From Games to Jobs: How Gamification in Recruitment Shapes Job Seeker's Willingness to Apply through Percieved Fairness

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Abstract

This study is investing the impact of gamified recruitment assessment and its relationship with the applicant's willingness to apply in the organization that uses gamified recruitment assessment as their mode of recruitment through perceived fairness that acts as a mediator between gamified recruitment assessment and applicant's willingness to apply in Pakistan. This work fits into the positivist research paradigm and deductive approach, the theories that are rooted in this study are the organization justice theory, the theory of applicants' reaction and Signaling Theory. For this study the data was collected through structured surveys from 315 individuals who are actively seeking jobs in the market and to analyze the data PLS was used for SEM model and bootstrapping. The results indicates that gamified recruitment assessment has a positive impact on applicant's willingness to apply and perceived fairness plays a major role in it as a mediator. The study suggests that opting for gamified recruitment assessment in the organizations can attract the talent to apply but it greatly depends on the perceived fairness of the recruitment assessment and applicants see gamified recruitment assessment in a positive light in terms of perceived fairness in Pakistan

Keywords: Gamified recruitment assessment, applicants' willingness to apply, perceived fairness, gamification, recruitment in Pakistan, Human resource management

1.   INTRODUCTION

The implementation of game features in non-gaming environments is known as "gamification," and it has become the newest buzzword in the HR industry. In a nutshell, it aims to integrate the concepts of work and play (Jeswani, 2023). Games are being utilized extensively to achieve a corporate edge by successfully attracting, engaging, motivating, and retaining talent because of their remarkable capacity to hold people's attention over extended periods of time, form relationships, win recognition, and foster creativity (Pandita, 2017), it is theoretically possible to gamify any program, task, process, or context. The primary objective of gamification is to increase user engagement through the use of game-like elements like scoreboards and quick, individualized feedback (Flatla, Gutwin, Nacke, Bateman, & Mandryk, 2011). Gamification is a relatively new idea in both research and the industry, but it has a lot of potential. The Gartner Hype Cycle for 2011 now includes it (Pandita, 2017). The study explores how organizational recruitment and gamification. Gamification offers a totally different approach to the challenging circumstances encountered by traditional recruitment tactics. Agencies can give candidates a dynamic and engaging experience by integrating gaming elements into the selection process (Shankar, Ganesan, & Yeo, 2024). Gaming's role in hiring extends beyond just entertainment value; it can essentially change how businesses learn about and evaluate competence. Agencies can learn more about applicants' competences, skills, and cultural fit by gamifying the assessment, interview, and onboarding phases of the selection process. Additionally, gamification makes it possible for companies to adopt inclusive and equal employment policies more skillfully by improving transparency (Hamari, Koivisto, & Sarsa, Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification, 2014)

Gamification is being used by a number of multinational Fortune 1000 businesses, such as Cisco, IKEA, Deloitte, and others, in their hiring, training, and development, assessment, and evaluation processes (Woods, Ahmed, Nikolaou, Costa, & Anderson, 2020), even though gamification techniques are becoming more widely used worldwide, human resource management procedures still lack them, especially when it comes to Pakistani markets (Woods, Ahmed, Nikolaou, Costa, & Anderson, 2020)

It is predicted that enterprises will find the finest prospects among the new practices and attempt to integrate them in their environment, given how quickly technology is developing (Encarnação, Reuter, Dias, & Amorim, 2021). Recruitment is a really important part in any organization, it helps the organization to achieve their goals by hiring the right kind of human resource that can contribute to the betterment of the organization, in recent years the overall recruitment process has evolved significantly due to digitalization, when it comes to the traditional way of recruitment assessments such as interviews, and CV screenings it can be seen that they are being replaced by solutions that are powered by technology. New innovations are always on the horizon that are more efficient and time-efficient, in recent years gamified recruitment assessment is a notable innovation that uses game like elements such as scoring, competing and simulations are utilized. Recruitment has a significant influence on the long-term growth and sustainability of businesses, if a company's people are one of its most important components, then the steps taken to draw in, develop, and keep the best personnel are directly related to the company's growth (Obaid, Farooq, & Abid, 2020).

Workers are the lifeblood of any company. Employee performance determines whether the company succeeds or fails. In a global market, the talented workforce's enhanced talents, knowledge, and skills proved to be a major source of competitive advantage (Elnaga & Imran, 2013) . Companies are engaged in a "war for talent," and each important hire is a battle of growing strategic significance (Marøy, 2019) . Strong employer brands are developed by businesses in order to draw in, inspire, and keep workers during times of crisis, which calls for interaction and the development of relationships with new hires (Kashive, Khanna, Kashive, & Barve, 2022). The workplace is radically changing as a result of digitalization. Organizations are adopting more creative approaches to successfully attract and engage candidates as the recruitment process has evolved in the digital age (Zerrer, Härting, & Gerst , Opportunities and Obstacles of Using Gamification in the Recruiting Process, 2024) . Over the course of its more than 100-year history, the field of people assessments has seen several changes, many of which have aligned with international business trends. For instance, the majority of specialists concur that one of the main factors influencing our work is technology (Bhatia S. , 2018) . Most people view games as a source of entertainment and leisure, but they also have the power to influence people's emotions and draw them deeply into a subject. Serious games fall into a specific category that corresponds to various domains and areas, such as education, healthcare, or the military, with the dual purpose of entertaining and assisting users in improving their abilities in various situations (Squire & Jenkins, 2003). Gamified assessment is a re-design method in human selection that involves incorporating gaming features, such as levels or stories, into conventional procedures, On the other hand, GBA (Game-Based Assessment) as a stand-alone approach refers to (computer) games intended to evaluate candidates' skills, knowledge, abilities, or other attributes (Landers & Collmus, 2022). The use of game mechanisms as motivating affordances intended to produce psychological consequences like motivation, attitude, and enjoyment is known as gamification (Hamari, Koivisto, & Sarsa, Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification, 2014)

The term "game-related assessment" (GRA) is frequently used to refer to both gamified assessment and GBA (Ohlms, Melchers, & Lievens, It's just a game! Effects of fantasy in a storified test on applicant reactions, 2022). According to a study conducted in 2024 People are more drawn to an organization when they believe that the selection process is fair. This is crucial since a fair exam will attract more qualified candidates (Sadlier, Erkens, Holm, & Rusch, 2024) . Generation Y and Z, who have grown up in the digital age, are the target audience for gamification in recruitment (Zerrer, Härting, & Gerst, Potentials and Challenges of Gamification in Recruiting, 2023). Gamified recruiting is the use of game-designed components based on serious games relevant to the specified goals to be attained in order to attract the best pool of the necessary workforce (Cardador, Northcraft, & Whicker, 2017).

