Attitudes toward Gamified Recruitment

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PSB3E-BT15: Bachelor Thesis

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July 03, 2022

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Abstract

Gamified recruitment is a relatively new method of assessing and attracting applicants for the labor market in an increasingly competitive environment. Applicants' reactions towards gamified recruitment are therefore very important for companies to understand. Rapid implementation of this new recruitment method has led to a growing gap between utilization and research. While there are some models that explain user reactions to technology, many of them have not been tested in combination with gamified recruitment. In this paper we examined the applicability of the Extended Technology Acceptance Model in the context of gamified recruitment. Previous research suggested that perceived ease of use, perceived usefulness and perceived enjoyment are important factors in explaining user acceptance. We conducted a cross-sectional study (N = 205), where participants had to use game-based assessment. Their opinions about this game-based assessment were evaluated afterwards by a questionnaire. Results showed that perceived usefulness and perceived enjoyment are important in explaining the users' reactions to gamified recruitment, while perceived ease of use could explain a significant part of the evaluation of perceived usefulness and perceived enjoyment. It is concluded that models that attempt to explain user reactions to gamified recruitment should incorporate measurements for perceived usefulness and perceived enjoyment and that both factors are relatively equal in their importance. This is theoretically and practically relevant for improving the understanding of reactions towards gamified recruitment.

Keywords: gamified recruitment, gamification, Technology Acceptance Model (TAM), perceived ease of use, perceived usefulness, perceived enjoyment,

Attitudes toward gamified recruitment

In todays' globalized workplace many companies compete to attract suitable employees (Grawatsch, 2021). This has partly been caused by a scarcity of skilled workforce due to the demographic transition and is labeled 'the war for workforce' (Chambers et al., 1998). Therefore, it is crucial for personnel recruitment to be appealing for potential applicants. The advent of new technologies has introduced gamified recruitment to the already available tools for assessment. The reactions of applicants to gamified recruitment methods are very important for organizations, in order to improve the process of attracting potential employees in a competitive environment (Ployhart & Harold, 2004).

Gamification is defined as the attempt to bring game mechanics, like scores, badges and other reward systems, to a non-game scenario (Fetzer et al., 2017). Companies started to introduce them in the workplace, including the recruitment-domain. Ferreira et al. (2017) noted that research could not keep up with the speed of innovation, creating a growing gap between application and knowledge about gamification strategies in the work domain. This deficiency in research is even more salient in gamified recruitment because it lacks a theoretical model to explain the applicant's reaction towards game-based selection methods, hindering companies and researchers from assessing these relatively new methods (Obaid et al., 2020).

Nevertheless, in the context of user experience to technologies, there are some established models, one of which is the Technology Acceptance Model (TAM), developed by Davis (1986). It has been used in learning environments and the workplace and explains the attitude towards use based on perceived ease of use and perceived usefulness. Additionally, the basic TAM has already been adapted to gamified personnel selection in combination with Self-Determination Theory by Buil et al. (2020), who state that a users' engagement with a given technology is based on their intrinsic and extrinsic motivation. The application of this model in user-technology

relations is widely accepted and adapted versions of the model have been tested in many different scenarios (Marangunic & Granic, 2014), such as office applications, electronic mail systems and e-learning. Examples of adapted versions include the Extended Technology Acceptance Model (ETAM), TAM2 and the Unified Theory of Acceptance and Use of Technology (UTAUT). Of particular interest for the scope of this study is the ETAM, because it adds the variable perceived enjoyment to the standard TAM (Davis et al., 1992) and can improve the understanding of the intricacies between gamified recruitment and applicants' attitudes towards use.

The purpose of this paper is to use the ETAM in the context of gamified recruitment, building upon an established model in a new scenario, to explain applicants' attitudes to a gamified recruitment tool based on perceived ease of use, perceived usefulness and perceived enjoyment, thereby testing the applicability of the ETAM in this scenario. This has, to the best of our knowledge, not been done before.

