

Relationship between gameful experience in the workplace and employee socialization: A pilot study

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Abstract

As organizations continue to adopt gamification practices to create favorable behavioral change outcomes in employees, it is important to understand these interventions' role in the socialization process for newcomers. While gamification is often thought to rely solely on specific elements, such as points and rewards, research suggests that the gameful experience generated by gamification may be a critical factor in creating these outcomes. Therefore, based on a cross-sectional design, this pilot study aims to examine the relationship between gameful experience and socialization outcomes.

The results suggest that gameful experience is positively related to social integration, role clarity, and task mastery, with social experience being the most important dimension. In contrast, the competition was not related to any socialization outcomes. However, the role of gamification elements in this process remains unclear, as the interaction with these elements was not a significant predictor of socialization outcomes and did not influence the relationship between gameful experience and socialization outcomes when controlled for. Nevertheless, these results provide insight into the specific work environment conditions that contribute to better employee socialization. This is important for practitioners as it allows them to target specific areas for improvement in order to facilitate the adjustment of newcomers in the organization. Additionally, these findings contribute to a deeper understanding of gameful experience as a construct, suggesting that its creation is not solely dependent on gamification elements.

Keywords

Gamification, gameful experience, organizational socialization, newcomer adjustment.

1. Introduction

The use of gamification, or the incorporation of game design elements such as points, badges, and leaderboards, into non-game contexts [1] has gained increasing attention in the field of organizational behavior as a means to enhance employee motivation and engagement [2]. It is predicted that the human resources field will account for most of the growth in the gamification market [3] as organizations seek to improve employee engagement and performance through the use of these techniques. While research has shown that gamification, in general, is related to mixed work-related outcomes [4, 5, 6, 7, 8, 9, 10],

a more detailed approach suggests that it is not the gamification elements that solely lead to these outcomes but rather the gameful experience they can create [11, 12]. Therefore, gamification interventions are most effective when they create a gameful user experience rather than just implementing specific gamification elements.

Given the subjective nature of the gameful experience induced by gamification techniques and its potential to lead to a range of behavioral change outcomes that are desirable or advantageous for organizations, it is important to consider how this experience may impact various organizational processes, including the socialization of newcomers in the workplace. These employees, who are in the process of

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learning the norms, values, and behaviors of the organization and becoming integrated into its culture, may be particularly affected by gamification elements and the gameful experience they create. Some of the main tasks that newcomers must undertake in order to effectively integrate into the organization are building relationships with supervisors and colleagues, learning job tasks and procedures, and clarifying their role within the organizational context [13]. Accordingly, gamification elements in a work environment can provide immediate feedback for achievements and activities, ensure the accuracy and clarity of assigned tasks, and offer support from a focused social community [14].

However, the relationship between gameful experience and employee socialization in the context of organizations that use gamification techniques is currently understudied. This exploratory study aims to fill this gap in the literature by examining the potential impact of gameful experience on socialization outcomes for newcomers in organizations that utilize gamification techniques. By understanding this relationship, we can gain insight into gamification's potential benefits and drawbacks for employee socialization in the workplace.

2. Theoretical background

2.1. Organizational socialization

Organizational socialization indicates a process by which an individual becomes integrated into an organization's culture and acquires the knowledge, skills, and values needed to succeed in their role [15]. It is a form of social learning that occurs when an individual is influenced by other members of the organization and develops new perceptions, behaviors, and attitudes in response to the work environment [16]. Organizational socialization can take many forms, from a short trial to long-term, formalized training and development programs. Therefore, it is crucial to consider the role of organizational socialization in the workplace, as it can significantly impact an individual's success and well-being within the organization [15].

Organizational socialization is a continuous process and can vary in duration depending on the individual and the organization. However, the initial effects of socialization are often measured soon after employment through indicators of adjustment, such as role clarity, task mastery, and social integration [15]. Role clarity refers to an

individual's understanding of job duties and responsibilities within the organization [17]. Employees ought to have a clear understanding of their role in order to be able to perform their tasks effectively and efficiently. Task mastery refers to an individual's ability to understand and effectively carry out the tasks required for their role [18]. This includes having the necessary knowledge and skills to complete tasks, as well as the ability to adapt to new tasks and challenges. Finally, social integration refers to an individual's ability to build relationships and become a part of the social network within the organization [18]. It involves developing a sense of belonging and fitting in with the organization's culture and values.