Human resources departments have long supported the use of technology to integrate game-thinking in order to pick employees from among eligible candidates and to motivate potential applicants to apply for open positions. To assist with hiring and selection processes, organizations are utilizing gamification, serious games, game-inspired design, and game-like simulations (Bina, Mullins, & Petter, 2021), in the subject of human resource management, gamification has grown significantly in recent years. According to the study (Abro, Khan, Shah, & Wisal, 2022) the use of game design in a non-gaming

context to impact, engage, and motivate desired behaviors is known as "gamified recruitment." The majority of businesses have recently used gamification to acquire new employees. These gamified recruitment strategies are said to have a beneficial outcome. There is still more research being done on how gamification affects candidates' perceptions of personnel selection (Aouam, Belmouffeq, & Mahil, 2023). The potential of game-based assessments, a novel assessment technique that incorporates game aspects into employee selection, to predict job performance has been questioned recently due to their widespread application in human selection practices. (Nikolaou, Georgiou, & Kotsasarlidou, 2019). The term "gamified recruitment" refers to a method that evaluates an applicant's knowledge, skills, and abilities using serious games that have certain goals to be met. Employers all over the world frequently use this tool to find the best applicant to fill open positions (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011). Employers can attract the best candidate for a position by using gamified recruitment (Chapman & Rich, 2017) . To make the interviews more interesting, participatory, and productive, gamification has been used. Additionally, it has been incorporated into the hiring procedure. This automated approach has been used to assess a candidate thoroughly and his capacity to carry out the necessary tasks. The project's fundamental premise is to provide a game-based solution (Obaid, Farooq, & Abid, 2020)

Gamification evaluates an applicant's cognitive capability using game elements (such as board games and simulations). In Pakistan, the practice of gamified recruitment has increased since late 2015 (Khan, Shaikh, Memon, & Kazi, 2024) . Due to the well-established predictive validity of cognitive ability for work performance, cognitive ability tests have been widely utilized as selection and recruitment techniques for decades (Franziska Leutner, Codreanu, Brink, & Bitsakis, 2022). Our goal is to further the field of game-based evaluation research (Ramos-Villagrasa & Fernández-del-Río, Predictive Validity, Applicant Reactions, and Influence of Personal Characteristics of a Gamefully Designed Assessment, 2023) . Companies like PTCL, Nestle, and Shan Foods have been hiring for their management trainee programs in particular, but from the standpoint of job searchers, the extent of gamification is not evaluated academically (Khan, Shaikh, Memon, & Kazi, 2024). According to a study done by (Chow & Chapman, 2013) the results of these gamified recruitment efforts are encouraging. However, there aren't many results to gauge its "effectiveness". Candidates may still question the objectivity, transparency, and dependability of these assessments even if gamification is promoted as an innovative and alluring replacement for traditional selection techniques. These issues are particularly pertinent in competitive job markets like Pakistan, where candidates may not be familiar with technology-driven selection techniques and trust in hiring procedures is frequently low. As businesses rely more and more on gamified tests to identify and assess talent, it is critical to determine whether these tests have a positive or negative effect on candidates' motivation to apply for a job.

Furthermore, little is known about how perceived fairness operates in the context of gamified recruitment, even though it is widely recognized as a significant factor influencing applicant reactions. Because prior research has primarily focused on the effectiveness and enjoyment value of gamified assessments, there is a knowledge gap regarding how fairness judgments impact the relationship between being exposed to gamified recruitment and applicants' willingness to apply.

The main problem this study aims to solve is the lack of empirical data on Pakistani

applicants' opinions of gamified recruitment tests, particularly with regard to fairness, and whether or not these opinions influence their intention to apply for jobs in organizations that use such assessment methods. This discrepancy highlights the necessity of a systematic, quantitative investigation to determine whether gamified hiring enhances or diminishes applicant attraction through the perceived fairness mechanism.

Thus far, studies on applicant attitudes about GRAs have produced conflicting findings (Ohlms, Melchers, & Kanning, Playful personnel selection: The use of traditional versus game-related personnel selection methods and their perception from the recruiters' and applicants' perspectives, 2024). Some applicants may think that something is fair, but other applicants with different personality qualities might not think the same (Bauer, et al., 2006)

It's crucial to think about whether or not these results are beneficial to the company when evaluating how gamification might be used in selecting situations. (Jr., Doverspike, Kinney, & O'Connell, 2017) , Selection procedures must be legitimate, equitable, and defendable in court (JR, PLOYHART, & KRAVITZ, 2008), (Bhatia & Ryan, 2018) noted that the "sheer breadth of the unknown" is a significant drawback of GBAs in contrast to their potential benefits. However, a recent study by (Georgiou & Nikolaou, Are applicants in favor of traditional or gamified assessment methods? Exploring applicant reactions towards a gamified selection method, 2020) Discovered that using a gamified SJT instead of a regular SJT increased process satisfaction, which in turn affected perceptions of fairness and organizational attractiveness.

1.1   Problem Statement

Even though gamification in HR has garnered international attention, its application in hiring is still largely unexplored, particularly in underdeveloped countries like Pakistan. Businesses may think that gamified tests attract applicants, but if they don't understand how fairness views impact applicants' inclination to apply, they risk losing talent. This study aims to close the information gap brought about by the dearth of studies conducted in Pakistan.

1.2   Research Gap Analysis

Although the population of gamification in the organizational perspective is growing globally in terms of Engagement, training learning etc. there is little research done in terms of the recruitment process of the organization and gamification especially when it comes to the job-seekers point of view, how they perceive fairness and their willingness to apply in an organization that uses gamified recruitment assessments for their hiring process.

There aren't many studies that examine the impact of perceived fairness in gamified recruitment assessments on job seekers, their general willingness to apply, whether it makes the company more appealing, and whether they actually prefer GRA as a recruitment process. Apart from all of these gaps, the main problem is the lack of gamification in recruitment, perceived fairness, and job-seekers' willingness to apply. This kind of literature is extremely rare in Pakistan; very few studies have been found regarding gamification and the recruitment process, its scope in the context of Pakistan, and whether or not Pakistani job seekers prefer gamified recruitment in organizations.

1.3   Objective of the Study

The objective of this study is to assess the impact gamified recruitment assessment have on the job seeker's willingness to apply and to investigate the role that perceived fairness plays as a mediator in the connection between gamified assessments and readiness to apply. To

provide recommendations for the effective usage of gamified recruitment in Pakistani companies. This paper's goal is to introduce the idea of gamification into the employment process.

1.4   Research Questions

Q1: Will job seekers be more inclined to apply if recruiting tests are gamified?

Q2: Does the relationship between job seekers' willingness to apply and gamified recruiting assessments depend on perceived fairness?

Q3: How do Pakistani job seekers perceive gamified recruitment tests?

1.5   Significance of the Study

When it comes to the significance of this study, it can be said that it would contribute to not only the human resources of the organization but add valuable in the theory of literature gamification in HRM specifically in the domain of recruitment, although there are researches available in terms of gamification in settings of organizations globally it can be seen that there is insufficient empirical data that investigates the impact of GRA on Pakistani job seekers' attitudes and behaviors. By examining perceived fairness as a mediator, this study provides a better understanding of the psychological mechanisms through which gamified recruiting influences candidates' motivation to interact. The findings will enhance existing theories of recruiting and organizational behavior, particularly in relation to perceptions of fairness.

