DEVELOPING A MODEL AND QUESTIONNAIRE FOR PREDICTING INTENTION TO USE JOB BOARDS: A JOBSEEKER-ORIENTED RESEARCH ON THE E-RECRUITMENT ADOPTION IN IRAN

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Abstract: By integrating several prominent theories and models in technology adoption, this study develops a research model to examine the factors affecting jobseekers' intention to use job boards. The validity and reliability of the researcher-developed instrument, the SEDA-IUQ (SEDA-Intention to Use Questionnaire), were assessed using a combination of statistical methods. Utilizing the data collected from 447 Iranian respondents, findings from the exploratory factor analysis provided evidence for the five-factor solution, that is, technological innovation, functional adequacy, content accessibility, practical utility, and reputation-seeking intention, for the 36-item SEDA-IUQ. Various relationships in the research model are tested using confirmatory factor analysis and structural equation modeling. In addition to developing a practical questionnaire that the e-recruitment researchers and practitioners can deploy to study jobseekers' behavioral intentions, this is the first study on job search websites' adoption in the Iranian context. The results support existing literature on e-recruitment adoption and extend it by demonstrating the multidimensionality of jobseekers' perceptions and behavioral intentions toward e-recruitment.

Keywords*:* E-Recruitment Adoption, Job Board, Job Search Website, Online Job Search Behavior, Intention to Use, Iran.

JEL Codes*:* M150, M160, M130, M300, M310.

1 Introduction

The unemployment rate around the world is rising dramatically during the coronavirus disease 2019 (COVID-19) pandemic, prompting more job search. Job search websites, also called online job portals or job boards, have drastically changed the way people find a job (Dar and Dorn, 2018). In 2018 alone, job applications received through job boards accounted for one-fifth of all recruitments worldwide, and in the same period, job boards caused almost half of the global job applications (Statista, 2019).

Changing people's mindsets and attitudes toward new initiatives is usually not easy. However, e-recruitment service providers are increasingly challenged to identify the antecedents of jobseekers' intentions to use their services. Therefore, the factors influencing jobseekers' acceptance and use of job boards must be thoroughly understood (Lin, 2010).

Using efficient systems and other technological advancements such as job boards is an emerging trend in Iran. Several successful companies and websites have been set up specifically to advertise job opportunities. Therefore, awareness of the influential factors in the attitude and behavioral intentions of jobseekers toward job boards can be effective in the expansion of the nascent, yet promising e-recruitment market in Iran, especially given the unemployment rate above 10% in the last 10 years and significance of introducing people to the labor force in times of a struggling economy (Statista, 2022).

Though few e-recruitment studies have been conducted in Iran (e.g., Afshar and Fayyazi, 2013; Kashi and Zheng, 2013), their scope is limited and they only

examined corporate career websites. Hence, the current understating of online jobseeker behavior is limited and fragmented. Moreover, a theoretically developed and empirically tested jobseeker-oriented behavioral model focused on third-party job search websites has not been applied in this context yet.

Since there is still a scarcity of research and knowledge on how job boards affect the intention to online job application among Iranian jobseekers, this research helps address this gap by constructing and examining a comprehensive model that can identify the factors influencing the formation of intention to use job boards among jobseekers.

Given the unprecedented growth of technology, this study will propose and validate the SEDA-IUQ and a research model based on a comprehensive study of previous studies and theoretical foundations in technology acceptance with an exploratory approach. This study applies the novel model and questionnaire to a sample of Iranian jobseekers to explore how jobseekers' attitudes and intention to use job boards are formed.

2 Literature review, model, and hypotheses development

New technologies such as e-recruitment and job boards are believed to be complex, due to which users have uncertainty related to adopting them successfully (Nasreem, Hassan and Khan, 2018).

Following the rapid implementation of e-recruitment in a global context, researchers have been looking for models to explore how website features affect behavioral decisions and potential applicants' intentions to use online recruitment systems. Accordingly, there are numerous studies investigating the factors predicting the use of the whole e-recruitment services (e.g., Kaur and Kaur, 2022; Nadlifatin, et al., 2022; Schaarschmidt, Walsh and Ivens, 2021; Chen, Warden, and Liou, 2021; Irawan, Adiputra, and Arshanty, 2021; Woon and Singh, 2019; Priyadarshini, Sreejesh and Jha, 2019; Carmack and Heiss, 2018; Laumer, et al., 2018; Poudel, 2018; Zhang, et al., 2018; Alsultanny and Alotaibi, 2015; Febriana, 2015; Nikolaou, 2014; Kashi and Zheng, 2013; Williamson, et al., 2010; Kroustalis, 2009; Sylva and Mol, 2009; Goldberg and Allen, 2008; Allen, Mahto and Otondo, 2007; Cober, et al., 2004).