Theoretical Framework of the Extended Technology Acceptance Model

The predictors perceived ease of use (PEOU) and perceived usefulness (PU) of the Technology Acceptance Model are mainly based on Expectancy- and Self-Efficacy Theory (Davis, 1986). PU is conceptualized as the evaluation of users of a given tool with respect to their perceived performance, which is in line with Robey's (1979) application of Expectancy Theory. It states that people actively assess the repercussions of their behavior to be able to affect future desired outcomes. It is thought to be important to understand people's motivation in the workplace, because it links peoples self-perceived past behavior to planned future behavior by triggering a change in attitudes, if the earlier behavior is reviewed negatively or positively. Based on this view, Robey states that an application that does not subjectively seem to increase peoples' performance is less likely to be used, therefore it is hypothesized that PU should associate positively with attitude towards use in a gamified tool, because the user's assessment of a given

tool is partly based on the prediction of future performance with that tool. Even if it is unlikely that applicants are repeatedly exposed to the same game-based assessment, it is reasonable to assume that applicants want to perform well during assessment. A positive evaluation of PU should thus lead to a more favorable attitude towards the tool.

The idea behind PEOU is that even if people think an application will enhance performance, they might not use it, because it is seen as difficult to use, which in turn reduces the attitude towards use (Davis, 1986). The theoretical background draws from Bandura's (1982) work on self-efficacy. Bandura defines self-efficacy as assessing one's ability to execute different options for action, that are required to deal with future situations. This is conceptually similar to PEOU, because Davis theory states that PEOU reflects the extent to which a system is thought to be free from exertion. Since effort is a limited cognitive resource (Radner & Rothschild, 1975), the assessment of one's ability depends partly on the convenience or ease with which the ability is executed. It is hypothesized that this also holds true for gamified recruitment, thus PEOU should associate positively with attitude towards use, because the evaluation of a tool is linked to the convenience with which it is used. This should especially be true in the context of gamified recruitment, because it can be assumed that applicants will only have to use it one time during assessment and therefore cannot and do not need to learn controls and complex game mechanics through repeated exposure. Although Davis conceptualized PEOU and PU as two distinct determinants for attitude towards use, he also stated that his results suggested a mediating role for PU, effecting the relationship between PEOU and attitudes. In the context of gamified recruitment, it is therefore hypothesized that the evaluation of PU is partly explained by PEOU, since a game that is experienced as complicated would cost more cognitive resources while using it, thereby limiting perceptions of usefulness. A user that is not able to overcome initial problems

in usability due to limited exposure (i.e., a low PEOU situation) would thus rate the usefulness of the tool lower.

Davis et al. (1992) extended the basic TAM with the variable perceived enjoyment (PE) as a measurement for intrinsic motivation, where the activity itself is the main incentive, if it is seen as enjoyable. This is in contrast to PU as a measurement for extrinsic motivation, a motivation from outside the self. PE has mainly been used in contexts with computer games and social media (Al-Qaysi et al., 2020). This variable was included, because it is viewed as a main determinant for video-game acceptance (Wang & Goh, 2017) and it is hypothesized that this is also the case for gamified recruitment. Ferreira et al. (2017) pointed out that making tedious and repetitive tasks pleasant is the major reason why companies incorporate game mechanics into their tools, thereby increasing employee satisfaction. The same should hold true during recruitment, where a standard test of, for example, cognitive abilities is not associated with a fun activity, while playing a game that measures cognitive abilities is hypothesized to be at least somewhat enjoyable, making PE an important variable in the proposed model. It is also hypothesized that PEOU is positively related to PE, because feeling competent on a given task is linked to intrinsic motivation (Bandura, 1982). A user that is overwhelmed by the requirements of a game might thus not be able to enjoy it. The relationship of PEOU, PE and attitudes toward use thus might be similar to the relationship between PEOU, PU and attitudes toward use, making PEOU an antecedent of PE as well as PEOU.

Application of the (E)TAM

The TAM and adapted versions have been used in many different settings, including for example Internet banking, electronic mail systems, digital library systems, e-learning- and e-health applications (Marangunic & Granic, 2014). Modified versions of the TAM include external variables for PU and PEOU, as well as moderators for the relation to users' attitude like

subjective norms, job relevance, gender and experience etc. Comprehensive models like the UTAUT can have up to 8 predictors for behavioral intention (Momani, 2020), combined with other TAM iterations up to 21 variables have been identified influencing the main relation to the user's attitude. This is criticized by Bagozzi (2007) for its lack of theoretical interpretation and influx of moderating variables, while he also claims that the basic model simplifies complex interactions unrealistically to account for its utilization in many different technologies. For the purpose of this paper a simple model with a clear theoretical base (see above) is deemed the best approach to investigate the model's application to a relatively new phenomenon (i.e., gamified recruitment).