Overall, these adjustment indicators can provide insight into the effectiveness of the organizational socialization process and help identify areas for improvement.

2.2. Gamification and gameful experience

Gamification is said to create experiences similar to traditional games [22]. Therefore, when creating gamification-based processes, it is crucial to include gamification elements and ensure that they interact with the user in a way that produces the desired psychological effects. Based on this, gamification has been conceptualized as a process that motivates users to participate in gamified activities actively and leads to the desired behavioral outcomes [20]. The feeling of enjoyment and fun, known as playfulness, may be one of the psychological effects generated through this process.

Recently, there has been a tendency to characterize these psychological effects as gameful experience [e.g., 11, 21, 22], which generally refers to the experience of interacting with a gamified system. It is argued that gameful experience may mediate the relationship between how gameful a system is and the behavior caused by that system [11].

Gameful experience is a multifaceted concept [21]. Therefore, it is not sufficient to focus on a single aspect of this experience. However, initial findings suggest that it involves psychological states related to need fulfillment, affective states related to emotional arousal, and altered states of consciousness achieved through deep engagement with the gamified environment [11].

Even though there are various ways of measuring gameful experience [e.g., 21], one of the recent attempts to thoroughly conceptualize it was by developing a gameful experience model and questionnaire GAMEFULQUEST [22], which proposed seven dimensions: *accomplishment* (the desire for successful performance, goal achievement, and progress), *challenge* (need for a great effort in order to be successful, testing an individual's abilities), *competition* (the sense of rivalry towards one or more actors in order to achieve a desirable outcome.), *guided* (a sense of being directed on how to perform a task and improve behavior), *immersion* (a sense of being fully absorbed in an activity and disconnected from the real world), *playfulness* (engagement in voluntary and enjoyable behaviors driven by imagination or exploration, often without strict rules), and *social experience* (encompassment of the presence of people, both in person and in service, and the interaction with them).

There is limited research on gameful experience in the workplace, but it appears that gameful experience is associated with higher levels of self-directed learning among employees in an online training environment [23] and has a moderating effect on the relationship between task performance and engagement of gig workers (e.g., drivers, food delivery riders) [24]. However, it is difficult to compare these results due to the use of different methods to measure gameful experience.

2.3. The current study

Gamification has been shown to positively impact new employee onboarding experiences, with studies finding that it increases engagement and motivation [25] and improves information retention throughout onboarding [26]. However, the effects of gamification on other aspects of organizational socialization, such as employees' adjustment or long-term integration into the workplace culture, have not been thoroughly examined.

There is limited research on the effects of gamification on organizational socialization outcomes, such as task mastery, social integration, and role clarity. While it has been suggested that gamification may have a low impact on role clarity [4], further investigation is needed to determine the actual effect size. Additionally, there is a lack of research on the relationship

between these adjustment indicators and gameful experience, which is a central focus of this study. A recent study demonstrated that constructing an employee onboarding app without addressing gameful experience can result in low user engagement and a lack of perceived usefulness [33]. This highlights the importance of considering the elements of gameful experience in the design and implementation of gamification techniques for employee onboarding and socialization in general, and emphasizes the need for further research in this area.

The work environment is a crucial aspect of organizational socialization for new employees. Researchers often rely on uncertainty reduction theory [27] to explain this process, as new employees initially encounter high uncertainty when entering a new and unfamiliar environment. This situation creates tension and prompts newcomers to seek ways to reduce the existing uncertainty in order to make the work environment more predictable, understandable, and ultimately controllable. However, it is unknown how the presence of gamification elements and the resulting gameful experience may impact this perception of the work environment.

Despite the potential benefits of studying gameful experience in the workplace, such research may be limited due to the tendency to examine gameful experience in isolation (e.g., by focusing on a single gamified system or app, or conducting experimental studies using gamified tasks). However, the socialization process of new employees is complex and cannot be fully understood by isolating individual gamification elements. Additionally, in real-world environments, employees may simultaneously interact with multiple sources of gamification. Therefore, in this study, we introduce the concept of gameful experience in the workplace, which refers to the overall employee's experience while interacting with multiple sources of gamification in the work environment.

It is important to note that the gameful experience may not necessarily be created through traditional game elements alone [22]. Therefore, it is reasonable to assume that various factors in the workplace environment, such as the nature of work, organizational culture, and others, may contribute to or enhance the creation of a gameful experience. It is important to consider the broader context in which the gameful experience is being created rather than simply focusing on traditional game elements.