This report offers Pakistani companies and HR professionals' useful guidance on how to develop hiring practices that attract a larger and more driven talent pool. By understanding how gamified tests impact job seekers' willingness to apply, organizations can make informed decisions about applying gamification strategies while upholding fairness and transparency.

This study also looks at the changing needs of the modern workforce from a social perspective, particularly in relation to tech-savvy applicants. By investigating how gamified recruitment can impact job seekers' attitudes and choices, the study provides insights into fostering trust and positive organizational views in Pakistan's employment market. Ultimately, this could reduce applicant dissatisfaction and promote more equitable hiring practices.

2.   Literature Review

2.1   Gamification

The process of applying theories of game design to real-world contexts, such as business, is known as gamification (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011) in order to infuse activities and procedures with enjoyment, excitement, and enthusiasm. Features that are more frequently present in games are incorporated into non-gaming activities through process redesign. Game designer Pelling is credited with coining the term "gamification" in 2002 to refer to the application of game-like design approaches to expedite online transactions and provide customers with enjoyment (Perryer, Scott-Ladd, & Leighton, 2012).

Business gamification concepts have been around for quite some time (Simpson & Jenkins, 2015), Gamification is the process of introducing a game or competitive aspect in any situation (Polyanska, Andriiovych , Generowicz, Kulczycka, & Psyuk, 2022). According to a study done in 2021 Organizations' approaches to problem-solving have evolved significantly during the past few decades, employee creativity is needed to overcome the obstacles, not the outdated, repetitive manuals that have been used for generations (Kumar,

T. Sowdamini, Manocha, & Pujari , 2021), One intriguing idea that aids in resolving actual business issues is gamification (Šlibar, Vukovac, Lovrenčić, Šestak, & Andročec, 2018). The literature suggests the proper application of gamification and offers numerous optimistic predictions for its use (krasulak, Use of gamification in the process of selection, 2015) , Gamification's primary goal is to increase participants' motivation and engagement (Burke, 2014). Because gamification has such a wide basis, it may be used in almost any area of the company that calls for ongoing stimulation and active participation, including hiring, onboarding, training, and employee performance management (Callan, Bauer, & Landers , 2014), as psychology, enjoyment, communication, teamwork, problem solving, taking risks and making decisions, setting up the workplace, and confidence are some of gamifications connotations (Simpson & Jenkins, 2015) Thus, gamification has the potential to be used in any market sector, including hiring (krasulak, Use of gamification in the process of selection, 2015).

2.2   Gamification in HRM

Over the past 20 years, the growing rivalry for talent (Vaiman, Cascio, Collings, & Swider, 2021) has highlighted the importance of human capital, underscoring the necessity for efficient and long-term recruitment methods (Esch, Black, & Arli , 2021) , Due to the increased frequency of job transitions in today's workforce, people are more likely than ever to take part in selection processes and obtain results (Burns, Siers, & Christiansen, 2008).

Gamification, as used in HRM, is the practice of incorporating gaming elements and behavior-motivating strategies (such as challenges, leaderboards, and points) into the HRM system to make routine jobs and procedures seem more like games to users (SILIC, MARZI, CAPUTO, & BAL, 2020) . According to (Melnikova, Popov, & Fokina, 2023) Gamification is regarded by some authors as a top HR branding tool. Games are especially well-known for their ability to captivate and thrill players, and when they play them, they frequently experience mastery, proficiency, pleasure, engrossment, or flow. Gamification technology seeks to capture, harness, and implement this aspect of gameplay in contexts that frequently serve a more practical function (Hamari & Koivisto, Why do people use gamification services?, 2015). According to a study done in 2024 it has been discovered that gamification significantly improves employee engagement and satisfaction (Mohanty & B, 2024).

There is an apparent appeal to utilizing gamification in the workplace; nonetheless, gamification in human resource management remains insufficiently explored (Scholz & Uebach, 2022), Digitalization is opening up more and more opportunities, and some game features have made their way into the commercial sphere, gamification is based on things like specific point systems, achievements, levels, objectives, contests, leaderboards, and notifications (Dale, 2014).

2.3   Recruitment and Gamification

One of the most important management domains is human resources management, or HRM, which encompasses activities aimed at attracting and keeping valuable personnel, the current job market is extremely unstable, which presents a problem for businesses, a business must adapt to the requirements and expectations of both current and prospective employees in order to identify and retain top-notch human potential (Blštáková & Piwowar-Sulej, 2019) . Any organization's human resources department bears a significant burden of managing talent, from hiring to employee retention (Nair, Sadasivan, &

Krishnan, 2018) . In many non-gaming situations, such as support for organizational contexts like managing human resources (HRM), game-thinking is starting to show up (Armstrong, Landers, & Collmus, Gamifying Recruitment, Selection, Training, and Performance Management: Game-Thinking in Human Resource Management, 2017) . Gamification in HR refers to the application of game theory, game mechanics, and game thinking to include and motivate employees to achieve their goals, hence achieving the organizational vision (Karadakov & Gjorgjievski, 2022). An organization's hiring practices can have an impact on the kind of workers it hires, their performance, and retention rate (Breaugh, 2013) . Gamification can be applied to the hiring and selection process. Employees who are qualified for the position and will eventually fit in with the company are more likely to be engaged and chosen if this is done (Nenadić, 2019).

The competitive advantage that companies can have by following evidence-based methods for potential hires has led researchers and practitioners to continue focusing on applicant recruitment and attractiveness, the emergence of new, high-tech selection methods that many candidates may not be aware with has also increased interest in the applicant experience (Bauer, Truxillo, McCarthy, & Erdogan, 2024) . Recently, game-based assessments and the gamification of pre-existing pre-employment tests have emerged as viable avenues for applied measurement to solve the shortcomings of conventional rating-scale evaluation methods of psychological variables in human resource management (Chalain & Kock, 2022) . Organizations are using gamification more and more while making employment decisions. However, compared to related research, the application of gamification in evaluation has progressed more quickly (Georgiou, Can explanations improve applicant reactions towards gamified assessment methods?, 2021) . Gamified pre-employment tests and game-based evaluations have surfaced as interesting avenues for applied measurement (Blandin, 2022) , Corporations and HR experts have been paying more attention to gamification as a new and interesting idea for recruiting and choosing potential employees (Georgiou, Gouras, & Nikolaou, Gamification in employee selection: The development of a gamified assessment, 2019) . As a selection technique, gamification seeks out and chooses people with particular competencies. You may even refer to these competencies as talents when it comes to their application (Ingram, 2011)

