DOES A POSITIVE ATTITUDE TOWARD TECHNOLOGY ENHANCE JOB SEARCH SELF-EFFICACY? THE ROLE OF GAMIFICATION

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ABSTRACT

Aim/Purpose	This study explores university-to-work transitioners' perceptions towards innovative talent attraction and selection methods, emphasizing the role of gamification. Specifically, it examines how predisposition towards gamified selection procedures mediates the relationship between positive attitude toward technology and job search self-efficacy, providing insights into how digital tools can facilitate a more efficient and empowering transition to work.
Background	Recruitment and selection processes have undergone a profound transformation, redefining access to the labor market and influencing talent acquisition strategies.

Methodology	Applying Social Cognitive Theory and Technological Acceptance Model (TAM), an empirical survey was conducted with a sample of 144 close-to-graduation students to investigate the relationships between job search self-efficacy, positive attitude towards technologies, and predisposition towards gamification in selection processes.
Contribution	This study contributes to understanding the evolving job search landscape, highlighting how gamification can enhance job search self-efficacy among younger generations.
Findings	Findings suggest that the predisposition towards gamification mediates the relationship between positive attitude toward technology and job search self-efficacy. Individuals with a positive outlook on digital technology are more likely to engage with innovative selection approaches, such as gamification, which in turn enhances their confidence in navigating the job search process.
Recommendations for Practitioners	These findings reinforce the challenge for organizations to integrate digital tools and gamification strategies into their selection procedures, which fosters in job candidates a shift from a positive attitude towards digital technology to practical competencies for employability.
Impact on Society	This underscores the importance of digital readiness in shaping employability outcomes for younger generations and their sustainable transition to work.
Future Research	Future studies may investigate how individual differences, such as digital readiness or prior experience, affect the impact and accessibility of gamified interventions in employment-related contexts.
Keywords	gamification, job search self-efficacy, digital recruitment, positive attitude toward technology

INTRODUCTION

In recent years, recruitment and selection processes have undergone a profound transformation, redefining access to the labor market and influencing talent acquisition strategies (Nikolaou, 2021; Woods et al., 2020). This change is not limited to technological aspects, but also encompasses individual psychological dimensions, such as job search self-efficacy – a crucial element for navigating an increasingly digital and competitive market. The integration of digital tools, from online job boards to AI-based selection systems, has made job searching a dynamic and interconnected experience, in which adaptability and the ability to traverse the virtual professional ecosystem become essential.

In light of Bandura's (1997, 2012) social cognitive theory, job search self-efficacy emerges as a crucial construct in understanding how individuals approach the challenges of entering or re-entering the workforce. It significantly influences engagement, ability to use digital tools, and adaptability to evolving labor market demands (Lent et al., 2016; Petruzziello et al., 2021). In particular, a positive attitude toward digital technology plays a pivotal role: individuals who are more open to digital innovations tend to leverage these tools more effectively in both job search and professional development (Chamorro-Premuzic et al., 2017; Galanti & Fantinelli, 2025; Tansley et al., 2016). In this scenario, selection strategies must adapt to the expectations of digitally oriented job seekers, who increasingly value opportunities aligned with their values and aspirations for growth and innovation. One emerging and innovative approach is the use of game-related assessments (GRAs) (Ramos-Villagrasa & Fernández-del-Río, 2023). The integration of gamified elements into selection processes not only enhances candidate engagement but also offers an effective way to assess essential soft skills such as problem-solving, creativity, and adaptability – key competencies for a sustainably changing world of work (Galanti & Toscano, 2024; Georgiou et al., 2019).

Despite growing interest in the gamification and digitalization of recruitment, the existing literature has not in-depth investigated the roles of individual attitudes toward technology and how they can shape adaptability and confidence within gamified selection contexts.

Grounded in Bandura's social cognitive framework, the present study aims to address this gap by investigating how a positive attitude toward technology and a predisposition toward gamified recruitment methods influence job search self-efficacy. Specifically, it examines the interplay between this self-efficacy and emerging trends in digital recruitment and selection practices. While prior research has extensively examined the impact of digital technologies on recruitment practices and candidate experience (e.g., Nikolaou, 2021; Woods et al., 2020), less attention has been paid to the psychological factors that shape individuals' ability to adapt to these innovations – particularly job search self-efficacy. Moreover, although Bandura's social cognitive theory has been widely applied to career development, few studies have explored how it specifically interacts with emerging digital recruitment tools, particularly game-related assessments (GRAs).