In summary, the goal of this study is to understand the relationship between gameful experience and employee socialization in the workplace, with a particular focus on three specific socialization outcomes: task mastery, social integration, and role clarity. The first objective is to examine the relationship between gameful experience and these three socialization outcomes. The second objective is to understand how the presence of gamification elements may impact this relationship. Finally, the third objective is to assess the predictive properties of gameful experience on role clarity, social integration, and task mastery.

3. Methods and study design

3.1. Participants and study design

This study utilized convenience sampling to collect responses from 161 employed individuals who were recruited via public invitations on various social media channels. All ethical guidelines were followed, including obtaining informed consent from participants and ensuring anonymity.

After excluding 12 responses due to missing data, the final sample consisted of 129 women (86.58%) and 20 men (13.42%) with an average age of 35.97 (SD = 11.27). Of the respondents, 98 (65.77%) had a university degree (bachelor level degree or higher), 21 (14.09%) had a college degree (professional bachelor level degree), and 30 (20.13%) had a high school education. In terms of job-related variables, 45 participants (30.20%) had held their current position for less than one year, whereas 104 (69.80%) had held it for more than one year. Furthermore, of the total respondents, 46 (30.90%) occupied managerial positions and 103 (69.10%) were in non-managerial roles. To further clarify, it should be noted that this study did not limit participants by their job tenure (i.e., the amount of time they had been working in a particular organization) because this was a pilot study intended to explore the relationship between organizational socialization outcomes and a gameful experience. There is no concrete time frame within which these organizational socialization outcomes are expected to occur, and the timing may vary for each individual. As such, some statistical measures will be tested to determine if a group with different levels of job tenure exhibits different socialization outcomes.

3.2. Measures

Participants in this study completed a questionnaire that assessed demographic and job-related variables, as well as variables related to gameful experience, interactions with gamification elements, and the outcomes of organizational socialization (i.e., role clarity, social integration, and task mastery). The questionnaire was administered in Lithuanian, and back-translation was utilized for any measurements that were not available in Lithuanian. Permission to use and/or modify the instruments was granted by the authors.

Interaction with gamification. To measure interactions with gamification elements in the workplace, this study used three components: the number of encountered gamification elements, the frequency of interaction with encountered gamification elements, and engagement level with encountered gamification elements. While frequency is a common measure when assessing interaction with gamification elements (e.g., [30], [31]), we also included an engagement level measure in this study as intensive interactions with gamification elements have been found to be more strongly associated with gamification-related outcomes [32]. Participants were first presented with descriptions of nine different gamification elements and were asked to indicate whether they had encountered any of these elements in their workplace (Yes or No question). If a gamification element had been encountered, participants were asked to rate the frequency of their interaction with the element on a 5-point Likert scale (from "1 – Rarely" to "5 – Very often") and their level of engagement with the element on a 5-point Likert scale (from "Not at all engaged" to "Very engaged"). A score of 0 was attributed to these aspects if a gamification element was not encountered. To calculate the average interaction score for each participant, the frequency and engagement scores for each encountered gamification element were summed and divided by two to get the mean score for each element. These mean scores were then added together and divided by the total number of encountered gamification elements. This score was then used in the analysis. It was chosen to combine these measures to better capture the general interaction with gamification, as different elements may elicit different patterns of interaction. For example, a participant may encounter one element rarely but engage with it

intensively, while encountering another element frequently but engaging with it superficially or not at all. By combining the frequency and engagement scores, we aim to obtain a more comprehensive picture of the overall interaction with gamification in the workplace. The following is a list of presented gamification elements: *Points/Point system, Leaderboards, Badges/Trophies, Levels/System of levels, Avatar/Profile, Progress tracking/Progress bar, Chat channels/Clans/Guilds, Challenges, Competitions/Contests*. These gamification elements were selected because they are well-recognized, easily assessable through self-report measures, and have been used in previous research [e.g., 31].

