Potentials and Challenges of Gamification in Recruiting

Jasmin Zerrer
University of Aalen,
73430 Aalen, Germany
Email: jasmin.zerrer@hs-aalen.de

Ralf-Christian Härting
University of Aalen,
73430 Aalen, Germany
Email: ralf.haerting@hs-aalen.de

Maren Gerst
University of Aalen,
73430 Aalen, Germany
Email: maren.gerst@studmail.htw-aalen.de

Abstract—**Digitalization is changing many areas of society and has an impact on recruiting processes. Many companies are facing the challenge of making their application processes more attractive for potential candidates. The use of gamification is becoming a new trend, which is aimed particularly at Generation Y and Z, who have grown up in the age of digitalization. The potentials and challenges of gamification are wide-ranging for applicants and companies. The framework of a qualitative empirical study according to Mayring is used to investigate this research topic. A literature review provides current findings of former research studies. The research design is based on interviews with HR experts. The potentials are reflected in a higher employer attractiveness, applicant quality and more efficiently designed processes. At the same time the implementation of gamification involves some challenges, including additional requirements, like digitalization and data protection, deterrent effects and finding the fitting target group.**

Index Terms—**Gamification, Recruiting, Digitalization, Human Resources, Qualitative Study**

I. INTRODUCTION

NEW technologies and the progress of digitalization are important impacts on further development of companies. Due to the Covid-19 crisis an increasing focus on digital processes has been required [1]. Besides the opportunities of Big Data and Artificial Intelligence (AI), companies are facing the challenge of finding qualified employees and trying to avoid follow-up costs of wrong recruiting decisions. To attract attention, companies can invest in traditional campaigns or explore innovative concepts [2]. Gamification offers a possibility for attracting and retaining new employees, as well as increasing their motivation in recruiting processes [3]. It deals with understanding and assessing human behavior. The goal of gamification in recruiting is to bring real processes into a playful context for better selection of suitable candidates [4]. Because companies are already using

gamification, research needs to address the potentials and challenges. Based on dynamic developments in research and business, gamification could be established as a significant opportunity for attracting professionals [5]. With the increasing digitalization, the use of gamification will play an important role for companies. Especially for younger generations, this represents an interesting challenge to prove their skills against other applicants. For this reason, this research study examines the potentials and challenges of using gamification in recruiting for applicants and companies.

II. RESEARCH DESIGN

The empirical investigation is based on a qualitative research design. Because the topic is very current and there is limited literature available on the potentials and challenges for applicants and the company itself, an inductive method according to Mayring was selected [14]. Based on the aim of investigating the research question a detailed literature review was conducted first. Afterwards, eleven semi-structured expert interviews were executed for the data collection. The data were subsequently transcribed and coded by using the software MAXQDA. As a result, hypotheses were created, and a hypothesis model was derived. The results are interpreted with the findings from the literature review and finally lead to answer the research question.

III. LITERATURE REVIEW

The recruiting process is about identifying and classifying the potential of human resource for the personnel supply and the effective use of this knowledge. Recruiting is a continuous process. In total there are five phases: planning human resources, determining the strategy, evaluation of recruitment sources, implementing recruitment methods and strategies as well as feedback and control. The aim is to identify and hire the most suitable candidate for the advertised

position. A well-planned and well-structured recruitment process is important for a company to attract high quality candidates [1].

The term "Gamification" was first used by various players at the end of 2010 [6]. The term is still very controversial and many game designers and user experience designers use other terms, such as "Gameful design" or "Gamefulness" [4]. Today, games have become a growing trend in society. Due to the huge market size that is constantly increasing, non-gaming fields are also trying to take advantage of it. Gamification is therefore not only a good concept to motivate users, but it also brings the health, business, and education sectors closer to the attractive gaming world. Among other things, this can help increase the attractiveness of the company to applicants and make the application process more attractive for potential candidates [7]. Since gamification is a new subject, there is currently no valid definition. However, it can be said that gamification is an interplay of psychology and user experience design [2]. By using specific game mechanisms, it attempts to increase the engagement and enjoyment of participants in each environment. The mechanisms used are directly linked to the provision of a reward. For example, when players complete a task in a specified time, they receive a reward depending on the difficulty level. Gamification is a suitable strategy for influencing and motivating applicants [8]. Due to the close connection between gamification and recruiting, the term "Recrutainment" has been formed. It defines the merging of methods of cognitive assessment, aptitude assessment and gamification elements, which are subsequently embedded in the recruiting process of a company. The goal is to attract more younger applicants and at the same time achieve better candidate results [7].