While jobseekers have widely used job boards since the 1990s to upload their resumes and apply for jobs accordingly, the majority of studies addressing the motivations and predictors for the adoption of job search websites by jobseekers have been conducted since the 2010s (Rahman and Patra, 2020; Grimaldo and Uy, 2020; Siew, et al., 2018; Chang and Kim, 2018; Arsanti and Yuliasari, 2018; Mahmood and Ling, 2017; Gregory, Meade and Thompson, 2013; RoyChowdhury and Srimannarayana, 2013; Brahmana and Brahmana, 2013; Lin, 2010). Hence, there is still a dearth of studies examining the factors influencing jobseekers to use job boards worldwide.

To develop the research model, first, we made an extensive study on the previous research to identify the body of observed variables revealed to affect the attitude and intention to use job boards and e-recruitment. Then we selected observable research variables and subsequently constructed and proposed a research model based on selected variables and several widely accepted theories and models of e-recruitment adoption.

2.1 Investigating the relevant observable variables

Table 1 shows the variables influencing intention to use e-recruitment and job boards that have been examined in previous studies.

Table 1. Variables influencing intention to use e-recruitment and job boards in previous research (*Source:* As stated in the author column)

Author(s)	Variables
Kaur and Kaur (2022)	Word-of-Mouth (e-WOM), PU, POU, attitude

Table 1. Variables influencing intention to use e-recruitment and job boards in previous research, cont. (*Source:* As stated in the author column)

Author(s)	Variables
Nadlifatin, et al. (2022)	PU, POU, job pursuit attitude, subjective norm, perceived behavioral control
Schaarschmidt, Walsh and Ivens (2021)	Discrepant information, persuasion knowledge activation, company response, trustworthiness
Meah and Sarwar (2021)	Data quality, reliability, recognition, networking spectrum, result demonstrability, simplicity of navigation
Chen, Warden and Liou (2021)	Esthetic forms, recruitment information, interactive functions, information fitness interface attributes
Khalid, et al. (2021)	Technology, attitude toward use, POU, PU
Nguyen (2021)	Computer self-efficacy, perceived privacy risk, POU, PU
Irawan, Adiputra and Arshanty (2021)	Perceived enjoyment, POU, PU, perceived trust, attitude toward use
Rahman and Patra (2020)	Usability, user experience, performance expectancy, subjective norms, trustworthiness
Candra, et al. (2020)	POU, critical mass, capability, perceived playfulness, PU, trustworthiness
Grimaldo and Uy (2020)	PU, POU, attitude
Woon and Singh (2019)	PU, perceived information content quality, perceived search engine optimization
Selvanathan, et al. (2019)	POU, PU, perceived credibility
Banerjee and Gupta (2019)	Perceived quality, perceived credibility, organizational attractiveness, age, gender, work experience, preview mode, employee testimonial, source of advertisement
Priyadarshini, Sreejesh and Jha (2019)	Information characteristics (relevancy, accuracy, timeliness), organizational attractiveness, attitude toward website
Carmack and Heiss (2018)	Effectiveness, past behavior, perceived behavioral control, actual behavioral control, attitudes, subjective norms
Laumer, et al. (2018)	Performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, trust, age, gender, experience, context (jobseeker)
Poudel (2018)	Performance expectancy, effort expectancy, subjective norms, objective norms, facilitating conditions
Chang and Kim (2018)	Accuracy, security, self-efficacy, individual innovation, user satisfaction, POU, PU
Siew, et al. (2018)	Perceived compatibility, PU, POU, attitude toward use
Zhang, et al. (2018)	Outcome expectation, PU, Internet self-efficacy, POU
Arsanti and Yuliasari (2018)	Innovativeness, PU, POU, attitude
Mahmood and Ling (2017)	PU, POU, trust

Table 1. Variables influencing intention to use e-recruitment and job boards in previous research, cont. (*Source:* As stated in the author column)

Author(s)	Variables
Huang and Chuang (2016)	Task characteristics, technology characteristics, task–technology fit, performance expectancy, efforts expectancy, social influence, facilitating conditions, hedonic motivation, habit
Alsultanny and Alotaibi (2015)	POU, PU, perceived enjoyment, attitude toward use
Febriana (2015)	POU, PU, attitude toward use
Liyanage and Galhena (2014)	PU, POU
Kashi and Zheng (2013)	Impressions of website, impressions of hiring organization, PU, POU
Gregory, Meade and Thompson (2013)	Website design (website usability, website esthetics), website content (job information, organizational information), P–E fit (P–J fit, P–O fit), attitudes toward organization, attitudes toward website
RoyChowdhury and Srimannarayana (2013)	Perceived efficiency, user-friendliness, information provision, fairness perception, Internet selection image
Brahmana and Brahmana (2013)	Perceived stress, POU, PU, perceived enjoyment
De Goede, Klehe and van Vianen (2011)	P–I fit, P–O fit, assessment of website design, OI similarity
Lin (2010)	PU, POU, attitude, peer influence, external influence, subjective norm, self-efficacy, perceived behavioral control
Williamson, et al. (2010)	Website vividness, amount of company and job attribute information on website, firm employer reputation
Kroustalis (2009)	P–O fit/P–J fit, website content (job information- organization information), website design (website usability- website esthetics), attitudes toward website, attitudes toward organization
Sylva and Mol (2009)	Individual attributes (age, gender, minority status, prior experience, Internet familiarity, applicant source, country), efficiency, Internet selection image, user-friendliness, process fairness, information provision, overall process satisfaction
Goldberg and Allen (2008)	Parasocial interaction, ease of use, usefulness, diversity statements, engagement, attitude toward the organization
Allen, Mahto and Otondo (2007)	Organization familiarity, organization image, job information, organization information, attitude toward organization, attitude toward website
Cober, et al. (2004)	Website façade, jobseeker's prior attitude toward the organization, initial affective reactions, website system features, perception of website usability, search behavior, familiarity, organizational image, website attitude, jobseeker individual differences

