. This value was released in the fall of 2022; previously, income below \$1.90 per day was considered the absolute poverty threshold, which is approximately 7-800 Hungarian forints per day. (Worldbank, 2022, 2023)

Taking a historical approach to the issue of poverty, it is worth noting that the number of people living in extreme poverty on Earth decreased from 36% in 1990 to 10% in 2015. The pace of change is currently slowing, influenced by the crisis caused by the coronavirus and the Russian-Ukrainian conflict, and there is a concern that it will reverse decades of progress in the fight against poverty. This is further supported by Sumner and colleagues (2020) in a research published by the UNU World Institute for Development Economics Research in 2020, highlighting that the economic consequences of the global pandemic could increase global poverty by up to half a billion people, or eight percent of the total human population. In 2020, after two decades, the proportion of workers living in extreme poverty increased for the first time from 6.7% in 2019 to 7.2%, pushing an additional 8 million workers into poverty. Based on 2021 data, ten percent of the world's population (approximately 700 million people) currently

live in poverty, with the largest portion in sub-Saharan Africa (37.9%), followed by Oceania (18.8%) and Central and South Asia (6.6%). In North Africa and West Asia, it is 4.4%, in Latin America and the Caribbean, it is 3%, and in East and Southeast Asia, it is 1%. (United Nations, 2022)

The Hungarian Central Statistical Office (KSH) uses the following definition for the value of the poverty threshold: *"60 percent of the median (equivalent) income per consumption unit at purchasing power parity, expressed in euros and national currency."* (KSH, 2022) The value of the poverty threshold is constantly increasing, in the case of a one-person household in 2018 it was HUF 1,119,752 (EUR 3,511), which compared to 2008 increased by 57 (23 in the case of EUR) percent, in 2020 it was HUF 1,393,900 (EUR 3,968), in 2021 HUF 1,500,327 (EUR 4,185). Compared to 2011, the forint figure for 2021 increased by 91 percent, while the same figure in euro increased by 49 percent (2011: HUF 787,200; EUR 2,818). (KSH, 2023a)

A further analysis of poverty is based on the change in the poverty rate, which defines the proportion of the population living in households with an income of less than 60% of the median income, as a proportion of the total population. The median income is obtained by ranking persons by their income, and the median income is the amount below and above which, after ranking, there are the same number of persons. On this indicator, Hungary has been better off than the EU average for years. The gender gap in Hungary is slightly higher than the EU average and in the opposite direction: women were in a better position in Hungary, while men were in a better position in most EU Member States until 2015. The share of people living in persistent poverty in Hungary is also lower than the EU average. However, considering that the average income level in Hungary is one of the lowest in the EU, this is not a favorable situation in absolute terms. (KSH, 2023b)

It is natural to recognize the importance of addressing poverty since it affects a significant number of people. Those living in poverty often experience discrimination, a sense of exclusion, and in many cases they become isolated from their environment. Meeting their basic needs is also a challenge, including providing the necessary conditions for proper education and paying utility bills. Consequently, they often become victims of usury or other criminal activities. Their lack of knowledge leads to a lack of understanding about how to seek help. (European Anti-Poverty Network, 2022)

In my opinion, successful management of poverty requires collective action, collaboration, and assistance to those who find themselves in this situation.

2. A short overview of the gamification approach

Gamification is based on games, as games provide experiences, that allow us to gain knowledge, and develop our social and interpersonal skills. In my research (Kiss, 2021; Kiss, 2022), I have come to the conclusion that gamification can also be helpful in addressing social challenges. Although researchers have proposed various definitions, a unified definition has not yet been established. Kapp's (2012) definition builds upon game-based operations, principles, and thinking, incorporating the aesthetic and design characteristics of games, where people solve problems and learn from their actions. The importance of game design can also be observed in the works of Deterding et al. (2011), Zichermann et al. (2011), and Werbach et al. (2012). The concept coined by Gartner (2014) is particularly close to my understanding. It starts from game mechanics and game design, aiming to increase participant engagement and motivation in the process of gamification.