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

DIGITAL TRANSFORMATION IN RECRUITMENT

The recruitment and job selection processes have undergone significant transformation in recent years, drastically reshaping access to the labor market and influencing talent acquisition strategies (Nikolaou, 2021; Woods et al., 2020). This shift has been primarily influenced by the growing integration of artificial intelligence (AI), big data analytics, and automated hiring platforms (Langer et al., 2023; Woods et al., 2020). These digital tools enable recruiters to source, screen, and evaluate candidates more effectively, reducing time-to-hire and improving recruitment outcomes (Dineen & Allen, 2016; Woods et al., 2020). This change is not limited to the technological aspect but also involves psychological and behavioral dimensions, such as individuals' adaptability and confidence in using digital tools. While early research emphasized efficiency and objectivity in digital recruitment (Dineen & Allen, 2016), more recent contributions highlight new challenges, including algorithmic bias, privacy concerns, and the potential for digital exclusion (Langer et al., 2023). Thus, while digital technologies have improved process efficiency and expanded opportunities, they have also introduced tensions regarding fairness, transparency, and accessibility.

Within this evolving scenario, the Positive Attitude toward Digital Technology (PADT) emerges as a key psychological factor. According to the Theory of Planned Behavior (Ajzen, 1991) and the Technology Acceptance Model (Davis, 1989), attitudes toward technology are central predictors of behavioral intentions and actual use. The study of attitude toward digital technology in education is widespread (Giffi et al., 2023; Haleem et al., 2022; Timotheou et al., 2023), and several longitudinal studies in education have shown that PADT are associated with higher technological literacy and more proactive career aspirations in technology-related fields (Ardies et al., 2015; Boeve-de Pauw et al., 2022; Purković et al., 2021). Moreover, research on digital readiness and IT self-efficacy has demonstrated that employers value candidates with strong technological and interpersonal skills (Ismail et al., 2020) and that digital readiness enhances employability, especially in technology-driven professions (Dissanayaka et al., 2021). Yet, despite these insights, limited attention has been given to the psychological mechanisms through which a positive digital attitude translates into greater confidence in recruitment processes. Building on Bandura's (1997, 2012) Social Cognitive Theory, which emphasizes the role of self-belief in shaping behavior, this study proposes that individuals with higher PADT will display stronger confidence in performing digital job search tasks. This capability can be expressed by Job Search Self-Efficacy (JSSE). Rooted in Bandura's self-efficacy theory, it refers to the belief in one's ability to carry out job-search-related actions effectively. It could develop through different sources, such as mastery experiences or vicarious experiences. Individuals with high JSSE tend to engage more actively in job search behaviors and demonstrate greater resilience in facing obstacles (Kanfer et al., 2001; Lent & Brown, 2013). As recruitment practices become

increasingly digital, JSSE has taken on new relevance, encompassing not only traditional self-regulatory mechanisms but also digital and technological literacy. However, despite growing attention to digital recruitment, there remains a limited understanding of how psychological dispositions, such as PADT, contribute to developing JSSE in digital contexts. This study, therefore, aims to integrate these constructs, addressing an existing gap in the literature on technology-driven career behavior.

H1: Positive Attitude toward Technology (PADT) is positively associated with Job Search Self-Efficacy (JSSE)

GAMIFICATION IN SELECTION PROCESSES

In parallel with digital recruitment, gamification has emerged as one of the most innovative and debated developments in selection practices. The use of *Game-Related Assessments* (GRAs) – defined as the integration of game design elements into assessment contexts (Landers et al., 2018) – has gained momentum due to its potential to enhance candidate engagement and assess soft skills–such as adaptability, emotional intelligence, and collaboration (Altomari & Valenti, 2023; Georgiou et al., 2019). Empirical studies have demonstrated that GRAs can enhance candidate experience and mitigate distortion without compromising validity (Melchers & Basch, 2022; Ramos-Villagrasa & Fernández-del-Río, 2023). Candidates often evaluate gamified tools as more engaging, innovative, and reflective of an appealing employer brand (Georgiou & Lievens, 2022; McChesney et al., 2022). However, other scholars note limitations, such as unequal access to technology, generational differences in acceptance, and potential issues of standardization and fairness (Armstrong et al., 2016; Galanti & Fantinelli, 2025; Wu et al., 2022). These contrasting findings highlight the need for further research to explore the psychological factors that influence how candidates perceive and use gamified selection methods. Despite the increasing popularity of GRAs, little is known about how individuals' attitudes toward technology shape their willingness to engage with such tools. This study introduces the construct of Gamification Predicted Usage (GPU) to capture individuals' behavioral intention toward gamified recruitment formats. In line with the Technological Acceptance Model (Davis, 1989) and prior evidence on digital engagement (Chamorro-Premuzic et al., 2017; Landers & Callan, 2011), it is expected that a positive attitude toward technology enhances acceptance of gamified assessments.