POU: perceived ease of use
PU: perceived usefulness
P-E: Person-Environment
P-J: Person-Job
P-O: Person-Organization
P-I: Person-Industry
OI: Organization Industry

2.2 Selecting the research observable variables

The variables of this study have been chosen by referring to the e-recruitment literature and models utilized in jobseekers' behavioral intentions studies. Given the e-recruitment context of Iran and the authors' own first-hand experience with jobseekers' behaviors and concerns for more than three decades collectively, these variables are also the most relevant for this study. The operational definition and theoretical reference for each variable are detailed in Table 2, which would be the basis for designing the research instrument (the SEDA-IUQ) and then extracting and examining latent factors influencing intentions to use job boards among Iranian jobseekers.

Table 2. Selected research observable variables (*Source:* As stated in reference column)

Variable	The operational definition	Reference model/theory
Job board esthetics	Pleasant mental experience of the website without the logical interventions (Moshagen and Thielsch, 2010)	Signaling theory (Spence, 1903); TAM (Davis, Bagozzi and Warshaw, 1989; Cober, et al., 2004); VisAWI model (Moshagen and Thielsch, 2010)
Job board content	The concern that the content provided is accurate, diverse, and up-to-date (Loiacono, Watson and Goodhue, 2002)	Signaling theory (Spence, 1903; Allen, Mahto and Otondo, 2007)
Jobseeker self-efficacy	A person's belief in their ability to organize and perform a series of actions on the Internet to perform a particular task (Eastin and LaRose, 2000)	A model of the antecedents of perceived ease of use (Venkatesh and Davis, 1996)
Attitude toward job board's functionality	Jobseekers' perceptions of how the job board's web functionalities and technical features can assist them in purchasing or accessing the product or services they want	Authors' own elaboration
Perceived usefulness	Jobseekers' belief in the ability to obtain job information, improve job effectiveness, and increase the chances of finding a suitable job on the job board (Brahmana and Brahmana, 2013)	TAM (Davis, Bagozzi and Warshaw, 1989)
Perceived ease of use	User perception of the amount of effort (time and resources) required to use the job board (Fabriana, 2015)	TAM (Davis, Bagozzi and Warshaw, 1989)
Reputation	The perceptual representation of a company's past and possible future actions describes the attractiveness of the company to all its key customers (Fombrun, 1996, p.165)	TPB (Ajzen, 1988, 1991); brand equity theory (Keller, 1993); the reputation quotient SM (Fombrun, Gardberg and Sever, 2000; Cober, et al., 2004)
Attitude toward job board	Respondent's overall assessments regarding the use of the job board (Lin, 2010)	TAM (Davis, Bagozzi and Warshaw, 1989); TPB (Ajzen, 1988, 1991)
Intention to use job board	Assessing jobseekers' possibility of using job board (including job search, website membership, and resume posting) in the present and future (Lin, 2010)	TAM (Davis, Bagozzi and Warshaw, 1989); TPB (Ajzen, 1988, 1991)
TAM: technology acceptance model TPB: theory of planned behavior SM: scale of measure		

2.3 Conceptualized research framework

Based on a comprehensive literature review on e-recruitment services and several well-established theories and models within technology and e-recruitment adoption, a conceptual framework is designed to outline the hypothesized relationships between observable variables affecting the intention to use the job boards. Furthermore, the framework will serve as a theoretical foundation for the research model, encompassing the latent factors extracted subsequently. Fig. 1 signifies our conceptualized research framework.

Given the demonstrated scalability and versatility of the technology acceptance model (TAM), it is a well-researched model to explain most human behaviors (Davis, Bagozzi and Warshaw, 1989). TAM is favorably rigorous in behavior prediction in information technology (IT) adoption for employment-related issues; it is a potentially helpful common foundation for research into the behavioral intentions of jobseekers in the face of online job search and e-recruitment services. Moreover, TAM has been utilized by researchers to investigate e-recruitment adoption intentions and also has found support in the accurate prediction and compelling explanation of user behaviors across a variety of settings (Kaur and Kaur, 2022; Nadlifatin, et al., 2022; Khalid, et al., 2021; Nguyen, 2021; Irawan, Adiputra and Arshanty, 2021; Candra, et al., 2020; Grimaldo and Uy, 2020; Woon and Singh, 2019; Selvanathan, et al., 2019; Banerjee and Gupta, 2019; Chang and Kim, 2018; Siew, et al., 2018; Zhang, et al., 2018; Arsanti and Yuliasari, 2018; Mahmood and Ling, 2017; Alsultanny and Alotaibi, 2015; Brahmana and Brahmana, 2013; Kashi and Zheng, 2013; Goldberg and Allen, 2008).