Gamification is a mindset that is based on motivation and acts as a driving force. It is important to note that not all game mechanics are entertaining, but when the known processes are combined and

designed properly, they can become entertaining. The enjoyment of a game does not stem from each individual element, but rather from the overall experience created within us. (Pusztai, 2018; Kiss, 2020)

3. The Szociopoly – game and reality

Szociopoly which is a Hungarian-developed interactive board game that provides an opportunity to formulate questions related to poverty and deep poverty and reevaluate the stereotypical answers to these questions. This game has been successfully used for several years, and my standpoint is that gamification can contribute to addressing poverty as one of the most significant social issues. The first figure shows the game board and the necessary accessories used in the game.
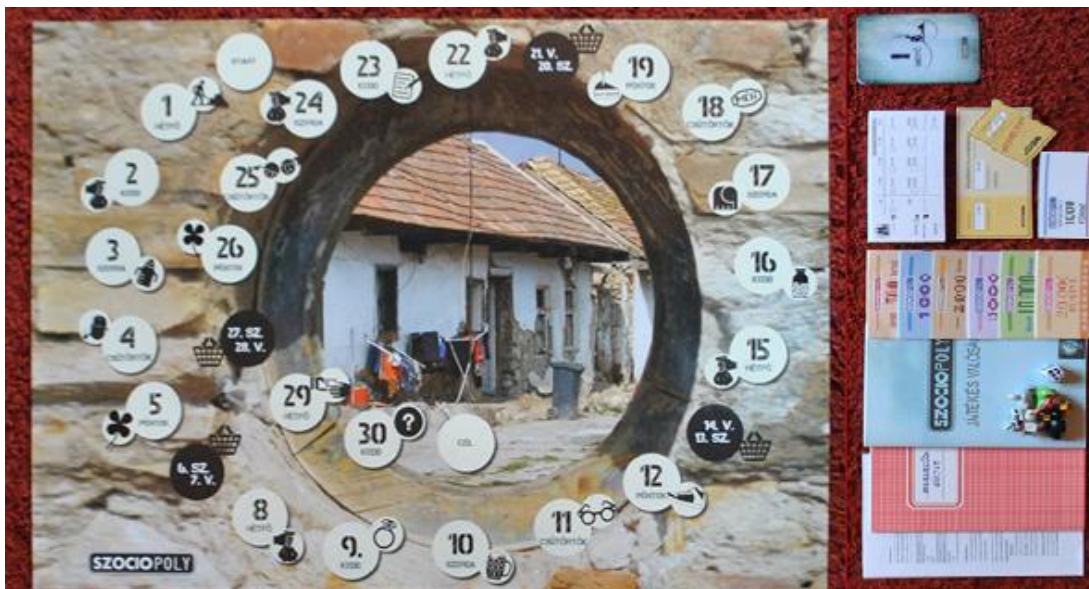

Figure 1. *The Szocipoly game*
Source: Chance for Children Public Benefit Association (2022)

Players form teams of four to six people, called families, who experience the everyday life of a less privileged family living in a small Hungarian village during a specific month. Some examples of income sources include family allowances, wages for public works, and income from occasional jobs. The aim of the game is to sensitize participants and enable them to better connect with this segment of society. The key to this gamification example lies in presenting real cases and placing participants in real-life situations (such as choosing between working in the informal sector or having an official job). It provides a sense of experiencing poverty and emphasizes the importance of responsible financial management. The game's further impact can be seen in the formation of local collaborations that can alleviate poverty and potentially eliminate it in the long run. If games like this and other good gamification practices become more widespread, an increasing number of social problems can become solvable.

4. Description of the survey methodology

My primary question was how a gamification program can contribute to enabling people to imagine themselves in the lives of their disadvantaged peers and thereby become sensitive to their problems. I also wanted to know if such a game can motivate participants to take real action and initiate actual assistance.