Gameful experience in the workplace. During the study, no instruments were found that evaluated gamification in the workplace. Therefore, the GAMEFULQUEST model [22] was used in this study, and scales were developed based on this model to assess the seven dimensions of a gameful experience. The instrument was adapted to evaluate overall gamification in the workplace, which may come from multiple gamification sources. This approach differs from other gameful experience measurement instruments in that it does not evaluate a single gamification system but rather the overall gameful experience in an environment where the individual interacts with multiple gamification sources. Each dimension of gameful experience was treated as a separate scale and assessed using four items, with responses rated on a 5-point Likert scale ranging from "Strongly agree" to "Strongly disagree". To examine the psychometric properties of this instrument, exploratory factor analysis was first conducted. As this is a pilot study and the existing literature indicates that gameful experience is not a unified construct [19], this step aimed to investigate whether each scale of gameful experience could be considered a distinct entity. The results supported this, as a single factor was identified in all factor analyses (KMO ranged from 0.629 to 0.792, $p < 0.001$, and factor loadings ranged from 0.533 to 0.886). Upon evaluating the Cronbach alpha for each scale, good internal consistency was found for all dimensions of gameful experience (the coefficient ranged from 0.763 to 0.823), except for the *immersion* scale. Here, the Cronbach alpha was inadequate (0.526), so the results for this dimension were not included in further research. Detailed psychometric properties

of the gameful experience measures used in this study are provided in Table 4.

Organizational socialization outcomes. To measure role clarity, a 6-item scale developed by Morrison (1993) was used. Task mastery and social integration were each assessed using 6-item and 7-item scales, respectively (Morrison, 2002). An example item for task mastery was "I rarely make mistakes when conducting my job assignments," and for social integration, "My co-workers seem to accept me as one of them." All of these measures required participants to evaluate the items on a 5-point Likert scale, where "1" indicated "Strongly disagree" and "5" – "Strongly agree". The Lithuanian translations of these items demonstrated good internal consistency, with Cronbach alpha coefficients of 0.832, 0.750, and 0.848 for role clarity, task mastery, and social integration, respectively. This suggests that the items are reliable indicators of these constructs.

3.3. Data analysis

Data collected in this study were analyzed using SPSS 24.0 software and a variety of statistical methods. Descriptive statistics were calculated, including means, standard deviations, and percentage response rates. The psychometric properties of the measurement instruments were assessed by exploratory factor analysis or by calculating their internal consistency using Cronbach's alpha.

To examine relationships between research variables, the Pearson correlation coefficient was used. Partial correlations were also calculated to examine the relationship between socialization outcomes and a gameful experience while controlling for the interaction with gamification. This approach was used to better understand the specific relationship between certain variables and more accurately interpret the analysis results. Differences between groups (gender, job tenure, job position) were analyzed using Student's t-test. Finally, linear regression analysis was also employed to investigate the interdependence of variables.

Before conducting these analyses, the normality of the data was assessed integrally, taking into account a variety of indicators including skewness and kurtosis values, visual inspections, and Q-Q (quantile-quantile) plots. The obtained values for skewness and kurtosis fell within the range of -0.7 to 0.7, indicating a normal distribution of the data.

4. Results

The following results section presents the sample's descriptive statistics for all measured scales, which are summarized in Table 1.

Table 1

Summary of descriptive statistics: mean, standard deviation, minimum and maximum values of research variables.

| Variable | M (SD) | Min (Max) |
|-------------------------------|--------------|-----------|
| Role clarity | 22.73 (3.78) | 12 (30) |
| Task mastery | 22.97 (3.13) | 15 (30) |
| Social integration | 25.04 (4.68) | 15 (35) |
| Accomplishment | 14.76 (3.03) | 7 (20) |
| Competition | 10.68 (3.30) | 4 (20) |
| Guided | 13.31 (3.13) | 6 (20) |
| Playfulness | 13.32 (3.16) | 6 (20) |
| Challenge | 13.70 (3.12) | 5 (20) |
| Social experience | 13.73 (3.17) | 4 (20) |
| Interaction with gamification | 1.77 (1.76) | 0 (5) |

In the study sample, the gamification element that occurred most frequently was *Competitions/Contests*, with 46 participants, followed by *Chat Channels/Clans/Guilds*, with 44 participants. More than half participants (54.4%) reported encountering at least one gamification element in their workplace. On average, participants reported encountering 1.42 (SD = 1.71) gamification elements.

To determine if there were any significant differences in the socialization outcomes of role clarity, social integration, and task mastery based on sociodemographic and work-related variables, we conducted a Student's t-test. The results

indicated that there were no significant differences in these variables, allowing us to continue our analysis with the entire sample, regardless of job tenure.