Lee et al. (2003) report that generally 30-40% of the variance in behavioral intent and user attitudes can be explained in different TAM iterations, but some studies drop to 25%, thus lacking explanatory power. While this may seem low, we use ETAM in a new scenario and cannot know the predictive power beforehand.

The original TAM was extended to also explain behavioral intent of future use (Davis et al., 1989). In their work they focused on determinants for usage of workplace applications. For the context of this study however we focus on attitudes on gamified recruitment, so it is unreasonable to think that applicants will have to repeatedly use the same tool. Therefore, the basic model with the extension of perceived enjoyment, to account for the game part of the recruitment tool as an operationalization for intrinsic motivation, seems appropriate. To test the validity of the proposed model following hypotheses were tested:

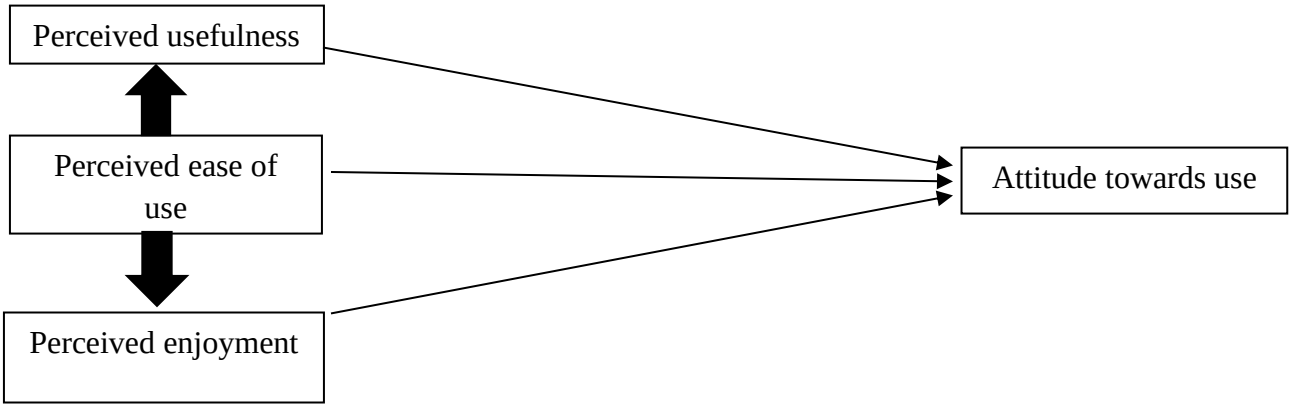
Hypothesis 1. Perceived ease of use is positively associated with perceived usefulness, perceived enjoyment and attitude towards use.

Hypothesis 2. Perceived usefulness is positively associated with attitude towards use.

Hypothesis 3. Perceived enjoyment is positively associated with attitude towards use.

Figure 1.

Proposed model



Hypothesis 4. Perceived usefulness, perceived ease of use and perceived enjoyment each explain a significant part of the variability in attitude towards use.