Gamification is particularly attractive and suitable for the target group Generation Y and Z. Generation Z includes everyone born after 1995 and is also referred to as "digital natives" because they have completely grown up with digitalization [9]. Even in their early years, this generation played on their parents' laptops and smartphones. Of course, dealing with digital communication and media technologies matters for "digital natives" and is an integral part of their everyday lives. In contrast, the previous Generation Y only encountered the new technologies in childhood or adolescence but was able to acquire media skills through the development of social networks, such as Facebook. Both generations differ significantly in their communication behavior, as Generation Z's communication takes place online to an even greater extent than is the case with Generation Y [10]. However, since both generations enjoy using new technologies, gamification is a particularly good recruiting strategy for this target group. As a result, many potential applicants can be attracted to join the company [11].

By implementing gamification as a recruiting tool, the company can test certain skills and abilities, such as creativity, time management or innovative thinking, before a hiring decision is made. This way, unsuitable applicants can be quickly identified and sorted out at the initial stage, speeding up the recruiting process [11]. Before integrating gamification into their own recruiting process, it is advisable

for companies to check whether enriching their own application with game-like elements will motivate candidates to further their interest in applying [2]. Gamification in recruiting is based on elements such as high scores, awards, point lists or different game levels. With gamification, the basic needs are addressed, such as receiving a reward, the desire for success, striving to be superior, or to project a certain self-image and increase one's notoriety. Gamified (online-) assessments represent one possibility for personnel selection. In a gamified assessment, applicants are exposed to a game-like environment or a virtual world. For example, the virtual world can resemble a real work environment and employees can be represented by avatars. This is used to elicit job-relevant behavior in situations that may take place in the real work environment. Gamified assessments or serious games do not necessarily have to present a realistic and work-related scenario. Gamification can be integrated into the recruiting process in two ways, either as a one-to-one assessment of applicants or as an extension to existing situational tests by adding game elements. Integrating game elements into the selection process can reduce deception, thereby improving the quality of candidate information and predicting job performance. At the same time, transparency, fun and interaction are promoted. The games can be programmed in two ways. Team based games provide the candidates with the opportunity to interact and compete with other candidates while individual based games can be used for individual evaluation, completing the task alone [10]. Due to the competition in the game, applicants are eager and strive to obtain the maximum score/reward to be achieved in the game so that they quickly advance to the next level. The use of gamification allows companies to attract and engage a variety of applicants in addition to the other types of recruitment. From an HR perspective, evaluating the skills and qualifications of a large pool of applicants following the game is a way to select only the best, who have successfully demonstrated their suitability and value to the company [6]. However, the game elements can also be incorporated into psychometric tests, for example, to test situational judgement to better evaluate candidates' soft skills [3].

When it comes to gamification, there are two different groups among experts: proponents and opponents. Proponents believe that this new tool can help improving the user experience and at the same time offer added value for the practicing company. Gamification seems particularly suitable for internal training, but also as a tool to increase employee motivation. Game thinking can help companies to engage employees more strongly [12]. The potential work performance of an applicant in the intended position can be predicted well by a gamified personnel selection. Game elements and virtual games make it difficult for applicants to pretend or embellish their behavior in the recruiting process. This increases the authenticity of the test participants and contributes to a more reliable prediction of potential job performance. In contrast to other recruiting methods, such as traditional personality tests, gamification allows more targeted statements to be made about the personality and behavior of candidates. This is because traditional personality tests have a high probability of candidates changing their