In order to investigate the relationship between socialization outcomes and gameful experience dimensions while controlling for the effect of interaction with gamification, we conducted correlation analyses (Table 2). In particular, there are strong positive correlations between role clarity and guided ($r = .600, p < .001$), social integration and social experience ($r = .537, p < .001$), and moderate positive correlation between task mastery and guided ($r = .306, p < .001$). It is worth noting that there was no significant correlation between socialization outcomes and the competition dimension. When controlling for the effect of interaction with gamification, the relationships between the variables remained largely unchanged. This means that the relationship between the variables was not significantly influenced by the perceived presence of gamification elements in the workplace but rather may be mediated by other factors. Overall, these findings suggest that higher levels of gameful experience, with the exception of competition, are mostly associated with better outcomes of organizational socialization.

In the final part of the analysis, separate multiple regression analyses were performed with the six gameful experience dimensions and interaction with gamification as independent variables and socialization outcomes as dependent variables (Table 3). The model results for each regression were as follows: role clarity (Adjusted $R^2 = .442, F = 17.746, p < .001$), social integration (Adjusted $R^2 = .465, F = 19.374, p < .001$), task mastery (Adjusted $R^2 = .136, F = 4.321, p < .001$).

Table 2

Gameful experience relationship between socialization outcomes.

| Variables | Zero-order correlations | | | Partial correlations (control variable: interaction with gamification) | | |
|-------------------|-------------------------|--------------------|--------------|--|--------------------|--------------|
| | Role clarity | Social integration | Task mastery | Role clarity | Social integration | Task mastery |
| Accomplishment | .301** | .438** | .150 | .271** | .423** | .129 |
| Competition | .001 | -.090 | -.097 | -.067 | -.141 | -.144 |
| Guided | .600** | .689** | .306** | .569** | .676** | .275** |
| Playfulness | .347** | .443** | .069 | .298** | .416** | .026 |
| Challenge | .546** | .459** | .276** | .506** | .431** | .238** |
| Social experience | .604** | .537** | .234** | .570** | .514** | .195* |

**Correlation is significant at the .01 level (2-tailed), *Correlation is significant at the .05 level (2-tailed).

Table 3

Regression analysis of organizational socialization outcomes.

| Independent variables | Dependent variable | | | | | | | | |
|-------------------------------|--------------------|-------|-------------|--------------------|-------|-----------------|--------------|-------|-------------|
| | Role clarity | | | Social integration | | | Task mastery | | |
| | B (SE) | t | p | B (SE) | t | p | B (SE) | t | p |
| (Constant) | 12.69 (1.42) | 8.94 | <.001 | 12.77 (1.72) | 7.42 | <.001 | 20.03 (1.46) | 13.71 | <.001 |
| Accomplishment | .308 (.12) | 2.38 | .019 | -.055 (.15) | -.35 | .727 | .301 (.13) | 2.257 | .026 |
| Competition | -.049 (.07) | -.654 | .514 | -.180 (.09) | -1.97 | .051 | -.108 (.77) | -1.38 | .167 |
| Guided | .397 (.13) | 2.91 | .004 | .059 (.16) | .35 | .727 | -.018 (.13) | -.125 | .901 |
| Playfulness | -.128 (.09) | -1.30 | .194 | <.001 (.11) | .001 | .999 | -.040 (.07) | -1.38 | .167 |
| Challenge | -.318 (.12) | -2.72 | .007 | .059 (.14) | .42 | .675 | -3.12 (.12) | -2.59 | .010 |
| Social experience | .473 (.13) | 3.55 | .001 | .966 (.16) | 5.98 | <.001 | .315 (.13) | 2.29 | .023 |
| Interaction with gamification | .167 (.14) | 1.17 | .243 | .073 (.17) | .42 | .672 | .202 (.14) | 1.376 | .171 |

Significant p-values are presented in bold.

The results of the multiple regression analyses showed that the gameful experience dimension of social experience was a significant predictor for all three socialization outcomes. In addition, the challenge and accomplishment dimensions were significant predictors for role clarity and task mastery, respectively. Also, the guided dimension significantly predicted role clarity. It is worth noting that the interaction with gamification was not found to be a significant predictor in any of the models. These findings suggest that certain aspects of gameful experience are related to the socialization outcomes of role clarity, social integration, and task mastery in the work environment. Furthermore, these results suggest that incorporating certain elements of gameful experience into the work environment may positively influence employees' socialization process.