The method of investigation was observation and structured questionnaire surveys. Additionally, I summarized the lessons learned through professional roundtable discussions with the participants. I created a three-part self-compiled, self-administered, anonymous questionnaire consisting of forty-five questions. The questionnaire first inquired about demographic information, followed by an assessment of preliminary knowledge. After the game, questions were asked to gather insights and suggestions. The questionnaire included various question types, including dichotomous, single- and multiple-choice closed-ended questions, open-ended questions, and Likert scale ratings ranging from 1 to 6. In the first part of the questionnaire, I assessed the respondent's gender, education, type of residence, work experience and living conditions. I asked him if he had ever been unemployed. I did this with the motive to see if he could feel one of the big problems of the stakeholders. In the second part of the questionnaire, I asked the respondents to identify the most pressing social problems of our world and Hungary (from the options offered), and then I narrowed the evaluation from global problems to extreme poverty. I was wondering who, according to the respondents, it is their responsibility to solve the issue of extreme poverty, and also whether the respondents had come across gamification and Sociopoly. In the third part, I formulated questions related to the design of the game and the feelings and experiences that arose during the playing time. The primary purpose of the survey was to test a tool for addressing a social challenge, to sensitize the participants to the topic, and to capture their feelings and thoughts. Furthermore, I aim for this method to be applicable to larger groups; however, it needed to be initially tested in this narrower context.

5. Results

The research was not representative, and the findings represent the viewpoints of the participants. Before conducting the actual survey, a five-person pilot test was conducted to refine the necessary components. The study was conducted twice: the first round took place in the spring of 2022, while the second round was conducted in autumn 2022 (the results of the first survey were presented in Kiss, 2022). Regarding the demographic data, it should be noted that the first round involved an eleven-person community consisting of individuals from disadvantaged regions associated with public education, while the second round involved a larger group of voluntary participants from a major city. Based on the data from the first group, it became necessary to involve another group in the study. In the study, each individual participated only once.

In the first round, 82% of the participants knew someone living in deep poverty, while in the second round, 42% of the participants did. In terms of educational qualifications, it can be stated that nine individuals had a high school diploma, five had a vocational or technical certificate, and nine had a bachelor's or postgraduate degree. In terms of age composition, the participants ranged from 28 to 61 years old, with an average age of 44. All participants were employed at the time of the survey, and among them, fourteen individuals had experienced unemployment at some point in their lives.

In 2017, the World Economic Forum (WEF) identified the world's biggest problems among young people aged 18 to 35, according to Business Insider (2017). Based on a survey conducted in 186 countries with approximately 31,000 responses, the most pressing issues listed in the first table were

identified. The respondents identified climate change as the greatest concern, followed by war and then income inequality among individuals. Among social issues, poverty ranked fourth. This survey inspired the inclusion of a question in the pre-game questionnaire where respondents were asked to select the most pressing issues from these problems.

In the Szociopoly game, participants were able to provide multiple answers during the response phase, as illustrated in the first table. The colours used in the table aid in navigation. The ranking was determined by the number of occurrences. In the first survey, climate change, wars, and income inequality ranked in the top three, similar to the WEF (2017) ranking. In the second survey, conducted in autumn 2022, wars ranked first, followed by government corruption in second place, and income inequality in third place, consistent with the other two rankings. Overall, the rankings in the two surveys differed slightly, with the second survey giving more weight to factors that are felt domestically and have a greater impact on individuals' everyday lives compared to the global issue of climate change. The largest difference in ranking was observed for religious conflicts (fell back five places based on participants' decisions), while poverty was considered less pressing by four places. No participant selected "none of these" or "other" as their response.