behavior by giving appropriate answers to the recruiters' questions, which are not accurate [8]. Opponents argue that gamification is a currently prevalent trend among many companies. They argue that making a game out of everything is pointless. While people do many things voluntarily and out of a sense of drive, companies use gamification for the purpose of trying to control behavior that was originally intrinsically motivated with extrinsic rewards. In the end, this only achieves the opposite. The extrinsic incentives ensure that intrinsic motivation is undermined, and ultimately activities are only performed because of the prospect of a reward and not out of genuine interest in the company itself. The tricky thing here is that a reward system, like gamification, initially promises to increase engagement. In short term, this is true. Long term, employees will only do a certain activity because of the reward. Therefore, gamification opponents criticize that proponents propagate a "loyalty-for-little-effort" philosophy, which communicates that it would be easy to control the behavior of users at will [12]. Additionally, as shown in the study by J. Koivisto and J. Hamari, the usability of gamification consistently declines with age [13].

IV. Data collection

The data collection includes eleven semi-structured interviews which were conducted between January 2022 and February 2022. All interview partners are from Germany, so the interviews were also done in German language. The experts are representing companies, working with gamification in their recruiting process, HR experts and HR consultants, offering gamification solutions for recruiting processes. It was ensured that participants from different areas were interviewed to get a broader understanding of the situation and to minimize individual bias.

Table 1 provides an overview of all participants. Eleven interviews were conducted, because the minimum number of interviews required for qualitative useful results is at least ten. The qualitative interviews have been selected as research method because they provide the advantage of being able to spontaneously go into more depth on certain topics and questions. This is not possible in a survey. The knowledge gained from the literature review was used to formulate questions regarding the research question. During the formulation of the questions, it was considered that the experts would be able to answer as open and free as possible to obtain a maximum of relevant information. Therefore, the questionnaire contains open, closed and hybrid questions.

The questionnaire was divided into five categories. In the first part, the experts answer the section of "demographic questions" such as gender, age, academic background, and company questions. The second section deals with "the status of digitalization" in the company and then specifically queries for recruiting. The third section contains questions about the "recruiting process". The focus was on personnel selection and digitalization in the recruiting process. In the section "changes in the recruiting process due to corona pandemic", challenges during the pandemic were addressed. The last section was "gamification in the recruiting process". The practical state of experience regarding gamification in human resources is surveyed here. The experts were interviewed via the platform Zoom and all interviews were digitally recorded. The duration of the interviews was between 40 and 75 minutes.

V. Data analysis

The authors focused on the content of the interviews and not on linguistic aspects. Any dialect was transferred into written language and any personal data were made anonymous. To evaluate the interviews a structured content analysis was used. This enables a more objective view of the data. Following the rules of a qualitative structural content analysis the analysis is reproducible and the intersubjectivity is verifiable. When building categories inductively, certain criteria were defined in advance to structure the coding process. With the coding method of Mayring the gathered data were analyzed, and certain categories were identified [14]. This allows to filter out correlations and commonalities between the different raw interview data and to derive various categories. In the first step, the interviews were compared and examined for relationships and contradictions. In the process of constant comparison sentence by sentence, the authors were searching for patterns to build initial categories. Later, these categories were analyzed in more detail. Throughout the first phase of coding 525 codes were generated to structure

TABLE I.
INTERVIEWEE OVERVIEW

No.	Academic Background	Professional Field	Industry	Age	Gender
1	Diploma Business Admin.	CEO	Consumer Goods	52	Male
2	Intl. Business	Head of Recruiting	Industrial Solutions	36	Male
3	Diploma Business Admin.	CEO	HR Consulting	52	Male
4	Diploma Business Admin.	Director HR, EU & USA	Automotive Supplier	36	Male
5	Master Management	Head of Group HR	Construction Industry	37	Female
6	Diploma Business Admin.	HR Employer Branding	IT-Services	55	Female
7	Diploma Business Admin.	CEO Managing Director	HR Consulting	49	Male
8	Diploma Psychology	Director Recruiting	Consulting Digitalization	51	Female
9	Diploma Business Admin. and Economics	CEO	HR Consulting	40	Male
10	Master Intl. Management	HR Employer Branding	IT Consulting	36	Female
11	Diploma Psychology	Head of Recruiting	Transport and Logistics	47	Female