Individuals' emotions, feelings, and thoughts regarding the hiring process are referred to as applicant responses, applicant responses that are situationally based are predicated on opinions about the tests and how they were developed (e.g., fairness, employment discrimination, test usefulness) (Ramos-Villagrasa, Fernández-del-Río, Hermoso, & Cebrián, 2024) . In gamified hiring evaluation the association between gamification and process satisfaction as well as perceived test fairness was mediated by test performance (Schick, 2024) , According to (Georgiou, Gamifying an assessment method: what signals are organizations sending to applicants?, 2022) Positive impressions of a gamified assessment's features affected the organization's appeal through its symbolic organizational attributes. A research conducted in the year 2020 (Ellison, Johnson, Tomczak, Siemsen, & Gonzalez, 2020) GBAs are a useful assessment tool for hiring, but companies need to understand that people are more likely to react favorably to them if they believe they can do well on the test and that they are fair and relevant to their jobs. Players may find the usage of gamification in the selection process intriguing due to its form as well as the activities that seem particularly enjoyable for applicants. A well-designed gamification program can assist the firm in a number of ways, including large-scale goal

achievement, understanding the value of incentive and teaching its beneficial use, and easy access to content that teaches gamification design and applications (krasulak, Use of gamification in the process of selection, 2015)

2.4   Gamification in Pakistan

The term "gamification" refers to the incorporation of gaming resources and technologies into non-gaming contexts, including hiring, in order to promote motivation, engagement, and behavior modification (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011) . Gaming's role in hiring extends beyond its entertainment value; it can essentially change how businesses learn about and evaluate talent (Shankar, Ganesan, & Yeo, 2024) gamification has been widely studied, tested, and used in corporate settings for more than ten years (Sakamoto, Nakajima, & Alexandrova , 2012) It has been demonstrated that gamification is a promising instrument that provides several creative solutions for a variety of fields (Obaid, Farooq, & Abid, 2020) . Human resource management practices still lack gamification techniques, despite the fact that they are becoming increasingly popular globally, particularly in Pakistani markets (Woods, Ahmed, Nikolaou, Costa, & Anderson, 2020) but since late 2015, gamified recruitment has becoming more common in Pakistan (Khan, Shaikh, Memon, & Kazi, 2024) There is still a dearth of research on gamification in hiring in Pakistan. Additionally, the incorporation of game mechanisms as motivating affordances intended to produce psychological consequences like motivation, attitude, and enjoyment is said to constitute gamification (Hamari, Koivisto, & Sarsa, Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification, 2014) In fact, most research that discuss gamification find favorable effects on players' subjective experiences, such as motivation, attitude, and enjoyment, suggesting that gamification is effective in generating some of the same affective results as entertainment games (Hamari, Koivisto, & Sarsa, Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification, 2014).

Gamification may also lessen test-taking anxiety in the setting of assessment, which may enhance performance. Test anxiety and stereotype threat are two moderators and mediators of test performance differences that may be lessened by game-based assessments (Franziska Leutner, Codreanu, Brink, & Bitsakis, 2022). When compared to conventional pen-and-paper exams, this reduction in anxiety may result in improved performance. When taking a gamified version of a multimedia systems knowledge examination, for instance, participants perform better and experience less anxiety than when taking a regular paper test (Mavridis & Tsiatsos, 2016)

2.5   Theoretical Framework

The organization justice theory (Adams, 1965; Greenberg, 1987) is rooted in this study, according to the theory the evaluation that every individual does is based on the organization's processes perceived fairness specifically, selection systems' procedural justice. When it comes to recruitment what applicants really look for is the transparency and unbiasedness in the overall assessment process and these are the things that greatly influence their behavioral intentions as well as attitudes. There is a possibility that as a recruitment selection tool GRA may influence candidates' sense of fairness by providing standardized and engaging evaluation experiences. Furthermore, the theory of applicants' reaction (Gilliland, 1993) implies that candidates' perceptions of companies are shaped by their experiences during the hiring process. Applicants are more inclined to apply when they have positive reactions to recruitment tools, such as views of fairness and engagement.

Additionally, according to Signaling Theory (Spence, 1973) hiring procedures serve as signals that communicate the culture and values of the company. Gamified tests, for example, may signal modernity and innovation, which would increase applicant attraction.

2.6   Gamified Recruitment Assessment & Applicants' Willingness To Apply

Improving candidate responses to the hiring process is one of the possible advantages of gamification. Cognitive ability exams, personality assessments, and interviews are examples of traditional selection processes that frequently cause applicants to feel anxious and react negatively (Hausknecht, Day, & Thomas, 2004) rather, it has been proposed that gamified tests offer a fun and interesting experience that improves applicant responses (Armstrong, Landers, & Collmus, 2017). These days, human resource management plays a big part in efficiently managing a workforce by making sure that the right individuals are hired for organizational objectives (Ashraf, et al., 2024) and the findings of the study (Buil, Catalán, & Hernández-Ortega, 2025) show that when people engage with success and advancement affordances that provide them specific tasks and organized difficulties, engagement is especially promoted. Similarly, it is highly encouraged to interact with social affordances in gamified recruiting, whether through teamwork or rivalry between teams or individuals, offering chances for social dynamics that boost engagement. Another study's findings demonstrated that gamification can be utilized to boost perceived clarity about what to expect in a job by playfully providing information about the company and job during an assessment (Ohlms, Voigtländer, Melchers, & Kanning, 2024). Employers may find applicant responses to selection processes to be practically significant due to factors that impact an organization's appeal to applicants, ethical and legal concerns, and potential impacts on the validity and usefulness of selection processes (SMITHER, REILLY, MILLSAP, & AT&T, 1993). The body of research on how candidates respond to hiring and selection procedures has significantly progressed (Petruzziello, Mariani, Chiesa, & Guglielmi, 2020). This study aims to improve candidate experiences and recruitment procedures by exploring these interactions (Piccolo, Petruzziello, Chiesa, Pietrantoni, & Mariani, 2024), Gilliland's organizational justice model (Gilliland, 1993) offers a framework for comprehending how candidates' intentions to apply for a position are influenced by their perceptions of fairness and transparency in the selection process. This approach has been essential in elucidating how candidates respond to new technologies used in hiring and selection (Acikgoz, 2019), (Bauer, Truxillo, McCarthy, & Erdogan, 2024) refers to candidates' opinions of how well the hiring or selection process gives them a fair and sufficient opportunity to demonstrate their job-relevant talents and abilities in Gilliland's (Gilliland, 1993), organizational justice theoretical model. Players may find the usage of gamification in the process of selection intriguing due to its form as well as the activities that seem particularly enjoyable for applicants (krasulak, Use of gamification in the process of selection of candidates for the position in the opinion of young adults in Poland, 2015), Only the mediator of process satisfaction showed a statistically significant indirect effect from the assessment method to fairness perceptions. This suggests that adding a game fiction component to an assessment makes the selection process appear more enjoyable and, consequently, fair, expanding the body of research on gamification and employee selection. Additionally, candidates that participate in a gamified assessment as part of the selection process think the hiring company is more appealing than one that uses a conventional evaluation method. More precisely, through process satisfaction and test fairness, the evaluation method has an indirect impact on an organization's attractiveness

(Georgiou & Nikolaou, Are applicants in favor of traditional or gamified assessment methods? Exploring applicant reactions towards a gamified selection method, 2020).