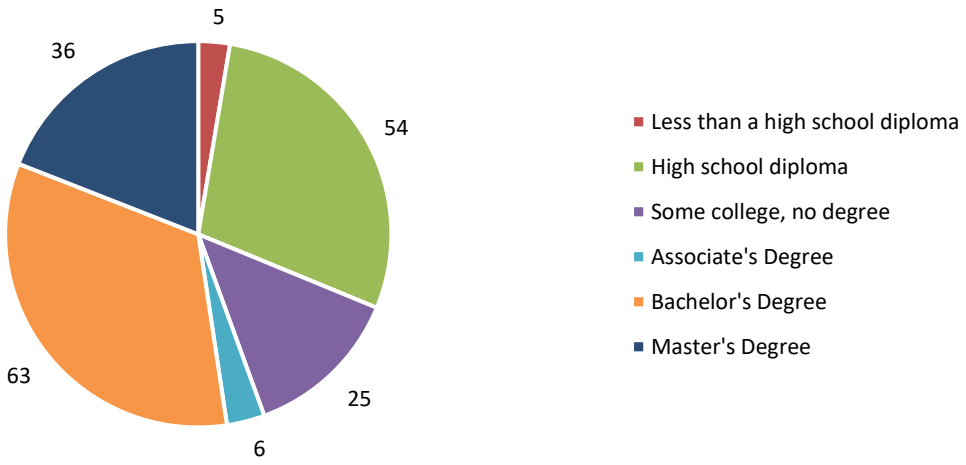
Method

Participants

Two hundred five responses were recorded in total. The sample consisted of 88 male, 100 female, 1 non-binary/third gender and 16 participants that did not provide information on gender (M_{age} = 29.84, *SD* = 9.86). The majority of participants came from Lithuania (31.2%), followed by the Netherlands (30.2%), Germany (14.1%) and Peru (4.9%). In addition, 10.4% of participants came from other countries and 9.3% did not provide information on the country they are living in. To ensure that participants could comprehend the questions and the context an a priori exclusion criteria was established, respondents had to have at least a high school diploma to be included, information on the highest educational level is given in figure 2. One hundred forty-one participants had previous experience with recruitment in the workplace, 42 indicated that they had no experience with recruitment and 22 respondents did not know or did not provide

Figure 2

Highest educational level



an answer. Fourteen participants indicated that they have experienced gamified recruitment and 144 have not participated in gamified recruitment before. Twenty-two participants did not know if they have experienced gamified recruitment before or did not provide information. The software G*Power was used to perform an a priori power analysis based on multiple linear regression. It revealed that 77 participants are sufficient to achieve .80% power with a medium effect size (f^2= .15)

Research Design and Procedure

To assess the applicability of the ETAM we conducted a cross-sectional study to evaluate participants' reactions towards gamified recruitment. To achieve this, participants were asked to imagine that they applied for a job as project team manager. A detailed job description was given. Participants were told that their problem-solving abilities and style were tested by a game. Participants then were asked to play the first level of the game "The Ferry", which has been developed by the Dutch company Equalture for the purpose of gamified recruitment (Melkert & Melkert, 2022). The goal of the game is to get two adults and two children on the other side of a

river by using a ferry. Only one adult or a maximum of two children can be on the ferry at the same time and the ferry cannot cross the river without a passenger. Before starting the first level participants had the opportunity to get familiar with the controls. Also, participants were informed that their performance was measured based on the time it took to complete the level.

Before playing the game, participants were asked to provide some demographic information (see below). After finishing the game, participants were requested to return to the questionnaire for the assessment of the gamified recruitment. The game as well as the questionnaire were completed online and both were in English. It was possible to play the game as well as complete the questionnaire on a desktop PC or a smartphone. Participant recruitment was done using social networks like Facebook and Instagram as well as flyers that were distributed at the Rijksuniversiteit Groningen. The researchers also used their personal networks to recruit participants. As an incentive 1€ per participant was donated to UNICEF. This study received ethical clearance from the ethics committee of the University of Groningen. Multiple linear regression analysis was used to test the association between the variables perceived ease of use, perceived usefulness and perceived enjoyment in order to predict attitude towards use.

Measures

The questionnaire consisted of two parts, the first part required demographic information, including age, gender, level of English proficiency, highest educational level, country of residence, if the participant had any prior experience with recruitment in the workplace generally and if the participant had any experience with gamified recruitment specifically.

The variables perceived ease of use, perceived usefulness, perceived enjoyment and attitude towards use were assessed in the second part, after playing the game. All items were measured on a 7-point Likert scale, ranging from strongly disagree to strongly agree. The subscales for PU, PEOU and PE consisted of three items each. The items for PU and PEOU were

initially developed by Davis (1986), who reported Cronbach's alpha for PU α= .98 and α= .94 for PEOU. In this questionnaire refined versions for these items were used, introduced by Buil at al. (2020), who reported a composite reliability for PU α= .922 and for PEOU α= .912. Examples items for PU include: "The game enables me to show my competences" and "The game enables me to show my decision-making ability". Items for PEOU include: "The game is easy and understandable" and "The game is easy to use" (see Appendix A for a complete list). The measurement for perceived enjoyment was suggested by Davis et al. (1992), they reported Cronbach's alpha α= .92. Examples items include: "I find using the game to be enjoyable" and "I had fun using the game". Attitude towards use was introduced by Ajzen (1991) and adapted to a gamification context by Hamari and Koivisto (2015), who reported Cronbach's alpha α= .914. It consisted of four items, including: "All things considered, I find using the game to be a wise thing to do" and "All things considered, I find using the game to be a positive thing". The order of the different measurements for PEOU, PU and PE was randomized to avoid anchoring effects. Attitude towards the game was always assessed last. At the end of the questionnaire participants could leave a comment.