H2: Positive Attitude toward Digital Technology (PADT) is positively associated with Gamification Predicted Usage (GPU).

GAMIFICATION PREDICTED USAGE AND JOB SEARCH SELF-EFFICACY

Gamified selection tools may also foster Job Search Self-Efficacy (JSSE) by providing interactive environments that stimulate mastery experiences and offer immediate feedback - key mechanisms through which self-efficacy develops (Bandura, 1997). The intention to use gamification in the job search could enhance self-efficacy by activating motivational and cognitive mechanisms, such as those involved in mastery learning, thereby fostering a sense of control, competence, and progress toward career goals. In other words, if candidates intend to use gamified tools in their job search, this already could suggest a positive attitude toward active and engaging learning methods and a belief in the possibility of improving one's skills. Even before the actual use of such tools, this intention could foster a higher perceived sense of self-efficacy, driven by the expectation of learning and personal success.

Nonetheless, empirical evidence on this relationship remains scarce. By examining the link between GPU and JSSE, this study contributes to a deeper understanding of how gamification engagement relates to self-perceived competence in the job search process.

H3: Gamification Predicted Usage (GPU) positively associated with Job Search Self-Efficacy (JSSE).

MEDIATING ROLE OF GAMIFICATION PREDICTED USAGE

Finally, integrating insights from Social Cognitive Theory and Technology Acceptance Model, the study hypothesizes a mediation role of GPU in the relationship between PADT and JSSE. Individuals with a positive attitude toward digital technology are more likely to adopt innovative recruitment methods such as gamified assessments, which in turn enhance their confidence in navigating the digital job market. This mediation captures the cognitive and behavioral pathways through which digital openness translates into greater job search confidence.

> **H4.** Gamification Predicted Usage (GPU) mediates the relationship between Positive Attitude toward Digital Technology (PADT), positive attitude, and job search self-efficacy (JSSE).

From this perspective, this study extends prior research by integrating individual attitudes toward technology, behavioral intentions to engage with gamified job search, and perceived self-efficacy in job search. By addressing conceptual gaps and inconsistencies in previous literature, it offers a more comprehensive understanding of the psychological mechanisms underlying adaptability and confidence in the digital recruitment landscape.

MATERIALS AND METHODS

PARTICIPANTS AND PROCEDURES

A cross-sectional study was conducted to investigate the acceptance and intentional use of gamification among a sample of university-to-work transitioners in Italy. Data were collected through a self-report online questionnaire specifically developed for this study. The survey was administered via the Qualtrics platform and distributed to university students. The survey provided participants with a definition of gamification ("the term gamification refers to the inclusion of game elements or mechanics within a system or process that is not inherently playful") to set a common theoretical perspective. Suddenly, they were asked to answer the subsequent sections by imagining their involvement in a gamified selection process. Participation is voluntary. All responses were anonymous, and participants were not rewarded for their participation. Informed consent was obtained from all respondents in accordance with the Declaration of Helsinki, and all ethical guidelines were followed as required for conducting human research, including adherence to the country's legal requirements. According to the country's legislation, this study did not contemplate ethical approval, as there were no special procedures or treatments that could be a source of stress for participants. A total of 210 university students participated in the study. However, due to incomplete responses, the final sample consisted of 144 participants. Of these, 113 identified as female (78.5%), 30 as male (20.8%), and one participant (0.7%) did not disclose their gender. This strong gender imbalance represents a potential limitation of the study, which will be further discussed in the discussion section. Age ranged from 18 to 34 years, with a mean age of 22.67 (SD = 2.82; min = 18; max = 34). As shown in Figure 2, 36 (25%) were working students, and 103 (75%) were not engaged in employment.