5. Discussion

The present study aimed to investigate the relationship between gameful experience in the workplace and socialization outcomes (i.e., role clarity, task mastery, social integration) for newcomers in organizations utilizing gamification techniques.

Our results suggest that, to some extent, gameful experience in the workplace is related to all three socialization outcomes. The perceived work environment can significantly contribute to the process of newcomer adaptation. While gameful experience is not a one-dimensional construct, many of its dimensions are related to the satisfaction of particular needs or the experience of positive emotions [11]. Therefore, gameful experiences can likely make new employees feel more comfortable and secure in an unfamiliar work environment, potentially helping them better cope with the main tasks of adjustment in the organization. According to our results, a work environment that motivates striving for the best results, encourages stepping out of one's comfort zone, helps understand what is being done correctly or incorrectly, is playful, and offers a social experience can strongly contribute to how quickly a newcomer integrates into a new team and learns their role within the organization. This is in line with other studies [e.g., 8] that have found a link between gamification and employee learning and the creation of social relationships. However, it is important to note that in this study, we were not

evaluating the value of the gamification elements themselves but rather the psychological experiences they potentially create. Despite the fact that dimensions of gameful experience, such as guided, social experience, and challenge, are also related to task mastery, this relationship is significantly weaker. This may be because gameful experiences do not directly impact how an employee understands and effectively carries out the tasks required for their work role but rather act as a secondary factor, such as in a study that found the gameful experience to be a moderating relationship between task performance and engagement [24]. Finally, it is worth noting that none of the socialization outcomes in this study were statistically significantly related to the experience of competition in the workplace. In general, competition experienced in the workplace can negatively impact employees, particularly newcomers who are still adjusting to their new organization. For example, in teams with high levels of competition, newcomers may show less initiative in contributing to idea-generation processes, which can negatively affect or hinder teamwork in the long run [28].

Another objective of this study was to determine the impact of the interaction with gamification elements in the work environment on the relationship between gameful experience and socialization outcomes. Partial correlation analysis showed that, when controlling for interaction with gamification, the relationship between gameful experience and task mastery, social integration, and role clarity remains unchanged. There are a few possible explanations for this result. Firstly, as traditionally thought, gameful experiences may not be created solely from gamification elements. It is possible that both environmental and individual variables also contribute to the strength of this relationship, such as organizational culture or the personal characteristics of co-workers. This would suggest that gamification elements play a secondary role in creating a gameful work environment experience. It was already argued that the ability to create gameful experiences might not be limited only to gamification elements [22]. Another possible explanation for these results may be related to the timing of the application of gamification elements. It has been observed that the effectiveness of gamification tends to suffer from the novelty effect – a gamified system may gradually lose its ability to produce psychological effects (especially if no changes are made to it) over time [29]. Since this study did not control for

the factor of when the employee began interacting with gamification, it is not ruled out that gamification elements could have initially made the work environment more gameful, and this experience could later be strengthened and maintained by other organizational factors. However, further research is needed to confirm these assumptions.

Finally, in terms of the predictive properties of gameful experience, the strongest relationship was found with role clarity. In this case, the expression of this variable was able to be predicted from four dimensions: accomplishment, guided, challenge, and social experience. On the other hand, social integration could only be predicted from social experience in the workplace. For task mastery, although this variable had several significant predictors (social experience, accomplishment, challenge), these results should be viewed with caution, as the regression model explained a small portion of the data variance. In general, it can be concluded that since social experience predicted all three socialization outcomes, the ability to interact with or communicate with others, social connectedness, and the feeling of being part of a group are particularly important for the adjustment of new employees. This result is crucial from a practical perspective, as it identifies specific factors that organizations should focus on, whether gamified systems or other factors ensure them.

5.1. Limitations and future research

One limitation of this study, as it was a pilot study, is a relatively small sample size; therefore, the results may not be widely applicable. A larger sample size would be necessary to strengthen the findings.

It should be noted that there were certain biases in the sample, as evidenced by the overrepresentation of women and participants with higher education levels. Although these differences were controlled for in the data analysis, they remain a limitation of the study as they may affect the generalizability of the findings. Future research should be cautious of these biases and strive to obtain a more diverse and representative sample to increase the external validity of their results.