Results

Data cleaning

Of the 205 responses 54 participants only provided demographic information and did not return to the questionnaire after playing the game and thus were removed from data analysis. Additionally, five participants did not meet the inclusion criteria of having at least a high school diploma and were thus excluded. A preliminary data inspection also revealed that six participants finished the questionnaire, including the game, in less than 3 minutes, these participants were also excluded, because this was seen as an impossible completion time for the questionnaire, leaving

140 responses for analysis. The variables for each subscale were a calculated mean response of each participant rating of the items in the respective subscale.

Descriptive statistics, reliabilities and correlations

The reliability of the different measures was reevaluated to confirm if they work in this setting. Cronbach's alpha was calculated for PU (α= .879), PEOU (α= .891), PE (α= .919) and attitudes (α= .916), which are considered high (> .8) and excellent (> .9) reliabilities (George & Mallery, 1999). The means and standard deviations as well as correlations of the dependent and independent variables are given in table 1.

Assumptions checks

Data inspection revealed that the assumption of homoscedasticity was violated in each of the regression models that used PEOU as a single explanatory variable and the assumption of normality of residuals was severely violated when PEOU was used to explain PE. Therefore, standard errors of PEOU are biased, which reduced the validity of inferences like confidence intervals. For the bivariate models that used PU or PE respectively to explain attitude,

Table 1.

Descriptive Statistics and correlations of dependent and independent variables

	Perceived ease of use	Perceived enjoyment	Perceived usefulness	M (SD)
P. ease of use				5.96 (1.07)
P. enjoyment	.55			5.52 (1.25)
P. usefulness	.48	.54		4.72 (1.42)
Attitude	.43	.65	.66	5.12 (1.15)

Note. All ratings were given on a 7-point Likert-scale ranging from 1 = strongly disagree to 7 = strongly agree. All correlations were significant at $p < .001$

assumptions for linear regression were met. Inspection of data for the multivariate models revealed no indication for a violation of the assumptions of linearity, homoscedasticity and normality of residuals.

The effects of PEOU on PU, PE and attitudes

PEOU was entered as an independent variable to simple linear regression 3 separate times to explain the variance in PU, PE and attitudes as a single explanatory variable. The effect of PEOU on PU was significant and explained 23.1% of the variability of PU ($F(1, 138) = 41.37$, $p < .001$, $R^2 = .231$). The effect on PE was also significant, 29.9% of the variance in PE is explained by PEOU ($F(1, 138) = 58.97$, $p < .001$, $R^2 = .299$). If attitude was entered as a dependent variable the effect of PEOU on it was also significant and explained 18.7% of the variance ($F(1, 138) = 31.82$, $p < .001$, $R^2 = .187$). Regression coefficients for the effect of PEOU on PU, PE and attitudes are given in table 2. Results showed that PEOU is positively associated with PU, PE and attitudes, meaning that high scores on PEOU led to high evaluations of PU, PE and attitudes, which is in support of hypotheses 1.

The effects of PU and PE on attitudes

The bivariate relationships between PU and attitudes and between PE and attitudes were analyzed with linear regression modeling. The effect of PU on attitudes was significant, explaining 43.5% of the variance in attitudes ($F(1, 138) = 106.35$, $p < .001$, $R^2 = .435$). The model containing PE and attitudes was also significant and explained 42.6% of the variance in attitudes ($F(1, 138) = 102.24$, $p < .001$, $R^2 = .426$). All regression coefficients for bivariate relationships are summarized in table 2. In line with hypothesis 2 and 3, PU and PE respectively were positively associated with attitudes towards game, thus high evaluations of PU or PE led to high scores on attitudes.

Table 2.