According to the study (Georgiou & Nikolaou, Are applicants in favor of traditional or gamified assessment methods? Exploring applicant reactions towards a gamified selection method, 2020) It is possible to investigate whether the inclusion of gaming features influences applicants' assessment perceptions. Techniques and rises Organizational attractiveness would contribute to the study of both gamification and candidate reactions by expanding our understanding of gamification, assessment, and its effects on recruitment outcomes. We seek to investigate how applicants' perceptions of the selection process (i.e., process satisfaction, perceived predictive validity, and fairness) and, consequently, their attraction to the organization are influenced by the "signals" sent to them through a gamified assessment method, drawing on organizational justice theory and signaling theory.

H1 = Gamified recruitment assessment (GRA) has a positive impact on the applicant's willingness to apply (WTA)

2.7   Perceived Fairness & Applicants' Willingness To Apply

Applicants' perceptions of an organization are shaped by fair procedures and equal performance opportunities because they convey to candidates that the firm prioritizes meritocracy and fairness in its hiring process (Spence, 1973), Candidates are more likely to pursue positions within the company and be drawn to both the position and the company when recruitment procedures prioritize openness, pleasant applicant experiences (Hausknecht, Day, & Thomas, 2004). An organization's attraction is greatly increased by treating applicants equally; candidates who feel treated fairly are more drawn to the organization than those who are treated unfairly (Krys & Konradt, 2022), Additionally, as candidates get new knowledge during the hiring process, their opinions of organizational attractiveness and overall company appeal may change (Hiemstra, Oostrom, Derous, & Serlie, 2019), Fairness during recruiting has a considerable impact on applicants' judgments of organizational appeal, as Krys and Konradt [32] showed, highlighting the crucial role OPP has in influencing candidates' opinions of organization attractiveness (Krys & Konradt, 2022). Using a temporal approach to comprehend the dynamic and long-lasting effects of organizational justice and sustainability on applicant intentions offers important insights for improving hiring procedures (Piccolo, Petruzziello, Chiesa, Pietrantoni, & Mariani, 2024). Candidates may find the selection process satisfactory and believe that a company that employs an innovative, interesting, and enjoyable technique of assessment is more appealing than one that employs more conventional approaches (Georgiou & Nikolaou, Are applicants in favor of traditional or gamified assessment methods? Exploring applicant reactions towards a gamified selection method, 2020) However, one thing to keep in mind is that what appears fair to some applicants could not seem fair to others who have different personality qualities (Bauer, et al., 2006). From a broad standpoint, the study's (Yas, 2023) findings demonstrated that gamification greatly increases applicant engagement during the hiring process by utilizing various components such challenges, problem-solving examinations, and real-life simulation. These procedures increase the candidate's involvement and provide an accurate evaluation of their abilities and fit for the position.

H2 = The Perceived fairness (PF) has a positive impact on the applicants willingness to apply (WTA)

2.8   Gamification & Perceived Fairness

In order to create a stand-alone experience that players may "play," game creation entails combining numerous game aspects at once, complete game development is necessary for a game-based assessment. This is a very different development process for practitioners (Landers, Auer, & Abraham, Gamifying a situational judgment test with immersion and control game elements: Effects on applicant reactions and construct validity, 2020). From a broad standpoint, the study that was conducted in 2023 demonstrates that gamification greatly increases applicant engagement during the hiring process by utilizing various components like challenges, problem-solving examinations, and real-life simulation (Yas, 2023). According to a study done in 2014 Gamification is successful in providing some of the same affective results as entertainment games, as evidenced by the majority of studies that describe it showing positive effects on players' subjective experiences, including motivation, attitude, and enjoyment (Hamari, Koivisto, & Sarsa, Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification, 2014). By subtly recording behavior in a "fun" fashion, gamification gives users a less anxiety-inducing atmosphere, enabling them to fully engage in the activity and making it feel less intimidating (McPherson & Burns, 2008). When compared to conventional pen-and-paper tests, this reduction in anxiety may result in better performance. When taking a gamified version of a multimedia systems knowledge examination, for instance, participants perform better and experience less anxiety than when taking a regular paper test (Mavridis & Tsiatsos, 2016) because it blends the adaptability of simulations with the motivational advantages of games and gamification, game-based intelligence evaluation presents a potential viewpoint (Peters, Kyngdon, & Stillwell , 2021). A study's conclusions corroborate Spearman's claim that GMA is crucial to human affairs (Schmidt & Hunter, 2004).

The company benefits greatly from the performance-oriented HR teams' ability to hire the finest applicants by adapting their procedures to the current trends. HR should dismantle the frameworks of inflexible theoretical knowledge systems and find the ideal group of applicants who offer the company a distinct advantage in terms of human capital (Nair, Sadasivan, & Krishnan, 2018), a number of studies have proposed that gamification in hiring practices, such as game-based tests, may be able to predict job success more accurately than conventional techniques (Nikolaou, Georgiou, & Kotsasarlidou, 2019). According to (Melchers & Basch, 2021) the fundamental justification for GRA's popularity is that it lowers the possibility of deception and enhances applicants' responses while preserving predictive validity. The rationale behind choosing GRA is that it may help draw in new applicant groups, enhance applicant responses, lessen score contamination due to anxiety, socially acceptable responses, or faking, and supplement conventional selection methods so that smaller variance can be defined for the prediction of job performance (Fetzer, McNamara, & Geimer, 2017). Additionally, it has been proposed that using gamified assessments to elicit favorable attitudes toward the selection process can provide excitement and enjoyment during the process (Bhatia & Ryan, 2018), According to (Georgiou & Nikolaou, Are applicants in favor of traditional or gamified assessment methods? Exploring applicant reactions towards a gamified selection method, 2020) When the gamified assessment method is used instead of its traditional version, applicants report higher levels of process satisfaction, which in turn lead to perceived fairness and

organizational attractiveness. However, the role of openness to experience was not supported. According to (Landers & Sanchez, Game-based, gamified, and gamefully designed assessments for employee selection: Definitions, distinctions, design, and validation, 2022) GRAs appear to offer a solution to common problems in hiring, such as phony or unfavorable responses from applicants.

"Using game-based mechanics, aesthetics, and game-thinking to engage people, motivate, promote learning, and solve problems" is how he describes gamification (Saeed, Younis, & Hossan, 2015). Gamification has been shown to be an effective recruitment and selection approach, particularly for younger players who engage in prize-based competitive games (Khan, Shaikh, Memon, & Kazi, 2024), A recent study found that about 55% of US companies and workers find gamified hiring interesting and amusing (Nenadić, 2019), While companies work to increase efficiency, improve employee satisfaction, and retain top talent, employees are always looking for new methods to stay successful and motivated (Bai, Hew, & Huang, 2020). According to the study (Johnson, et al., 2016) gamification can benefit more than just hiring, it can improve well-being, teamwork, communication, and job satisfaction by introducing game aspects into work-related activities. Gamification adds aspects of challenge and amusement to make work tasks more interesting and pleasurable (Khan, Zhang, Zada, Saeed, & Khattak, 2024), however, some contend that gamification is only a marketing gimmick that takes advantage of the gaming industry's financial success (Treanor, Schweizer, Bogost, & Mateas, 2011). To understand the actual effects of gamification it's important to understand what gamification really is and through this study we explore the idea of gamification in respect of recruitment through the lance of job seekers and their willingness to apply in the organization who uses GBA for recruitment. The paper seeks to provide an overview of the relevant evidence regarding this matter and determine if job applicants are likely to see the usage of gamification favorably or unfavorably in terms of the GBA's fairness.