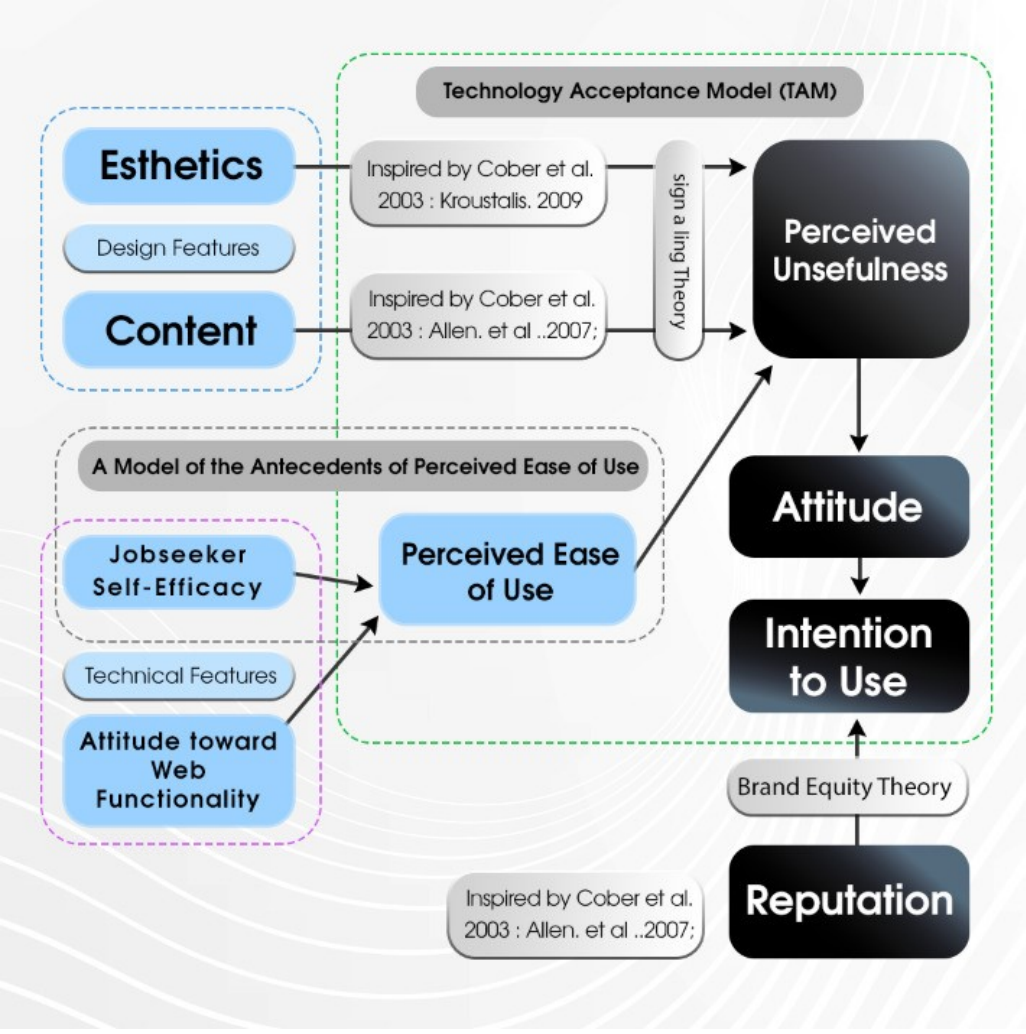


Figure 1. The research conceptual framework model
(*Source:* Authors' own elaboration; as stated in the figure)

Hence, TAM could be an ideal theoretical foundation for our conceptual framework intended to be applied to an original and unprecedented research context. Serving as the framework's core, the TAM (Davis, Bagozzi and Warshaw, 1989) encompasses the relationships between perceived usefulness (PU), perceived ease of use, attitude, and intention to use.

A model of the antecedents of perceived ease of use (Venkatesh and Davis, 1996) is utilized to outline the effect of jobseekers' self-efficacy on the perceived ease of use. Signaling theory (Spence, 1903) and models proposed by Cober, et al. (2003), Allen, Mahto and Otondo (2007), and Kroustalis (2009) imply the relationships between job board content and esthetics as predictors for PU. Brand equity theory (Keller, 1993; Cober, et al., 2004; Allen, Mahto and Otondo, 2007) inspires to propose the impact of reputation on the intention to use. Ultimately, given the critical role technical capabilities and web functionalities play in shaping the perceptions of today's tech-savvy applicants, the attitude toward job board functionality construct is incorporated into the framework.