Regression Coefficients

Model	Unstandardized	Standard Error	Standardized	*t*	*p*
		Perceived Usefulness			
Intercept	0.929	0.599		1.55	.123
PEOU	0.637	0.099	0.48	6.432	< .001
		Perceived Enjoyment			
Intercept	1.709	0.504		3.392	< .001
PEOU	0.639	0.083	0.547	7.679	< .001
		Attitude			
Intercept	2.342	0.5		4.688	< .001
PEOU	0.466	0.083	0.433	5.641	< .001
		Attitude			
Intercept	2.589	0.256		10.117	< .001
PU	0.535	0.052	0.66	10.312	< .001
		Attitude			
Intercept	1.803	0.336		5.364	< .001
PE	0.601	0.059	0.652	10.111	< .001

Note. All ratings were given on a 7-point Likert-scale ranging from 1 = strongly disagree to 7 = strongly agree. PEOU= Perceived ease of use. PU= Perceived usefulness. PE= Perceived enjoyment

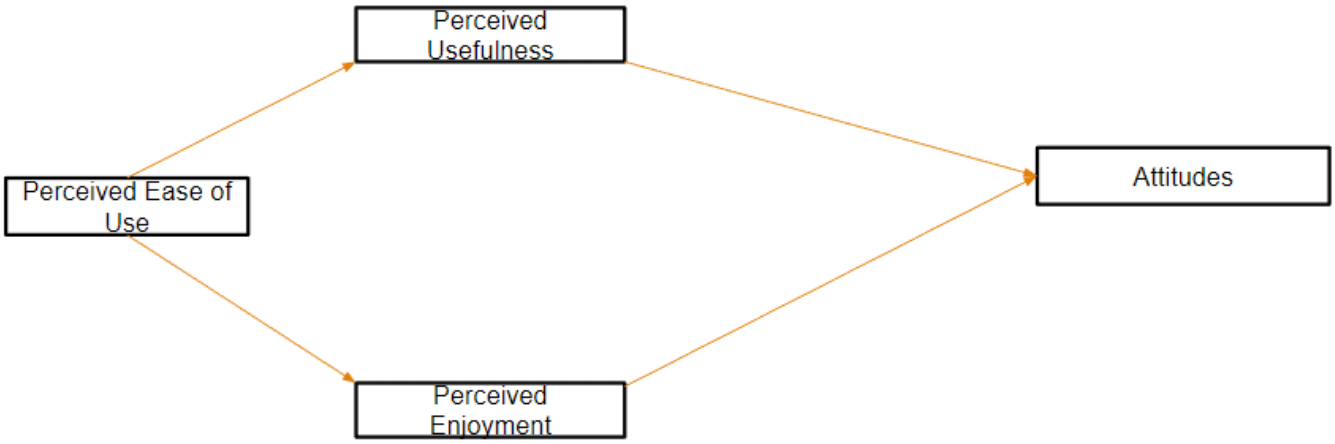
Multivariate Relationships

As a next step the whole model was evaluated by multiple linear regression analysis. If PEOU, PU and PE were entered to explain attitude the model is significant and explained 56.1% of the variance in attitude ($F(3, 136) = 57.85$, $p < .001$, $R^2 = .561$). The main effect of PU was significant ($\beta_1 = 0.36$, $t(136) = 6.27$, $p < .001$) with a moderate effect size at 95% *CI* [0.24, 0.47], meaning that attitude increases by .36 for every unit increase in PU, if the other variables are kept constant, supporting the positive association between PU and attitudes that has been found in the bivariate model. The main effect of PEOU was insignificant if PU and PE are already in the model ($\beta_2 = -0.01$, $t(136) = -0.12$, $p = .904$). The main effect of PE was significant ($\beta_3 = 0.389$, $t(136) = 5.78$, $p < .001$) with a moderate effect size at a 95% *CI* [0.26, 0.52], which is in line with the positive relations that has been found in the bivariate model. Attitude increases by .39 for every unit increase in PE, while keeping the other variables constant. These findings partially support hypothesis 4, as the effects of PU and PE were significant. PEOU has basically become redundant in the complete model, because it already explained a significant amount of variation in PU and PE, thus the model suffers from multicollinearity.

Removing PEOU yielded a significant model ($F(2, 137) = 87.4$, $p < .001$, $R^2 = .561$) and did not significantly change the explanatory power of the model ($F_{Change}(1, 137) = -0.02$, $p = 1$, $R^2_{Change} = .000$). In the reduced model the effect of PU was significant ($\beta_1 = 0.35$, $t(137) = 6.49$, $p < .001$), with medium effect size at the 95% *CI* [0.25, 0.46]. The main effect of PE also remained significant ($\beta_2 = 0.39$, $t(137) = 6.25$, $p < .001$),with medium effect size at the 95% *CI* [0.26, 0.51]. In the final model the predicted participants' attitude is equal to 1.319 + 0.35PU + 0.39PE. The final model, including the bivariate relationships of PEOU is depicted in figure 3.