the collected data. Each aspect mentioned by the interviewees was taken into account. After coding each given statement, the second step of coding was executed. In the ongoing process of comparatively analyzing data, all the categories were constantly revised and backchecked. Characteristics in one dimension have been deleted if they were too differentiated or added if the level of differentiation should have been increased. In the end, eleven main categories incorporated 26 subcategories. During the inductive category formation, certain criteria were established to structure the coding process. This allows to filter out correlations and commonalities between the different interviews and to derive various categories.

VI. RESULTS

In this section the results of the expert interviews about Gamification of the recruitment process are described. The conceptual model is illustrated by the findings from the expert interviews, followed by the derived hypotheses. All eleven categories which were generated through the content analysis are presented in Figure 1. Each of these categories presents either a potential or a challenge of gamification in recruiting.

Potentials of gamification

Process Efficiency. At the beginning, the implementation of gamification in recruiting is associated with additional effort. Filling the same positions lead to standardization, which minimizes the high expense. In this context, recruiting costs are saved because managers' or specialists' working time is not required for this purpose. Follow-up costs of a wrong hiring can be minimized by gamified approaches. Additionally, the feature of preselection accelerates the process as well. Some experts stated that a faster decision-making contributes to this. According to the interviews, gamification serves the purpose of an application funnel. Mostly, it saves companies from screening many application

documents as well as conducting unnecessary interviews. Therefore, the company can prioritize more effectively which candidates are invited for a personal interview.

H1: Gamification positively influences process efficiency in recruiting.

Trustworthy Process. Gamification provides an objective basis for the evaluation. Nearly every expert stated that fairness is included in the consideration of applicants by lowering recruiting bias. The fact that each applicant knows that they must overcome a hurdle increases fairness and transparency. If gamified tests are valid and follow a standardized process, gamification can increase objectivity, due to a higher volume of collected data, which are considered during the evaluation.

H2: Gamification positively influences a trustworthy process in recruiting.

Employer Attractiveness. Most experts stated that gamification enhances the company image. Currently, it offers an opportunity to stand out from the competition through innovation. The gamified tasks create a candidate experience, which has a positive effect on potential applicants. Another influencing factor is the target group-oriented approach through gamified assessments. Consequently, gamification acts as a marketing instrument that increases the number of incoming applicants by making it easier to address them.

H3: Gamification positively influences employer attractiveness in recruiting.

Additional Insights. One potential of gamification is the proof of certain qualifications. The statements made clear reference that skills and hidden talents are acquired independently of oral expression. Regarding the action behavior, concentration and attention span can be tested, which allows conclusions about the psychological security of
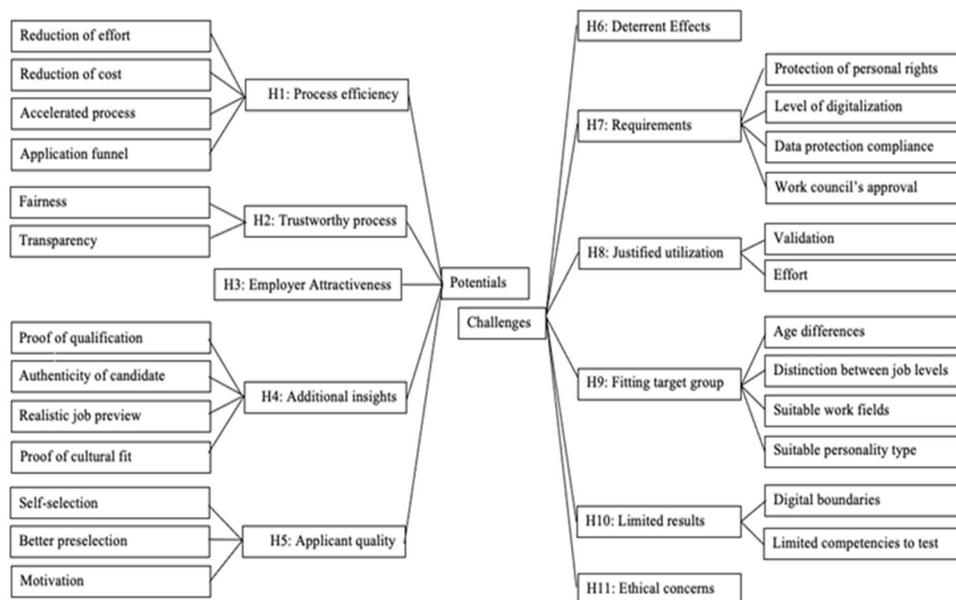