2.4 Hypothesis development

2.4.1 Esthetics, content, and PU

Literature on IT supports that the usefulness of content on a corporate website indicates the more positive user evaluations for that website (Venkatesh and Davis, 1996; Davis, Bagozzi and Warshaw, 1989). An e-recruitment website content is considered helpful if it meets jobseekers' information quality, accuracy, relevancy, and timeliness expectations (Allen, Mahto and Otondo, 2007; Kroustalis, 2009; Roy-Chowdhury and Srimannarayana, 2013; Priyadarshini, Sreejesh and Jha, 2019). Providing a wealth of information about companies and job opportunities on a job search website can reduce job uncertainty for jobseekers and improve their evaluations of website usefulness (Williamson, et al., 2010; Liyanage and Galhena, 2014; Alsultanny and Alotaibi, 2015).

Since jobseekers' intention to apply for a job is positively correlated with the amount and depth of specific information gathered about a job opportunity and company (Barber and Rowling, 1993; Gregory, Mead and Thompson, 2013; Poudel, 2018), factors such as the website esthetics that attract the attention of jobseekers or engage them in the website, thus leading to a more extensive review of the website, should lead to stronger intentions to use the website (Chen, Warden and Liou, 2021). Stimulating positive reactions to a job board via the website's attractiveness can encourage a jobseeker to explore further to gather more information and increase the PU of the website (Kroustalis, 2009; Gregory, Meade and Thompson, 2013). Thus, the first and second hypotheses are formulated as follows:

H_1: *Job board esthetics positively affects its PU.*

H_2: *Job board content positively affects its PU.*

2.4.2 Jobseeker's self-efficacy, attitude toward job board functionality, and perceived ease of use

Understanding the antecedents of perceived ease of use from a theoretical perspective is important because it is crucial in determining acceptance and use. Self-efficacy has been proposed as a key determinant of behavioral control and successful IT implementation (Bandura, 1982). Self-efficacy is an essential predictor of job search behavior, efforts, and results (Lin, 2010) and can serve as a basis for perceptions of ease of use (Venkatesh and Davis, 1996). Zhang, Jabuty and Gao (2018) and Poudel (2018) have argued that technology self-efficacy could drive jobseekers to use e-recruitment and job boards if they believe they are efficient enough to use them efficiently.

Technological complexity is one significant barrier that causes non-use of the system, and users strongly desire easy-to-use technologies (Katz and Aspden, 1997; Lin, 2010). The user's attitude toward a new technology dramatically impacts the positive use of information systems (Siew, et al., 2018). A person who perceives a technology positively will provide a stimulus or reaction in the form of a positive value or attitude (Arsanti and Yuliasari, 2018). Furthermore, several studies support the intuitive prediction that overly complex websites typically have little use for users (Goldberg and Allen, 2008). Therefore, the following hypothesis is proposed:

H_3: *Jobseeker's self-efficacy positively affects job board perceived ease of use.*

H_4: *Jobseeker's attitude toward job board functionality positively affects perceived ease of use.*

2.4.3 Perceived ease of use and PU

Drawing on TAM, perceived ease of use creates an intrinsic motivation to use technology and PU creates an instrumental motivation to use technology because the user believes that there is a connection between the use of technology (e.g., job board) and a desirable outcome (e.g., finding a job) (Davis, 1989). Li and Huang (2009) argue that PU is the primary belief factor in TAM and perceived ease of use is the second factor in determining the behavioral intention of using IT. To avoid the problem of "lack or deficiency" of using a useful system, both learning and working with it should be easy (Lin, 2010). Some empirical tests with the TAM show that the perceived ease of use of e-recruitment predicts its PU (Siew, et al., 2018, Candra, et al., 2020; Khalid, et al., 2021; Nadlifatin, et al., 2022). Therefore, the fifth hypothesis is formulated as follows:

H_5: *Perceived ease of use (PEU) of job board positively affects its PU.*

2.4.4 Perceived usefulness and attitude toward job board

Research on the use and acceptance of technology indicates that usefulness perceptions are a crucial indicator of attitudes and intentions of users to engage or accept new technologies, and most users, when using new technology, are goal oriented (Davis, 1989; Kashi and Zheng, 2013). Similarly, PU shows the viewpoint as per which belief related to technology usage improves performance. Moreover, both PEU and PU collectively lead to shaping the factor of attitude (Nasreem, Hassan and Khan, 2018). In the context of e-recruitment services, PU reflects the jobseeker's belief in obtaining up-to-date career information, improving job search effectiveness, and increasing the chances of finding a good job (Cober, et al., 2003; Lin, 2010). Consistent with previous studies, this study treats PU as a critical determinant of attitude; this leads to the sixth hypothesis, which is formulated as follows:

H_6: *The PU positively affects the jobseeker's attitude toward the job board.*

2.4.5 Job board's reputation and intention to use

While there is compelling evidence to support the claim that website features influence jobseekers' attitudes and behavioral intentions, it can be argued that jobseekers do not shape their behavioral intentions in "social isolation" (Van Hoye, et al., 2019; Poudel, 2018). Brand equity theory suggests that consumers prefer to associate with products or services offered by strong brand organizations (Keller, 1993). Previous research on reputation indicates that it affects the effectiveness of tactics influencing target behavior (Williamson, et al., 2010). In the e-recruitment context, mass media advertising on online employment may raise jobseekers' awareness and interest. These organizational influences can encourage jobseekers to use job boards (Lin, 2010). As Kashi and Zheng (2013) recommended, this study incorporates the reputation construct to examine whether it affects jobseekers' adoption behaviors. Therefore, the seventh hypothesis is formulated as follows:

H_7: *The job board's reputation positively affects the jobseeker's intention to use the job board.*

2.4.6 Attitude toward job board and intention to use

According to the theory of reasoned action (TRA) and TAM, behavioral intentions are the most critical approximate predictors of actual user behavior in any given system (Fishbein and Ajzen, 1975; Davis, Bagozzi and Warshaw, 1989; Kashi and Zheng, 2013). The intention to use construct is a useful mechanism to understand why jobseekers respond to recruitment efforts, such as job boards (Nadlifatin, et al., 2022). Cober, et al. (2004) argue that attitudes toward a recruitment website can be directly related to applicant attraction, and their model for web-based recruitment suggests that attitude toward the website is an instant predictor of applicant attraction. Previous studies indicate that attitudes toward use directly affect the intention to use e-recruitment systems and services (Siew, et al., 2018; Carmack and Heiss, 2018; Priyadarshini, Sreejesh and Jha, 2019; Grimaldo and Uy, 2020; Irawan, Adiputra and Arshanty, 2021; Kaur

and Kaur, 2022). Therefore, the eighth hypothesis is formulated as follows:

H_8: *The jobseeker's attitude toward the job board positively affects the intention to use it.*

3 Methodology

3.1 Instrument development

The main instrument for collecting primary data in this study is a survey questionnaire. The questionnaire consists of three sections as follows:

- The first section consists of a brief note about job boards and research, while asking the respondent if they have used a job board before.
- The second section includes four questions about the demographic characteristics of the respondents, including gender, age, education level, and employment status.
- The third section contains 36 items designed to measure observable variables, with the respondent specifying the extent of agreement with each statement on a seven-point Likert-type scale (from strongly disagree: 1 to strongly agree: 7).

Authors decided to design, validate, and employ a researcher-developed questionnaire for several reasons. Firstly, all the questionnaires and items suggested in e-recruitment literature mainly focused on the perspective of management, behavioral, and psychological sciences and lacked a focus on computer science and IT; secondly, due to the fascinating speed of technology growth, the user's expectations are constantly evolving, so the conventional technology adoption measures are lacking in terms of technical terms for job boards and employment websites.

Hence, using the opinion of practitioners and academics in the e-recruitment and human resource (HR) management fields and based on the conceptual framework, from the perspectives of behavioral sciences, human–computer interaction, and especially the quality of the website, the relevant items have been constructed to create the proposed questionnaire. Appendix A lists all of the survey items in the SEDA-IUQ questionnaire.

3.2 Assessing validity

The face and content validity of the questionnaire was confirmed through the opinions of several academic and HR experts and the calculation of the Content Validity Index (CVI) and Content Validity Ratio (CVR) coefficients. Construct validity was assessed using exploratory factor analysis (EFA) of the data obtained from the distribution of the questionnaire among 200 jobseekers. As a result, Kaiser-Meyer-Olkin (KMO) values for all items were higher than 0.7, confirming the adequacy of this index for each item of the questionnaire. Bartlett index was also significant (14,939.39) at $P \leq 0.01$, indicating the adequacy of the matrix.

3.3 Assessing reliability

The reliability of the questionnaire was tested using Cronbach's α in a preliminary study among 30 participants, leading to values above 0.6 for all variables. Hence, the reliability of the questionnaire was confirmed. Moreover, Cronbach's α was estimated separately for each of the extracted latent factors after the final implementation of the questionnaire.

As shown in Table 3, Cronbach's α values were higher than the minimum cutoff score of 0.7, indicating that the questionnaire has the necessary reliability.

Table 3. Cronbach's α for latent factors (*Source:* Authors' work)

Factor	Cronbach's α coefficient
Reputation-seeking intention to use	0.82
Practical utility	0.79
Technological innovation	0.78
Functional adequacy	0.79
Content accessibility	0.77

3.4 Sampling and data collection procedure

A Google Docs-based online questionnaire was distributed via several professional social networking websites, online communities, and emails to potential Iranian participants to collect data at different times and platforms. Participation in the survey was completely anonymous, voluntary, and random, based on ethical considerations. Since this study sought to generalize the results from a total statistical population, and Morgan's table suggested 384 as the number of samples, data collection was ceased after collecting 500 completed questionnaires.

The only requirement for completing the questionnaire was the experience of using a job board. If the respondent had no experience, he/she would not be allowed to complete the questionnaire, in order to avoid misleading data and obtain the most reliable data possible. Incomplete questionnaires and unwillingness to answer the questionnaires were considered exit criteria, and after separating incomplete questionnaires, 447 questionnaires entered the statistical analysis, leading to a response rate of 89% for the study. Respondents were 82.6% male, 89.8% employed, and most were in the age range of 31–40 years.