Figure 3.

Final model for the relationship PEOU, PU, PE and attitudes.



Multiple linear regression was also used to inspect changes in the standardized regression coefficients for PEOU if PU or PE respectively were entered into the model. Both models yielded significant results (($F(2, 137) = 56.67$, $p < .001$, $R^2 = .453$) with PU in a model when PEOU is already entered and ($F(2, 137) = 52.48$, $p < .001$, $R^2 = .434$) with PE in a model that already contains PEOU). Regression coefficients can be observed in table 3.

Discussion

In this study the determinants for the users' attitude towards gamified recruitment have been analyzed. The Extended Technology Acceptance Model (Davis et al., 1992) was tested to confirm if this model can be used in the context of gamified recruitment. Previous research suggested that PU and PE are positively related with users' attitudes (Davis, 1986) and that PEOU is positively linked to PU, PE as well as attitudes (Bandura, 1982; Radner & Rothschild, 1975). Because Davis (1986) initially stated that PEOU, PE and PU should be seen as mostly independent determinants, they were all entered in a regression model.

Table 3.

Regression Coefficients II

Model	Unstandardized	Standard Error	Standardized	*t*	*p*
		Attitudes			
Intercept	1.9	0.415		4.567	< .001
PEOU	0.162	0.078	0.151	2.094	.038
PU	0.477	0.058	0.587	8.15	< .001
		Attitudes			
Intercept	1.409	0.436		3.234	.002
PEOU	0.117	0.083	0.108	1.411	.161
PE	0.546	0.071	0.593	7.722	< .001

Note. All ratings were given on a 7-point Likert-scale ranging from 1 = strongly disagree to 7 = strongly agree. PEOU= Perceived ease of use. PU= Perceived usefulness. PE= Perceived enjoyment.

In line with earlier research, results from this study provide evidence for hypothesis 1, 2 and 3. High evaluations of PEOU corresponded with high evaluations of PU, PE and attitudes. Participants who rated PU of the recruitment game high, have a more favorable attitude towards use. This is also true for PE. Hypothesis 4 was only partially confirmed. While PU and PE remained significant in their explanatory power for users' attitude, a significant effect for PEOU disappeared in a model that included PEOU, PE and PU. If PU is entered into a model that already contains PEOU, the standardized effect of PEOU is reduced to about a third, compared to a model that only contains PEOU. This finding is in line with Davis observation, that PU might mediate the effect of PEOU on attitudes. A similar pattern can be observed in the relationship between PEOU and PE, where the standardized effect of PEOU reduces to about a fourth, if PE is entered into the model, suggesting also a mediating role for PE. In a complete

model the effect of PEOU basically became redundant, because its' effect is already included in PU and PE.

Limitations and Future Directions

The cross-sectional, non-experimental nature of this study forbids any inferences on causality. While the data obtained in this research show a pattern of a mediating role for PU and PE, it cannot be confirmed, due to the lack of an experimental design. Future research could address this issue, by experimentally control PEOU in different settings. For example, participants can be randomly assigned into one of two groups. Both groups use the same software for gamified recruitment, but one groups' control can be manipulated to be more complicated than the other. This would also address another issue in this research: participants rated the games' PEOU very high on average, with little variation. This might be caused by the convenience sample used in this research and social desirability. Many participants were personally known by the involved researchers, which might have resulted in inflated ratings for the different measurements. Following this line of reasoning, participants wanted to be seen positively and therefore mostly agreed with the statements presented. The usage of a convenience sample certainly reduced the generalizability of these results, but it enabled us to collect a relatively big sample, that is diverse in terms of age, gender and nationality. However, the interpretability of the role of PEOU is severely limited due to the violations of the assumptions of linear regression.

Another limitation stems from the fake setting of this research. Participants had to imagine being part in a recruitment process, which could have reduced the stress experienced during real recruitment. Boals and Bank (2020) pointed out that high levels of stress could cause mind wandering, which in turn reduces available cognitive resources. In a real game-based assessment experienced stress should therefore influence peoples' perception of ease of use due

to more limited available resources (Radner & Rothschild, 1975). Future research can address this issue by using data from real game-based assessment or by exposing participants to a stressful environment (e.g., loud music or an impossible time limit for game completion). While the setting of this study was fake, participants used a software that is used for gamified recruitment, which increases the validity of the results.