Table 1. *Ranking the world's problems*

Ranking				Description of the problem	Total number of answers (pieces)		
WEF (2017)	players of Szociopoly				I.	II.	Σ
	I.	II.	Σ				
2	2	1	1	Wars	7	7	14
1	1	4	2	Climate Change	8	5	13
3	3	3	3	Income Inequalities	6	6	12
6	4	2	4	Government Corruption	4	7	11
10	5	7	5	Unemployment and Lack of Economic Opportunities	4	4	8
9	7	5	6	Lack of Security and Welfare	3	4	7
4	8	6	7	Poverty	3	4	7
8	6	8	8	Lack of Education	3	4	7
7	9	9	9	Food and Water Security	2	1	3
5	10	10	10	Religious Conflicts	2	1	3

Source: own editing

Next, participants were asked to identify the three most significant problems concerning Hungary. Combining the results of both rounds, income inequality topped the list, followed by security, lack of prosperity, and education. The majority of participants (sixteen individuals) considered poverty a very serious problem and a pressing social issue. One question asked, *"In your opinion, whose responsibility is it to solve the issue of deep poverty?"* The response options were evaluated on a Likert scale ranging from 1 to 6, where 1 indicated the least significant and 6 indicated very significant. The responses highlight that the majority of participants (nine individuals) rated the responsibility of the state and government as 6.

The responsibility of individuals and their families was rated as 5, while local governments received a median rating of 4, with an average score of 3.35. Participants considered local communities and workplaces to have a lesser role in problem-solving.

Several participants were familiar with gamification (seven individuals), but they had not encountered Szociopoly. The majority of participants were familiar with gamification in educational contexts (gamified learning opportunities in school and non-school environments), while a few were familiar with it in the context of workforce motivation or marketing.

The game proceeded according to the normal schedule in both cases. There were no remarkable incidents, debates, or conflict situations. The rules of the game were understood by the created families, who made decisions collectively and listened to each other. Some game cards evoked joy or sadness among the participants. The game was played for one month within the available one-and-a-half-hour time frame.

After Szociopoly, the participants also completed the third part of the questionnaire. In response to the question of how important it is to address deep poverty, the average score given by the participants in the first round was 5.1, while the players in the second round gave an average score of 4.8 (on a scale of 1–6, where 1 is the least important, and 6 is the most important). The overall average was 4.9. The uniqueness of the question was that it was also asked in the pre-game questionnaire, where average scores of 5.3 and 4.9 were given (overall average of 5.1). Three participants gave lower scores to the first question compared to their pre-game responses (an average of 1.3 points lower). Four participants (including one from the first round) increased their scores, while thirteen participants (including seven from the first round) did not change their responses between the two questions. These scores were surprising to me because I assumed that Szociopoly would shed even more light on one of the game's goals, the fight against deep poverty.

The game helped shape the participants' perspectives, and using the previously mentioned scale, they rated the impact as 5. The representation of reality was also evaluated on a scale, with an average score of 4.7. Through the game, the participants were able to imagine themselves in deep poverty significantly (average score of 4.2).