Also, the gamification practices in different organizations may vary. However, this study's measuring interaction with gamification elements

was based on descriptions of nine specific gamification elements. It is possible that other gamification elements were present in the work environment that were not included in this study and could have affected the results. Future research should aim to capture a more comprehensive picture of the gamification practices in the workplace in order better to understand their impact on gameful experience and socialization outcomes. In addition, it would be significant to conduct a longitudinal study to examine how gameful experience and socialization outcomes change over time in response to gamification practices in the workplace.

Furthermore, this study used a newly developed questionnaire to measure gameful experience in the workplace. While most questionnaire dimensions showed good reliability, additional data is needed to ensure its structure, especially since the immersion dimension was not used due to low internal consistency. Future research should aim to refine the measurement of gameful experience in the workplace to capture better the full range of psychological experiences associated with gamification in the workplace.

While interaction with gamification elements did not significantly influence the relationship between gameful experience and socialization outcomes, the role of gamification elements in this process is not known, as many important work-related variables (e.g., group size and leader support) were not controlled for. In order to better understand the role of gamification elements in socialization outcomes, future research should consider these variables. Also, it is worth noting that in this study, interaction with gamification elements was measured as a combination of frequency and engagement level with gamification. Future studies could evaluate these types of interaction separately to gain a more nuanced understanding of the role of gamification elements in socialization outcomes.

6. Conclusion

This study has provided insights into the role of gameful experience in the socialization process of new employees. The results suggest that some gameful experiences are significantly related to better socialization outcomes, such as task mastery, social integration, and role clarity. While the socialization process is a complex

phenomenon, these findings suggest that gameful experiences may be an overlooked factor in helping new employees adapt to their new work environment.

These findings contribute to the idea that gameful experience, rather than specific gamification elements alone, may be a key factor in creating behavioral change outcomes. Also, this study provides some insights for a deeper understanding of gameful experience as a construct, highlighting that its creation may not solely be dependent on gamification elements.

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8. Appendix

To measure gameful experiences in the workplace, the GAMEFULQUEST [22] model was utilized. As gameful experiences are considered a multidimensional construct, seven separate scales were developed to assess it. The psychometric characteristics and items of these scales are presented in Table 4.

Table 4
Gameful experience in the workplace measurements.

| Scale (Cronbach α) | KMO (p- value) | % of variance | Items* | Factor loadin g |
|--------------------------------|----------------------|------------------|---|-----------------------|
| Challenge (.783) | .771 (<.001) | 60.94 | Encourages me to step out of my comfort zone | .743 |
| | | | Motivates me to engage in challenging activities | .759 |
| | | | Forces me to push myself to the maximum | .814 |
| | | | Challenges me | .804 |
| Playfulness (.788) | .736 (<.001) | 61.05 | Allows me to be spontaneous | .764 |
| | | | Ignites my curiosity | .732 |
| | | | Allows me to use my imagination | .865 |
| Social experience (.763) | .765 (<.001) | 58.77 | Allows me to be playful | .760 |
| | | | Creates a sense that I can share with others what I want | .780 |
| | | | Gives me a sense of being noticed by others | .778 |
| Immersion (.526) | .629 (<.001) | 41.67 | Makes me feel that I am not alone | .798 |
| | | | Makes me feel included in social activities | .708 |
| | | | Creates a sense that the workday passes quickly | .613 |
| | | | Captivates my attention as if I don't see anything around me | .533 |
| Accomplishment (.823) | .776 (<.001) | 65.48 | Makes me forget about my everyday worries | .780 |
| | | | Makes me engage emotionally | .631 |
| | | | Inspires me to adhere to high work standards | .750 |
| | | | Creates a sense that I have to strive | .775 |
| Competition (.793) | .758 (<.001) | 62.17 | Motivates me to make progress and improve | .820 |
| | | | Encourages me to pursue the best results | .886 |
| | | | Creates a sense that I have to be better than others | .600 |
| | | | Encourages me to compete with others | .832 |
| Guided (.821) | .792 (<.001) | 65.56 | Encourages me to see others as competitors | .824 |
| | | | Creates a sense that I have to win against others | .870 |
| | | | Creates an impression that I am heading in the right direction | .852 |
| | | | Provides clarity about where I am and where I am headed | .820 |
| | | | Helps me understand what I am doing correctly or incorrectly | .759 |
| | | | Creates a sense that I have someone to follow | .805 |

*The items presented in this table were originally presented to participants in Lithuanian. The English translations of the items are provided for the purposes of this table. Each item begins with a phrase "My work environment..."