Theoretical and Practical Implications

While Davis (1986) initially estimated PEOU and PU to be two separate indicators for users' attitude his analysis pointed to a different pathway for the relation of PEOU and PU. Our analysis indicates that PEOU indeed can not be seen as an independent contributor to attitudes, but as an important factor in explaining PU and PE, providing evidence for Davis latter assumption of a mediating relationship between PEOU, PU and attitudes. This is in line with the work of Davis et al. (1992), stating that PE and PU fully mediate the contribution of PEOU to attitudes. However, previous research does not always support these findings. Buil et al. (2020) did not find a mediating relationship, stating that PEOU did not explain a significant amount of the variation in PU, but PEOU and PU together did explain attitudes. Since their model did not include PE, a part of the variation in attitudes might have been attributed to PEOU. Based on the data of this research, a model that contains PEOU and PU yields significant effect sizes, even if the effect for PEOU is 4 times smaller than for PU. An alternative explanation for the missing effect of PEOU in the complete model might be caused by a generally easier to use software. The first iterations of the TAM were tested with business software that were used in the 1980s. The role of PEOU could therefore have changed over time. This might be especially true for the usage of games, as in this case, the game-based assessment has been developed to work well on smartphones and users might have become familiar with smartphone games mechanics and controls. A recent survey found that 157.3 million people per month used smartphone games in

2021 in the US alone (Droesch, 2021). It is also noteworthy that Davis et al. found a four to five times stronger effect for PU than for PE, which is not the case in this data. PU and PE have about the same effect size in bivariate as well as multivariate relationships. This might also be attributed to the different usage scenarios, because Davis et al. used the ETAM with office software. This underscores the importance of PE as an explanatory factor for attitudes in gamified recruitment.

The results of this study are important for companies that use gamified recruitment to attract applicants. Since PU and PE explain 56.1% of the scores in attitudes, companies should strive for high evaluations of PE and PU during and after development of game-based assessments. Since companies use gamified recruitment to attract suitable employees in a competitive environment (Ployhart & Harold, 2004), an emphasis on PE is of special importance, because PE is seen as an evaluation of intrinsic motivation, which can help a company in distributing their game to a wide audience and therefore increase awareness of that company, if PE is evaluated positive. Since perceptions of usefulness and enjoyment partly depend on PEOU, companies should assign a high priority to the user-friendliness of a game-based assessment during development.

Conclusion

The results of this study suggest that perceived usefulness and perceived enjoyment are equally important in explaining the applicants' reactions towards gamified recruitment and therefore provide novel insight into the applicability of the Extended Technology Acceptance Model in this context. The addition of perceived enjoyment to the general TAM is an important step in the attempt to understand the relationship between gamified recruitment and user reactions. The role of perceived ease of use in a complete model needs further investigation,

because of inconsistent findings in previous research and a lack of experimental control in this research.

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Appendix A

Demographics:

What is your age?

Open question

What is your gender?

- Male
- Female
- Non-binary
- Prefer not to say

What is your level of English proficiency?

- Basic understanding
- Fluent
- Native/Bilingual proficiency

What is your highest educational level?

- Less than high school diploma
- High school diploma
- Some college, no degree
- Associate’s Degree
- Bachelor’s Degree
- Master’s Degree
- Professional Degree
- Doctorate

In which country do you currently reside?

Open question

Have you had experience with recruitment for the workplace in general?

- Yes
- No

Have you ever had experience with gamified recruitment before the current study?

- Yes
- No
- Do not know/Not sure

Now that you experienced gamified recruitment at the start in the beginning of this study, we would like to ask you some questions about it…

Please rate your attitude towards the gamified recruitment tool in the scale from 1 (strongly disagree) to 7 (strongly agree)

Perceived ease of use:

1. The game is easy and understandable
2. The game is easy to use
3. I find the game easy to interact with

Perceived usefulness:

1. The game enables me to show my competences
2. The game enables me to show my decision-making ability
3. I find the game useful

Perceived enjoyment:

1. I find using game to be enjoyable

2. Using the game would be pleasant
3. I had fun using the game

Attitude towards the tool

1. All things considered; I find using the game to be a wise thing to do
2. All things considered; I find using the game to be a good idea
3. All things considered; I find using the game to be a positive thing
4. All things considered; I find using the game to be favorable