H3= Gamified recruitment assessment (GRA) has a positive impact on perceived fairness (PF)

2.9   Perceived Fairness

When it comes to gamification, prospects question the fairness of such gamified methods of obtaining rewards (Al-Msallam, Xi, & Hamari, 2025). Early studies in this area have examined user experiences and perceptions of fairness, but research on candidates' responses to these technologies is still in its early stages (Hilliard, Guenole, & Leutner, 2021), Distributive fairness, or fairness in results, and procedural fairness, or fairness in the process employed during an evaluation, are two types of perceptions of fairness that are usually defined by the perceived capacity to sway a decision (Gilliland, 1993). It is crucial to comprehend how prospective employees view the hiring process, particularly its sustainable practices (McCarthy, et al., 2017), Nevertheless, the area of applicant reactions is at a turning point since there have been long-standing concerns about whether research on applicant reactions is truly progressing or if it is just "much ado about nothing." (Ryan & Huth, 2008). Based on their application experience, applicant reactions show how job seekers view and react to selection techniques (such as situational judgment tests, work samples, and personality exams) (McCarthy, et al., 2017), discovering that applicants' intents to accept a job offer, the employer's attractiveness, and whether or not job candidates would promote the employer to others were all impacted by procedural and distributive justice (Bauer, et al., 1998).

Cognitive ability tests are likely to have an adverse impact on protected applicant groups when used for recruitment and selection (Hunter & Hunter , 1984) , the findings of the study (Yang, et al., 2018) indicate that both point-rewarding and feedback-giving perceptions might improve distributive and interpersonal fairness perceptions, which in turn encourage solvers to participate in crowdsourcing. While organizational justice aims to create equitable work environments where employees are rewarded, benefited, and motivated within organizations, gamification proposes to create creative and dynamic responses in order for participants to gradually develop their skills and self-learning (López, Velastegui, Paredes, & Zambrano , 2025) Additionally, there is strong evidence that attitudes, intentions, and behaviors are significantly and meaningfully impacted by applicant reactions (McCarthy, et al., 2017).

H_4 = *the relationship between gamified recruitment assessment (GRA) and applicants willingness to apply (WTA) is mediated through perceived fairness (PF)*

2.7   Conceptual Model
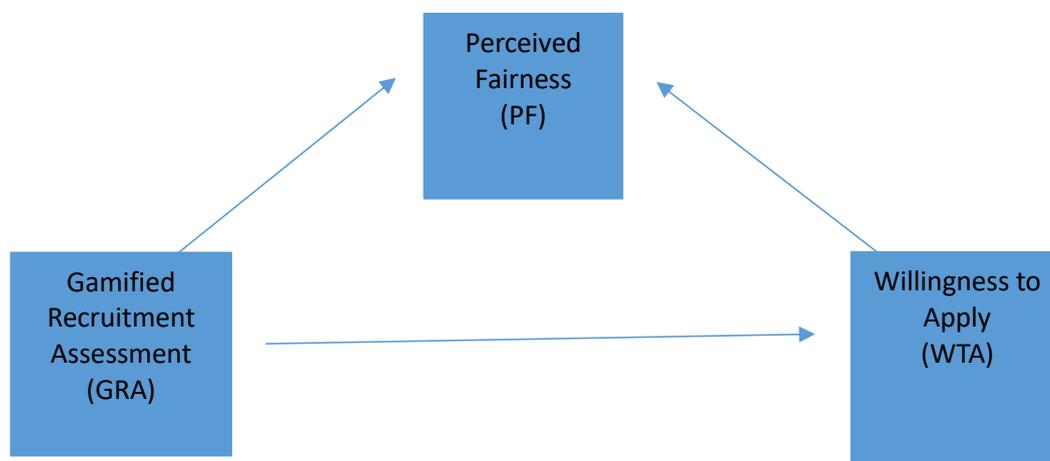
3   Research Methodology
3.1   Research Philosophy

The anchor of this study's philosophy is positivism as this study's objective of the realty is measured through the empirical evidence and statistical analysis, testing hypotheses, quantifying data, and using structured tools to look at links between variables are all key components of positivism. A positivist perspective is thought to be most relevant because the current study uses numerical data gathered through a structured questionnaire to investigate the correlations between gamified recruitment evaluations, perceived fairness, and willingness to apply. This kind of reasoning enables the researcher to test the hypotheses in an unbiased manner and get conclusions from empirical data that may be applied broadly.

3.2   Research Approach

The study uses a deductive research methodology, wherein theories and earlier literature are used to generate hypotheses, which are then empirically tested with quantitative data. When the goal of the study is to confirm theoretical hypotheses by methodical data analysis, the deductive methodology is appropriate. The Organizational Justice Theory (Adams, 1965), Applicant Reaction Theory (Gilliland, 1993), and Signaling Theory (Spence, 1973) served as the foundation for the development of the study's hypotheses. The

deductive method was suitable for accomplishing the research goals since survey responses and (PLS-SEM) were used to evaluate these hypotheses.

3.3   Research Design

This is a quantitative and cross sectional research where the focus is on the job seeking students and fresh graduates perception about the gamified recruitment assessment in Pakistan and how does perceived fairness effects the willingness to apply. The sampling method that would be used in this research is convenience and snowball sampling. The data was collected through online survey form with structured questionnaire and 5 point Likert scale (where 1= strongly disagree ad 5= strongly agree) with the sample size of 300 to 315 respondents.

3.4   Sampling Method And Population

The population for this study are the basically the individuals that has exposure to or understanding of the gamified recruitment assessment (GRA), that are in their early stages of career, university students or fresh graduates as they are the potential and active job-seekers who would have some understanding or exposure to (GRA) during the recruitment process. The sampling method that was convenience sampling technique, the respondents were selected based on their availability and willingness and the questionnaire was distributed to the professional contacts and online on the social media platforms to reach the individuals that are right for this study.

The online survey first collected 315 responses. To account for the SmartPLS program's technological limitations, 100 valid responses were selected for the final analysis after data screening. The selected sample size meets the minimal requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM) for studies with relatively small to medium sample sizes and complex models.

PLS-SEM was chosen as the data analysis technique because it is suitable for models involving latent constructs assessed by multiple indicators, mediation analysis, and predictive research. Because PLS-SEM works well in scenarios where sample sizes are limited and data normalcy cannot be guaranteed, it is an ideal choice for the current study.