I was pleased to see that gamification was highly rated as a tool to emphasize the importance of responsible management: the participants gave an average score of 5 to this question, with 5 also being the mode. The elements of the game could be evaluated by marking multiple answers, which can be seen in the second figure. Overall, the participants liked the teamwork experienced during the game the most. The game's objective (experiencing deep poverty) and its twists (the everyday life of a family living in modest circumstances) tied for 65.2%, while the role of the game leader was slightly less favored by half of the participants. In the future, it is advisable for the creators of the game to make improvements to the physical game board and clarify the rules – based on both rounds' feedback. There were no responses indicating that someone did not like any aspect of the game. No significant further improvement suggestions were made.
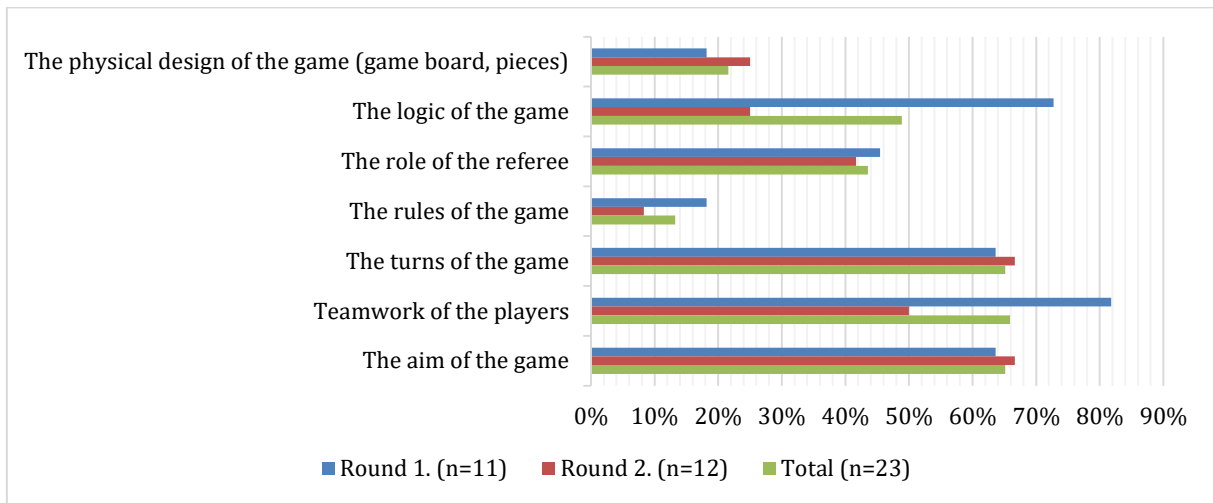
Figure 2. *Evaluation of the elements of the Szociopoly*
Source: own editing

After playing the game, all but one of the participants would recommend Szociopoly to others, considering it a good opportunity for social awareness. When asked who they would recommend the game to, the responses included children, families, government employees, local communities, government representatives, educators, and staff in preschools and schools. Social workers in the social sphere were also suggested as potential players. The one participant who did not recommend Szociopoly stated that the game was not motivating enough for them. The evaluation expressions requested from the participants can be seen in the third figure, where it is evident that many found Szociopoly thought-provoking and eye-opening, but words such as enlightening and instructive also frequently appeared.

Figure 3. *An expression about the game of Szociopoly*
Source: own editing

In the final set of questions, participants were able to provide open-ended responses based on their own thoughts. Notably, when asked, *"During Szociopoly, I experienced..."*, many mentioned the importance of planning ahead and pointed out the feeling of hopelessness that individuals in disadvantaged situations face. The low wages of those relying on public work were also mentioned, as well as the real issue of deep poverty and how one can fall into debt with a single bad decision. When completing the sentence *"Based on my experience in the game, in the future…"*, several participants mentioned becoming more empathetic and accepting citizens and supporting the promotion of assistance. Some highlighted more conscious spending and becoming more tolerant as a result of the game, and for some, the issue of deep poverty became more prominent in their focus.

The thoughts that emerged were also summarized in a brief roundtable discussion, where lessons learned and doubts were addressed. The previously experienced feelings and the aftereffects were compared, and the three-part questionnaire was also discussed. All in all, successful sessions were concluded, as the games achieved their goals: the participants' professional and community competencies improved, and sensitization took place. I believe that in the future, they will be able to establish connections more easily with those affected in society. The success of the program is demonstrated by the numerous questions we discussed during and at the end of the game, as well as the smiling faces observed during the sessions.

6. Summary

The purpose of the publication was to present the Hungarian-developed game Szociopoly and determine whether the gamification approach can help society address social challenges. The topic is of particular importance because in today's complex everyday life, it is necessary to reduce social inequalities. In my opinion, Szociopoly can serve as a good practice in the future for raising awareness among communities and fighting deep poverty, both domestically and internationally. My goal in the future is to participate in further Szociopoly events and use the initial input and output questionnaires to delve deeper into the measurable effects of the game, which can contribute to sensitizing individuals and developing gamification best practices.

Acknowledgements

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