MEASURES

Perceived job search self-efficacy (JSSE) was assessed using the scale developed by Avallone et al. (2007). Responses were recorded on a 5-point Likert scale ranging from "not at all capable" to "completely capable" (12 items, Cronbach alpha .84). An example item is: "I feel capable of dealing with the failures inherent in the job search." Positive Attitude toward Digital Technology (PADT) was evaluated with the subscale of the Media and Technology Usage and Attitudes Scale (MTUAS) developed by Rosen et al. (2013) (6 items, Cronbach alpha .66). An example item is: "I feel that technology makes everything possible", responses were recorded on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

The Gamification Predicted Usage (GPU) was assessed through an adaptation of the *predicted usage* subscale of TAM (Davis, 1989) (4 items, Cronbach alpha .95. Example items: "If asked, I would likely recommend gamification as a selection procedure.")

ANALYSES AND RESULTS

VALIDITY AND RELIABILITY OF THE SCALES

A single-factor exploratory factor analysis (EFA) was conducted as part of a Harman test to assess the potential presence of common method bias in the dataset. The results indicated that the single extracted factor accounted for 17.8% of the total variance, which is below the commonly accepted threshold of 50%, suggesting that common method bias is unlikely to represent a serious concern in this study.

To further assess the distinctiveness of the three theoretical constructs and the absence of a single common latent factor, two confirmatory factor analyses (CFAs) were performed using the maximum likelihood robust estimator. The model in which the three scales were grouped into three distinct factors showed a satisfactory fit ($\chi^2(249) = 491.07$; $\chi^2/df = 1.97$; CFI = 0.81; TLI = 0.79; RMSEA = 0.08; SRMR = 0.09). Contrariwise, the model in which all items were grouped into a single factor showed a poor fit ($\chi^2(252) = 867.24$; $\chi^2/df = 3.44$; CFI = 0.52; TLI = 0.47; RMSEA = 0.13; SRMR = 0.14). Although CFI (.81) and TLI (.79) are below conventional cutoffs (Hu & Bentler, 1999), these values may be influenced by the relatively small sample size, the limited number of indicators per factor, and the exploratory nature of the model (Hu & Bentler, 1999). Furthermore, according to Marsh et al. (2004), given the sample size and the complexity of the model, slightly lower fit indices can be expected. Moreover, AVE values were below the recommended .50 threshold, suggesting limited convergent validity. This may reflect the small number of items per factor and the exploratory nature of the measurement model. Despite this limitation, factor loadings were significant and in the expected direction, supporting partial construct validity (Fornell & Larcker, 1981). Reliability analyses showed satisfactory internal consistency (Cronbach's α = 0.73–0.95; McDonald's ω = 0.76–0.96), and all constructs demonstrated adequate convergent and discriminant validity (AVE = 0.24–0.85).

DESCRIPTIVE STATISTICS

Regarding the preliminary analyses, the distributive characteristics are good in terms of normality indices, skewness, and kurtosis. These indices indicate whether the data are symmetrically distributed and whether the distribution is excessively peaked or flat compared to a normal curve. Ensuring that variables approximate a normal distribution supports the validity of parametric statistical analyses, which assume normality in the data. For these reasons, we continued with the parametric analyses. Table 1 shows the results of the correlation analysis between all variables considered for the present study, followed by means, standard deviations, and reliability indexes. All the scales satisfied the criterion of 0.65 (DeVellis, 2016). The scales and subscales had adequate internal consistency, and all the variables correlated in the expected direction. No serious violations of the normal distribution were found (all skewness and kurtosis values of the variables considered were within +/-1).

Table 1. Reliability analyses means, standard deviations, and correlation among the variables

	A	Ω	AVE	M	SD	1	2
1. PADT	.66	.76	.35	3.62	0.54		
2. JSSE	.84	.78	.24	3.27	0.45	.146**	
3. GPU	.95	.96	.85	4.06	1.41	.260**	.255**

Note: *p < .05, ** p < .01, *** p < .001; PADT: Positive Attitude toward Digital Technology; JSSE: Job Search Self-efficacy; GPU: Gamification Predicted Usage