Fig 2. Conceptual Model

the applicant. Gamification creates immersive situations that engage the capacities of the brain. The applicant has no time to think but has to act spontaneously. Overall, the behavior of the applicant is more significant. The interviewees agreed, that gamification provides the packaging for a realistic job preview. Gamification promotes accuracy of expectations by experiencing and testing a workday. The applicant is assured of the job requirements, the workplace, and the company's products. Most experts claim that gamification significantly minimizes the risk of termination after hiring.

H4: Gamification provides additional insights in recruiting.

Applicant Quality. The use of gamification in self-assessment is most effective. The risk of making a wrong decision is reduced for the company and the applicant. The transparency of required skills encourages self-selection. Therefore, most interviewees favored gamification in career orientation to show the applicant which job is suitable. Findings show that gamification is especially suitable at the beginning of the recruiting process. Experts agree that gamification can select qualifications in advance. In the interviews it was mentioned that gamification increases motivation through various factors. When used as a marketing tool, it increases motivation to apply. Furthermore, motivation is raised through active engagement in the game. Most experts agreed that motivation is also achieved through a target group-oriented approach.

H5: Gamification positively influences applicant quality.

Challenges of gamification

Deterrent Effects. A common issue was the possible deterrent effect of gamification on applicants. It was frequently cited that gamification represents an additional hurdle for applicants and that their willingness to make an additional effort could be limited. Given the ongoing shortage of skilled specialists the loss of suitable candidates could be an excessive risk for some companies. Moreover, reservations regarding the scientific respectability of gamification or fear of failing could present further deterrent effects for some candidates.

H6: Deterrent effects hamper the use of gamification in recruiting.

Requirements. Almost all interviewees agree that data protection regulations result in a high level of requirements for gamification in recruiting. This includes clear communication towards the candidates as well as communication with colleagues from intertwined departments. In addition, a certain level of digitization may be required for the implementation of gamification in recruiting. This is imperative for integrating the collected data in systems and efficiently manage high numbers of participants. Additionally, gamification needs to uphold personal rights, which includes a clear communication to candidates. Most interviewees suspected that getting approval of the work council represents a challenge. Therefore, the work council should be involved early in the decision-making process. For this reason, the introduction of gamification in

smaller companies without work councils might be easier and more open towards innovation.

H7: High requirements hamper the use of gamification in recruiting.

Justified Utilization. All interviewees agree that the use of gamification needs to be justified by a valid utilization. Foremost in this regard is the scientific validation of the gamified test as well as validating the method through connecting the gamified test to future work elements. Additionally, the use of gamification needs to truthfully reflect the organizational structure and overall modernness to paint a valid picture. Moreover, all interviewees agreed that gamification takes a lot of effort and involves high costs. To justify this effort, many interviewees suspect that gamification is only worth-while, when a certain number of candidates take part in the process. Therefore, to justify gamification in recruiting the use needs to be valid and the effort put in needs to be reasonable for organizations.

H8: Justification of utilization hampers the use of gamification in recruiting.