3.5   Data Collection

For the data collection in this study a self-administered and structured questionnaire was used that is adapted from three different research articles for each variable, to measure Gamified recruitment assessment (GRA) the questions were adapted from the research (BAUER, et al., 2001) to measure Perceived Fairness (PF) the question were adapted from the research (Sadlier, Erkens, Holm, & Rusch, 2024) as for the measurement for the Applicants willingness to apply (WTA) the questions were adapted from the research (Piccolo, Petruzziello, Chiesa, Pietrantoni, & Mariani, 2024) to align the questions with the study minor adjustments were done with the words while maintaining the original meanings.

The questionnaire for this study consisted of four sections whew section one was about the demographics that contained the information of the respondents such as their age, gender, city and education. Section two had questions to measure PF, section three had questions to measure GRA and section four consisted questions to measure WTA. Each variable had a total of four questions for the measurement.

The questionnaire was made on google forms. All the measurement questions of GRA, PF & WTA used likert scale five-points where 1 represents strong disagreement and 5 represent strong agreement. To collect the data the questionnaire was distributed online on

various online platforms that allowed the participants to participate voluntarily this method helped to collect responses from the major cities like Karachi, Lahore and Islamabad. The data was collected over a specified time period. A total of 315 responses were collected from which a total of 200 responses were analyzed in terms of the limitations of smart-PLS

4. Data Analysis

The analysis of the data that was collected was done through SMART-PLS through the approach of (PLS-SEM). As PLS-SEM is suitable for predictive research, mediation analysis, and complex models with latent constructs, it was used to test the proposed research model and hypotheses. Additionally, the method does not require rigorous assumptions of data normality and is suitable for studies with moderate sample sizes.

The measurement model was assessed based on the following criteria: indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The outer loadings were measured to assess the indicator reliabilities, whereas Cronbach's alpha and composite reliability were used to evaluate internal consistency reliability. For convergent validity, AVE was measured, while for discriminant validity, both the Fornell-Larcker criterion and HTMT ratio were used.

4.1 Results

The overall results of this study including the data analysis is present here, for the analysis of the data of this study is done using PLS-SEM (Partial Least Square Structural Equation Model). In order to investigate the proposed connections between Gamification Recruitment Assessment (GRA), Perceived Fairness (PF), and Willingness to Apply (WTA), the analysis assesses both the measurement model and the structural model. The mediating function of perceived fairness in the link between GRA and WTA is also examined in this chapter. The Measurement Model Assessment was used so that we can ensure and assess the convergent and discriminant Validity along with internal consistency and indicator reliability.

Indicator Reliability (Outer Loadings)

Outer Loadings	
GRA1 ← GRA	0.914
GRA2 ← GRA	0.934
GRA3 ← GRA	0.922
GRA4 ← GRA	0.931
PF1 ← PF	0.920
PF2 ← PF	0.900
PF3 ← PF	0.913
PF4 ← PF	0.920
WTA1 ← WTA	0.919
WTA2 ← WTA	0.957
WTA3 ← WTA	0.918
WTA4 ← WTA	0.926

Each of the measurement items respective construct's indicator reliability was assessed by examining the outer loadings. As shown in the table,1 all the indicators related to GRA (Gamified Recruitment Assessment), PF (Perceived Fairness) and WTA (Willingness To Apply) presents robust indicator reliability, as the suggested threshold for the outer loading

is 0.70 and the measurements shows that all the indicators for this study ranges between 0.90 to 0.957 that is well above the recommended threshold, this presents that all the indicators have a significant variation with its underlying construct which means that The measurement items accurately reflect the corresponding latent variables therefore no indicators were removed from the model.

Construct Reliability & Validity

CONSTRUCT RELIABILTY & VALIDITY				
	Cronbach's Alpha	Composite Reliability (rho-a)	Composite Reliability (rho-c)	Average Variance Extracted (AVE)
GRA	0.944	0.944	0.960	0.857
PF	0.934	0.934	0.953	0.834
WTA	0.948	0.948	0.962	0.865

Through Cronbach's Alpha and composite reliability the overall internal consistency and reliability was assessed. As shown in the table.2 all the values are above 0.90 although the suggested minimum threshold is 0.70, as for the AVE the suggested minimum threshold is 0.50 and all the values are above that threshold which means that the model shows adequate convergent validity and internal consistency reliability.

Discriminant Validity

(FORNELL-LARCKER)			
	GRA	PF	WTA
GRA	0.926		
PF	0.889	0.913	
WTA	0.840	0.846	0.930

HTMT	
PF ↔ GRA	0.946
WTA ↔ GRA	0.888
WTA ↔ PF	0.898

By using Fornell-Larcker and HTMT the discriminant validity was evaluated, the Fornell-Larcker verifying sufficient discriminant validity as it showed that each construct's square root was more than the correlations of other constructs. Furthermore, the majority of construct pairs had HTMT values below the conservative cutoff of 0.90. Due to the conceptual relatedness of the constructs, the HTMT value between Gamification Recruitment Assessment and Perceived Fairness was deemed acceptable even though it was marginally above the more permissive threshold of 0.95.

Collinearity Assessment (VIF)

COLLINEARITY ASSESSMENT (VIF) – INNER MODEL	
GRA ↔ PF	1.000
GRA ↔ WTA	4.763
GRA ↔ WTA	4.763

By using the VIF values the collinearity between predictors was examined. As the threshold for the VIF is 5.0, the values in the above table shows that they are under 5.0 suggesting that multicollinearity in the structural model is not a significant problem. As a result, it is possible to interpret the structural relationships with confidence threshold.

Coefficient of Determination (r2)

R- SQUARE

	R-SQUARE	R-SQUARE ADJUSTED
PF	0.790	0.788
WTA	0.752	0.747

The overall predictive legitimacy of the model was examined by using R-Square. As the results shows 79% of variance when it comes to GRA and PF which shows significant capacity for explanation, furthermore, when it comes to GRA and PF collectively accounted for 75.2% of the variation in WTA, indicating significant predictive accuracy. As for when it comes to adjusted R-square adjusted it nearly matched the values of R-Square which indicates the stability of the model.

Effect Size (f2)

F-SQUARE

	F-SQUARE
GRA → PF	3.763
GRA → WTA	0.151
PF → WTA	0.187

According to the Size effect analysis the GRA has a great effect on the PF, In addition, both the GRA and the PF had a medium effect size on Willingness to Apply. The results emphasized the key roles that the GRA and the PF play in the means by which the applicants are willing to submit their applications.

4.2   Hypothesis Testing

The accuracy of the proposed relationships was tested using bootstrapping analysis. The findings demonstrated that Gamification Recruitment Assessment (GRA) significantly improves Perceived Fairness (PF), meaning that candidates believe hiring procedures are more equitable when gamified components are incorporated. Additionally, Willingness to apply (WTA) is significantly improved by GRA, indicating that job seekers are more likely to apply to companies that use GRA. Additionally, WTA is significantly positively impacted by PF, indicating that candidates who believe recruitment evaluations are fair are more inclined to seek employment. As it was predicted the overall structural relationships of the study were confirmed and the influence of the GRA on the PF was assessed positively.