MEDIATION ANALYSIS

Path analysis using SPSS macro-process (Hayes, 2017) was used to test the hypotheses. The hypothesis of mediation was tested using Model 4 of Hayes (Hayes, 2017), and Figure 1 shows the graphical representation of the model.
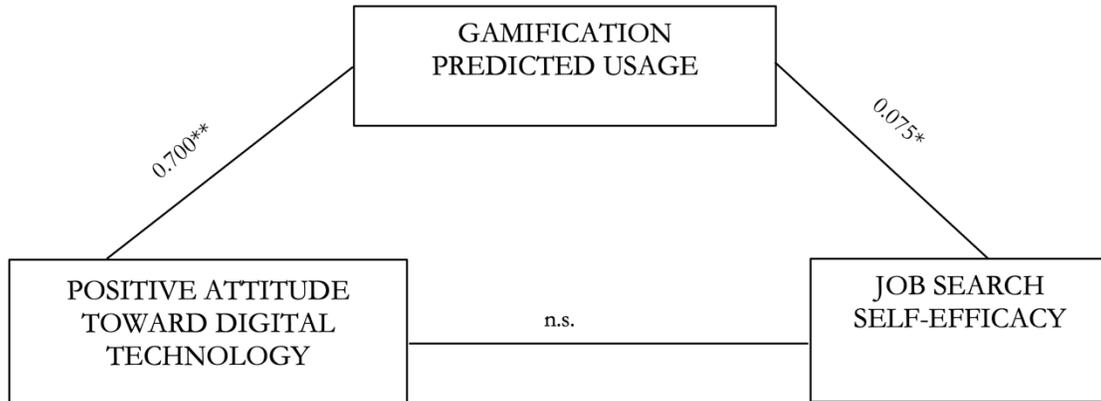

Figure 1. Tested model

As reported in Figure 1, Positive Attitude toward Digital Technology (PADT) was not significantly related to Job Search Self-Efficacy (JSSE) (B = 0.073, p = .319), thus Hypothesis 1 was not supported. This finding suggests that contrary to expectations, individuals' positive attitudes toward digital technology did not directly translate into greater confidence in performing job- search- related tasks.

Conversely, Hypothesis 2 was confirmed, as PADT showed a strong and significant positive association with Gamification Predicted Usage (GPU) (B = 0.700, p = .001). This result indicates that individuals who hold a favorable orientation towards technology are also more willing to engage with gamified recruitment tools, consistent with prior evidence derived from the Technology Acceptance Model (Davis, 1989).

In turn, GPU was positively related to JSSE (B = 0.075, p = .008), supporting Hypothesis 3. This association suggests that individuals who are more inclined to use gamified assessments also report high self-efficacy in their job search activities. In other words, openness to innovative and interactive recruitment formats appears to foster a stronger sense of control and confidence during digital selection processes.

Finally, regarding the mediating hypothesis (H4), the results were more nuanced. While the direct effect of PADT on JSSE is not significant (B = 0.073, p = .319), the indirect effect through GPU was statistically significant (B = 0.120, p = .040). This pattern indicated an indirect-only mediation, in which the influence of PADT on JSSE operates indirectly via individuals' receptiveness to gamified selection tools. However, because the overall mediated path did not reach conventional thresholds of significance when controlling for all model parameters (B = 0.120, p = .080), the evidence for full mediation remains weak.

Table 2 reports the results related to the mediating effect (H4), while Table 3 presents the path estimates of the tested model.

Table 2. Mediation estimates

Effect	Label	Estimate	SE	95% confidence interval		Z	P
				Lower	Upper		
Indirect	a × b	0.052	0.026	0.002	0.102	2.053	0.040
Direct	c	0.073	0.073	-0.070	0.215	0.997	0.319
Total	c + a × b	0.125	0.072	-0.016	0.266	1.736	0.083

Note: Estimate = Path Estimates; SE = Standard Error; Z = standardized Z-scores; p = p-value; Lower (Bootstrap Inferior Limit of the Confidence Interval; Upper = bootstrap Upper Limit of the Confidence Interval)

Table 3. Path estimates

			Label	Estimate	SE	95% confidence interval		Z	P
						Lower	Upper		
PADT	→	GPU	a	0.700	0.217	0.274	1.126	3.220	0.001
GPU	→	JSSE	b	0.075	0.028	0.020	0.130	2.665	0.008
PADT	→	JSSE	c	0.073	0.073	-0.070	0.215	0.997	0.319

Note: PADT positive attitude toward digital technology; GPU: gamification predicted usage; JSSE: Perceived Job Search Self Efficacy. Estimate = Path Estimates; SE = Standard Error; Z = standardized Z-scores; p = p-value; Lower (Bootstrap Inferior Limit of the Confidence Interval; Upper = bootstrap Upper Limit of the Confidence Interval)