4 Results

This study utilized EFA to extract the latent factors in the collected data and evaluate the instrument's construct validity, and confirmatory factor analysis (CFA) to examine and validate the relationships between extracted factors. Furthermore, using the data collected from Iranian jobseekers, various relationships between latent factors in the research model were tested through structural equation modeling and path analysis techniques.

4.1 Extracting the latent factors (via EFA)

EFA through Statistical Package for the Social Sciences (SPSS) was used to extract and identify the factors affecting the intention to use job boards among Iranian jobseekers. The following steps were taken for that purpose:

1) The possibility of factor analysis on the data: Since factor analysis requires a large sample size, the adequacy of sampling was tested using the Kaiser–Meyer–Oaklin index (0.86) and the significance of the Bartlett's sphericity test (chi-statistic doubled to 14,939.30 at the level of $P \leq 0.01$); thereby, results indicated that the conditions for factor analysis are met.
2) The number of factors: The number of selected factors directly impacts the model results; hence, according to the Kaiser's rule (1960) (the number of factors must be extracted with a specific value equal to or greater than 1) and Howard's rule (2016) (the percentage of cumulative changes of the extracted factors should be at least 60%) and consistent with the previous studies, five factors were extracted.
3) The factor rotation method: Factor rotation is used to facilitate the interpretation and naming of extracted factors. The varimax method establishes the highest correlation between the explanatory variables and the factors (Beavers, Iwata and Lerman, 2013). As a result of varimax rotation, five factors with eigenvalues greater than 2 were extracted, which can explain 59.56% of the total variance. The figures related to eigenvalues, percentage of variance, and cumulative variance are presented in Table 4.

Table 4. Factors, variance percentage, and eigenvalues (before rotation)
(*Source:* Authors' own research)

Factors	Eigenvalues	Variance percentage	Cumulative variance percentage
1	8.23	33.10	33.10
2	3.20	9.71	42.81
3	2.93	6.32	49.13
4	2.92	5.30	54.43
5	2.80	5.12	59.56

4) Naming and interpreting factors: After examining and separating factors with factor loadings higher than 0.6, factors are named based on their underlying structure and shared features. Five factors were named as follows:

Factor 1: The items clustered under this factor consist of the job board's content (four items) – possessing the highest factor loading (0.73) as well, esthetics (2), attitude toward job board functionality (2), jobseeker's self-efficacy (1), and attitude toward job board (1). Factor 1 focuses significantly on the quality, variety, and accuracy of job board content and the ease of access and use of its content and features; it is thus named *content accessibility.*

Factor 2: The items clustered under this factor consist of the job board's esthetics (2) – possessing the highest factor loading (0.78) as well, reputation (2), attitude toward the job board (2), and PU (1). Innovation in various aspects such as design, services, and user interface is a common component of all items of this factor. Thereby, Factor 2 is named *technological innovation*.

Factor 3: The items clustered under this factor consist of the job board's PU (2) – possessing the highest factor loading (0.73) as well, attitude toward job board functionality (2), perceived ease of use (2), and attitude toward job board (1). Notably, most items under this factor reflect the usefulness and comprehensiveness of the job board's services, information, and capabilities. Therefore, Factor 3 is named *practical utility***.**

Factor 4: The items clustered under this factor consist of the job board's reputation (3) – possessing the highest factor loading (0.66) and intention to use (4), reflecting the correlation and significant impact of reputation and trust on the intention to use a job board. Factor 4, therefore, is named *reputation-seeking intention to use,* which is indeed the study's dependent variable.

Factor 5: The items clustered under this factor consist of the job board's perceived ease of use (2) – possessing the highest factor loading (0.71), jobseeker's self-efficacy (3), and PU (1), focusing on the ease of use and adequacy of job board in training and guiding jobseekers. Thereby, Factor 5 is named *functional adequacy.*

4.2 Modifying the hypotheses for the latent factors

Since hypotheses H_1–H_8 were proposed for the relationships between observable variables, they should be modified for the extracted latent factors. First, direct impacts of each of the four factors on the dependent factor (reputation-seeking intention to use) were hypothesized as H'_1–H'_4:

H'_1: *Job board technological innovation positively affects its reputation-seeking intention to use.*

H'_2: *Job board content accessibility positively affects its reputation-seeking intention to use.*

H'_3: *Job board practical utility positively affects its reputation-seeking intention to use.*

H'_4: *Job board functional adequacy positively affects its reputation-seeking intention to use.*

Furthermore, extending on the literature review elaborated in Section 2.4 (hypothesis development for observable variables) and the items clustering in each factor (see Section 4.1), six hypotheses are proposed as follows:

- Esthetics, content, and PU: As hypothesized in Section 2.3.1, both esthetics and content are significant antecedents of PU; hence, the fifth and sixth hypotheses are formulated as follows:

H'_5: *Job board technological innovation positively affects its practical utility*.