Hypothesis	Relationship	T-Value	β	P-Value	Results
H1	GRA → WTA	4.296	0.422	0.000	Supported
H2	PF → WTA	4.461	0.47	0.000	Supported
H3	GRA → PF	37.786	0.88	0.000	Supported

4.3   Analysis of Mediation

Using bootstrapping techniques, the mediating function of Perceived Fairness (PF) in the relationship between Gamification Recruitment Assessment (GRA) and Willingness to Apply (WTA) was investigated. It was discovered that the GRA had a positive and statistically significant indirect impact on WTA through PF. The stability and accuracy of the mediation effect were demonstrated by the sample mean of the indirect effect's close alignment with the initial estimate and the comparatively low standard deviation. These results show that job seekers' perceptions of fairness are strengthened when they are exposed to gamified recruitment assessments, and this increases their willingness to apply for jobs.

Crucially, even after accounting for the mediator, the direct impact of the GRA on WTA remained substantial. This suggests that by improving perceptions of fairness, gamified recruitment tests both directly and indirectly encourage job applications. These findings indicate that the relationship between GRA and WTA is partially mediated by PF. This demonstrates that one important psychological mechanism by which gamification affects applicant behavior in recruitment settings is perceived fairness.

Hypothesis	Relationship	T-Value	β	P-Value	Results
H4	GRA → PF → WTA	4.364	0.418	0.000	Supported

5.   Discussion

The purpose of this study to understand and assess impact of Gamified Recruitment Assessment (GRA) on the applicants Willingness to Apply (WTA) in the organization that uses GRA as their recruitment process through Perceived Fairness (PF) as a mediator. The results offer significant insights into how GRA affect applicant views and behavioral intentions, as well as strong empirical support for the suggested study methodology.

Firstly, the outcomes show that Gamification Recruitment Assessment is significant and has a positive impact on Perceived Fairness. This indicates that job seekers consider recruitment processes incorporating gamified aspects as more transparent, engaging, and fair in comparison to other methods of assessment. Using gamified aspects in recruitment assessment diminishes apprehensions and uncertainty linked with recruitment assessments, thus increasing applicants' Perceived Fairness of procedural justice. This is in accordance with signaling theory, whereby gamified assessment in recruitment indicates innovativeness and fairness in organizations to prospective applicants.

Second, it was discovered that there was a strong and positive correlation between the GRA and WTA. This suggests that candidates are more likely to apply to companies that use gamified hiring tests. Gamification boosts interest, enjoyment, and perceived organizational attractiveness from the viewpoint of applicants, all of which have a positive impact on their intention to seek employment opportunities. This result validates earlier research that suggests employer branding and applicant attraction are improved by contemporary, technology-driven recruitment strategies.

Third, WTA was found to be significantly positively impacted by PF. This emphasizes how important fairness perceptions are in influencing candidates' choices during the hiring process. Applicants are more likely to trust the company and show a greater desire to apply when they feel that recruitment evaluations are impartial and fair. This result supports justice theory and demonstrates that, even in situations involving technology-mediated recruitment, applicant behavior is still heavily influenced by fairness.

The relationship between GRA and WTA is partially mediated by PF, according to the mediation analysis. This suggests that through improved perceptions of fairness, gamification affects applicants' WTA both directly and indirectly. Put another way, even though GRA draw candidates on their own, their efficacy is increased when candidates believe the tests are fair. The psychological mechanism by which gamified recruitment practices affect applicant outcomes is better understood thanks to this finding.

6.   Conclusion

This study contributes to the research work that is related to gamification in the domain recruitment process and the evolution of digitalization especially in terms of gamified recruitment and the applicants perceived fairness about it and their willingness to apply in organizations that uses gamified recruitment assessment as their recruitment process

especially in Pakistan. The results of this study indicates positive relationship when it comes to GRA and applicant's WTA through PF. It is shown that there is a high scope of gamified recruitment assessment in Pakistan and PF plays a huge role in this, in this research it was evident that transparency and fairness has a huge impact on the applicants attitude and behavior, applicants are more inclined to apply in the organizations that has transparent, unbiased and fair recruitment process and in this study through empirical evidence it was shown that applicant perceive gamified recruitment process fair.

It can be said that the organizations that would opt for gamified recruitment as their recruitment process has a good chance of attracting qualified as well as motivated applicants. Integrating gamified elements can benefit the organization in attracting potential qualified candidates.

6.1   Implications in Theory

This study has various implications when it comes to theoretical contribution. This study extends the literature of recruitment and selection procedures. gamification is a prominent name in the digital evolution and its area of implication is still being explored similarly in the domain of recruitment, gamification as a recruitment tool is under explored especially in the context of Pakistan as the study in the domain of gamification and recruitment in Pakistan remain scarce, this study helps in the understanding of the gamification in the domain of recruitment and its scope in the organizations of Pakistan and applicants views and their willingness to apply.

Furthermore, it also highlights the fairness, transparency and organizational justice theory that is a really important aspect especially for the candidates, the overall PF impacts the applicants WTA in any organization that means if a candidate feel like an organization's recruitment process is fair and transparent the chances of them applying for that particular organization increases which means that when applicants PF positively that also increases their attraction towards the organization and they would likely apply.

Additionally this study also puts a mediation factor forward in the field of recruitment which is PF, this study confirms a partial mediation and offers more insights related to the PF in terms of recruitment and applicants WTA.

6.2   Limitations

Although this study greatly contributes in various aspects of theory but there are several limitations in this study. First, the study's cross-sectional research design makes it more difficult to determine causality. Long-term or experimental designs could help future research better capture how applicant perceptions evolve over time.

Second, self-reported measures were used to gather the data, which could be prone to social desirability effects and common method bias. Even though procedural remedies were used, objective measurements or data from multiple sources could be included in subsequent studies to increase the validity of the results.

The study concentrated on a small number of constructs. Applicant responses to GRA may also be influenced by other pertinent factors that were not investigated, such as perceived enjoyment, trust in technology, organizational reputation, or individual differences. The study concentrated on a small number of constructs. Lastly a limited time frame for this study limited the extent of data collecting and limited the use of multi-wave or longitudinal study methodologies. The sample size and level of analysis may possibly have been impacted by time restrictions. Longer-term research projects may yield more thorough and reliable findings.

6.3 Future Research Paths

There are several prospect studies suggested for the future, as this was a cross sectional study, an industry specified study can be conducted that can provide more industry specified results in terms of gamification in recruitment and applicants WTA. Apart from that there can be additional mediators or moderators can be applied in gamification in terms of recruitment to understand the gamification and its impact more deeply. For the future studies a more long term study can be conducted that includes more cities in Pakistan to gain a broader prospective in terms of applicants views on GRA.

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