DISCUSSION

The results of the present study offer interesting insights into how Positive Attitudes toward Digital Technology (PADT) and gamified predicted usage (GPU) interact to shape job-search self-efficacy (JSSE). Consistent with the structural model, statistical analysis revealed that PADT was not significantly associated with JSSE (B = 0.073, p = .319), disconfirming the first hypothesis. In contrast, hypothesis 2 was confirmed, with PADT showing a strong positive relationship with GPU (B = 0.700, p = .001). This finding aligns with the Technology Acceptance Model, supporting the idea that individuals with a more positive attitude toward digital tools are more inclined to engage with innovative selection formats such as gamified assessments. Furthermore, Hypothesis 3 was supported, as GPU was positively related to JSSE (B = 0.075, p = .008). This result reinforces the motivational role of gamified environments in enhancing confidence and engagement, as previously observed in gamified learning and training contexts (Deterding et al., 2011; Hamari et al., 2014).

Regarding Hypothesis 4, the mediation model from PADT to JSSE via GPU did not reach full significance (B = 0.120, p = .080), suggesting that the overall indirect effect was relatively weak. However, the presence of a significant indirect path (p = .040) indicates an indirect-only mediation: the influence of a positive attitude toward technology operates primarily through individuals' openness to gamified selection tools. In practical terms, technology attitudes alone are not sufficient to predict higher job search efficacy- such effects emerge only when individuals actively engage with digital in-

novations, such as gamification, that provide experiential feedback and perceived mastery. This pattern aligns with Bandura's view that beliefs translate into self-efficacy through behavioral activation and enactive mastery, and it extends prior research by empirically linking these mechanisms to gamified selection contexts. Our study contributes to the literature by identifying gamification as a potential psychological bridge between technology acceptance and self-efficacy. This perspective highlights the motivational and cognitive mechanisms through which gamification could support users' confidence and performance, extending existing models of technology acceptance toward a more integrative framework that includes psychological empowerment.

THEORETICAL AND PRACTICAL IMPLICATIONS

In the present cross-sectional study, JSSE was conceptualized as the theoretical outcome of the model. Although the design does not allow for causal inferences, and future longitudinal studies are necessary to verify the actual temporal direction between variables tested, the hypothesis rests on the assumption that people with a positive attitude toward technology are more likely to engage in online job-related activities (filling out forms, creating professional profiles, using e-recruiting platforms). Such experiences could increase the feeling of "being able to do" in a digital job search, thereby enhancing self-efficacy. Recent studies on career readiness (Puspitadewi & Umamy, 2024; Razali et al., 2022) show that technological attitudes and competences predict self-efficacy in career management, while research on digital career self-management indicates that digital literacy and technology acceptance could facilitate confidence in one's own job search abilities (Hong & Kim, 2024; Li et al., 2025). In this study, the intention to use gamified tools was conceived as an attempt to operationally translate attitude in potential action. Through gamification, individuals interact with content and activities that promote active engagement, immediate feedback, and progressive achievements – all elements that contribute to strengthening perceived self-efficacy.

From a theoretical standpoint, these results advance Social Cognitive Theory by demonstrating that self-efficacy in digital job search contexts is not merely attitudinal, but experiential. PADT may serve as enabling conditions, but they only enhance JSSE when individuals engage in activities that provide feedback challenges, and mastery experiences – conditions that gamified systems can effectively reproduce.

Within the framework of the Technology Acceptance Model, the significant PADT-GPU relationship empirically supports the role of perceived usefulness and openness in predicting behavioral intention. By linking this behavioral intention (GPU) to JSSE, the study extends TAM beyond mere technology adoption, positioning gamification as a psychological bridge between acceptance and self-efficacy. This represents a theoretical integration of TAM and SCT, showing that digital acceptance processes can contribute to efficiency-building when they trigger motivational and cognitive mechanisms identified by Bandura (1997).