Fitting Target Group. Due to a higher gaming affinity and being more comfortable in a digital setting gamification might be more fitting for a younger generation of candidates, that grew up in a digital age. Questioning the fit of gamification for all job levels, most interviewees see more potential in using gamification for recruiting junior positions. Only few interviewees state that it is not depending on the job level. Lower levels often include more candidates and might be more suitable for gamification from an economic view. In this context, distinctions between the levels need to be considered. Furthermore, gamification might work best in job fields that involve a high level of numerical or technological understanding, like IT. In addition to that, there could be a certain personality type that gamification works better for, involving traits like a preference for gaming, motivation through gamified element, performance, or power orientation. Companies might be challenged by finding such a target group.

H9: Target group fitting hampers the use of gamification in recruiting.

Limited Results. It is feared that with losing one dimension in a digital setting, you only get limited results from digital gamification. Additional insights could be restricted by a loss of facial expressions, gesticulations, senses, or chemistry. Candidates might also get limited insights into the workplace. Less information and technological issues might lead to a bad decision-making on both sides. Therefore, more innovation might be needed. Theoretically gamification can be used to test methodical, professional, or social competencies. Most interviewees agree that not all these competencies can be adequately tested with gamified elements. Especially challenging might be testing social skills in a gamified setting.

H10: Limited results hamper the use of gamification in recruiting.

Ethical Concerns. In the interviews, ethical questions for gamification, like ageism or ableism, were discussed. Values and attitudes of the gamification developer as well as selected courses of action within gamified elements, could result in underlying developer bias. In addition, algorithms that make decisions autonomously could be classified as unethical. Therefore, a challenge of gamification in recruiting is ensuring ethical utilization.

H11: Ethical concerns hamper the use of gamification in recruiting.

VII. CONCLUSION AND LIMITATIONS

Implementing gamification in recruiting processes provide potentials and challenges for companies. For a successful implementation it is necessary to fulfill a multitude of legal, organizational, and systematic requirements. Furthermore, it is essential to ensure a certain level of digitalization. The implementation takes a lot of effort, in addition to time involving high costs. To justify the effort, it must be secured that gamified tests are scientifically valid and designed for a specific target group. Regarding the economic view, gamification is appropriate for selecting candidates from a large number of applicants. When developing gamified tests for recruiting processes, it must be ensured that underlying developer bias is excluded. In general gamification might be most suitable for younger applicants, who have a higher gaming affinity. This conclusion was also made by the study of J. Koivistro and J. Hamari [13]. Through gamification both sides involved in the recruiting process can benefit of the added information given about the applicant and the vacant position. This leads to a better fit and a higher quality of suitable candidates and simultaneously reduces fluctuation. In addition, this promotes the opportunity for better self-selection by candidates. If gamification has already been implemented in recruiting, even time savings can be generated, due to automated processes, accelerated decision making and a better preselection. Gamification can increase objectivity, if gamified tests are valid and follow a standardized process, due to a higher volume of data collected during the evaluation. Gamification in recruiting processes can be used as a tool to increase the motivation of applicants, through active engagement and a gamified way to convey content alongside the recruiting process. A model of the potentials and challenges of gamification in recruiting was developed, based on empirical data from German-speaking experts using the content analysis according to Mayring. These generated data show some important influencing factors like process efficiency, data protection, target groups, expenditure of cost and time, as well as the quality of applicants. Experts in HR and gamification mentioned all these factors repeatedly. Therefore, they can be considered as a good basis for the model. To extend the current scientific view of potentials and challenges of gamification in recruiting, current researchers can use these results additionally. There are also some practical implications that should be considered. Companies can benefit from this research by evaluating their level of digitization and their personal fit for gamification in their own recruiting processes. Besides the view of gamification potentials, this research demonstrates equally challenging aspects of gamification, which can have a negative impact on the recruiting processes of companies. Due to the fact, that this qualitative research only focuses on a small sample of experts, there are some limitations, which must be considered. This sample includes different perspectives from experts in different industries and was created to provide reliable information. To prove this qualitative method, a model validation with a quantitative approach is necessary. The influencing factors, which have been identified in this research could be an appropriate starting point for this purpose. Evaluating this model in more countries and focusing on varying aspects would be a great opportunity for future research. Further, a differentiated investigation of single German-speaking states would be interesting as well as a comparison to other counties in the EU or internationally.

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