Finally, this research contributes to the gamification-employability debate by empirically demonstrating that gamified selection tools can have a psychological empowerment function. Rather than serving solely as assessment innovations, gamified formats can enhance candidates' perceptions of competence and control – key elements of employability in a digital labor market, even if this benefit depends on individual differences in digital orientation and willingness to engage with gamified experiences. Practically, the results suggest that job training and career support platforms may benefit from incorporating gamified elements to foster self-efficacy and sustained participation. Simulated scenarios that allow candidates to experience task success or receive constructive feedback could strengthen both engagement and confidence. Practitioners should prioritize user-centered design and digital skill-building (Galanti & Fantinelli, 2025) to ensure that users can engage meaningfully with gamified tools and that these tools remain inclusive and supportive, rather than intimidating. Furthermore, interventions should combine attitude enhancement with hands-on, gamified experiences that translate openness into tangible competence. Beyond organizational implications, these findings also offer relevant insights into university career services and digital employability programs. According to our

sample, incorporating gamification elements – such as feedback, badges, and progress tracking – may help students translate positive attitudes toward technology into proactive behaviors in managing their employability. Universities could thus play an active role in bridging the gap between technological acceptance and real-world career readiness (Fantinelli et al., 2024).

LIMITATIONS AND FUTURE PERSPECTIVES

This study has several limitations that reduce the generalizability of the results to other contexts. First, the cross-sectional design of the study described only associations between variables and did not account for cause-and-effect relationships. Future studies might examine these same relationships using a cross-lagged or longitudinal design. Second, in this study, a convenience sample was used, primarily composed of individuals transitioning from university to work, with limited experience in personnel selection. Participants were not selected using a probabilistic or representative sampling method, but rather based on their availability, which limits the generalizability of the results to the wider population. Furthermore, the sample composition was gender-biased, as most participants were female; this may have influenced some of the variables examined, such as attitudes towards technology or perceptions of self-efficacy in job searching. Another potential limitation of this study concerns measurement issues. Variability in the reliability and validity of the scales used may have influenced the consistency of the results. In this sense, the findings should be interpreted with caution. Future research could address this limitation by employing alternative measures or by conducting additional validation analyses to strengthen the robustness of the observed relationships.

Furthermore, data were collected exclusively in Italy, and the specific cultural and occupational context may have influenced participants' perceptions and behaviors. Future research should therefore replicate this study in other national or cultural contexts, with larger and more gender-balanced samples, to verify the robustness and generalizability of the present findings. Moreover, another critical aspect concerns the non-significant total effect observed in the mediation model, which raises questions about the statistical power of the model and the possibility that the direct effect is simply too small to detect in the current sample. However, there is a relatively large consensus among statisticians that the total effect should not be used as a guarantee for tests of mediation (Hayes, 2009; Shrout & Bolger, 2002; Zhao et al., 2010). Furthermore, Hayes (2009, 2017) and MacKinnon et al. (2004) emphasize that mediation can occur even in the absence of a significant total effect; however, such findings should be interpreted with caution, especially in non-experimental studies. Therefore, while the mediator GPU has theoretical relevance, the data suggest that in the present sample, it was not sufficiently strong to fully convey the effect of PADT on JSSE.

Future studies could address this limitation by employing larger and more diverse samples, which would improve the precision of estimates and allow for more robust detection of both direct and indirect effects (considering variables such as digital literacy or frequency of digital job search platform use) that may better explain the conditions under which a positive attitude toward technology translates into increased confidence in job search abilities. Additionally, longitudinal designs can help clarify the temporal ordering of relationships and strengthen causal inferences. An additional limitation of the study is the sole perception and intention to use gamification in a hypothetical selection process, which compromises the ecological validity of the study. Future research may involve real job candidates or workers with past experiences of personnel selections or engaging them in real gamified selection processes.

It may also be worthwhile to explore whether other psychological factors, such as openness to innovation, could moderate the indirect effect identified, thus contributing to the understanding of the mechanisms at play. Despite these limitations, this study contributes to bridging the gap between digital recruitment innovation and employability outcomes by highlighting how positive attitudes toward technology and gamification can predict enhanced job search self-efficacy.

CONCLUSION

In conclusion, individuals who are open to and optimistic about digital technology are more likely to engage with innovative tools, such as gamified elements, in the job search process. However, a positive attitude toward technology alone does not necessarily translate into higher job search self-efficacy. This form of self-efficacy is grounded in concrete, task-specific skills – such as writing a resume, using online job posting platforms, and managing online interviews – which may be effectively supported through experiential tools like Game-related assessments (GRAs). Furthermore, this study highlights the importance of organizations integrating user-friendly, engaging, and technologically advanced tools into their recruitment strategies. When thoughtfully implemented, GRAs can enhance the candidate experience and provide richer, more accurate assessments of soft skills that are critical for employability and long-term career adaptability.

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