H'_6: *Job board content accessibility positively affects its practical utility.*

- Perceived ease of use and PU: As hypothesized in Section 2.3.3, perceived ease of use positively affects PU; hence, the seventh hypothesis is formulated as follows:

H'_7: *Job board functional adequacy positively affects its practical utility*.

4.3 Measurement model evaluation

In order to test the modified hypotheses for the latent factors, the path analysis method has been used. The perquisites for using path analysis are elaborated below. As shown in Table 5, a linear relationship between predictor and dependent variables was confirmed by forming the correlation matrix of latent factors.

Table 5. Correlation matrix of latent variables (*Source:* Authors' own work)

Latent variables	1	2	3	4	5
1. Reputation-seeking intention to use	**1**				
2. Practical utility	**0.72	**1**			
3. Technological innovation	**0.69	**0.57	**1**		
4. Functional adequacy	**0.65	**0.54	**0.46	**1**	
5. Content accessibility	**0.64	**0.58	**0.39	**0.39	**1**
**P ≤ 0.01					

Furthermore, Table 6 shows a Durbin–Watson value of 2.02, which satisfies the condition (the ideal range 1.5–2.5); hence, the error term is independent and fulfills the assumption. Finally, the normality of the data was evaluated and satisfied by the Kolmogorov–Smirnov test (see Table 7).

Table 6. Durbin–Watson (DW) test results (*Source:* Authors' own study)

	DW statistic value
Practical utility on reputation-seeking intention to use	2.17
Technological innovation on reputation-seeking intention to use	2.02
Functional adequacy on reputation-seeking intention to use	2.02
Content accessibility on reputation-seeking intention to use	2.02

Table 7. Kolmogorov–Smirnov (K–S) test results (*Source:* Authors' study)

	Reputation-seeking intention to use	Technological innovation	Functional adequacy	Practical utility	Content accessibility
K–S Z value	1.60	1.24	1.68	2.28	1.77
Significance level	0.01	0.02	0.007	0.0001	0.004

Several fit indices (e.g., Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Incremental Fit Index (IFI), Normed Fit Index (NFI), Non-Normed Fit Index (NNFI)) have been used to ensure the model is appropriate to test hypotheses regarding causal relationships between latent factors. As shown in Table 8, all of these fit indices are acceptable.

Table 8. Fit indices of the measurement model (*Source:* Authors' study)

Model-fit index	NNFI	NFI	CFI	RMR	GFI	RMSEA	χ^2/df
Measurement model	0.92	0.92	0.93	0.14	0.91	2.13	0.03
Recommended value	> 0.90	> 0.90	> 0.90	< 0.5	> 0.90	> 0.1	< 5
Result	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
df: degrees of freedom; GFI: Goodness of Fit; RMR: Root Mean Square Residual							

4.4 Structural model evaluation and hypotheses testing results

After approving the measurement model of research constructs (latent factors), the research model was further evaluated by estimating the structural relationships among the research constructs using structural equations modeling in LISREL software. Fig. 2 also depicts the results of the structural model analysis.

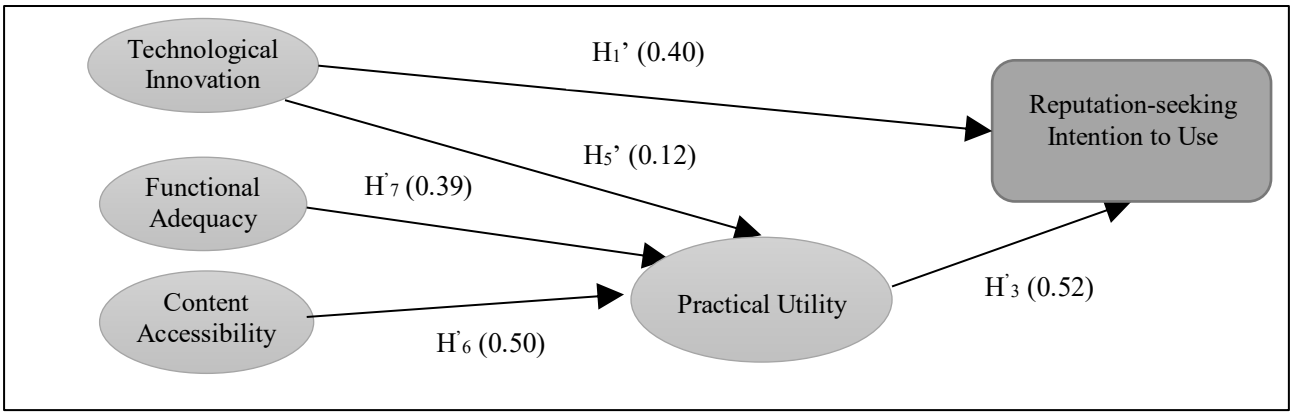


Figure 2. The research model (and path analysis results) (*Source:* Authors' own work)

As shown in Table 9, all the hypothesized paths, except for that linking content accessibility and functional adequacy to reputation-seeking intention to use (H'_2 and H'_4, respectively) were significant ($P < 0.01$). Hypotheses H'_1 and H'_3 were supported, and the results confirmed that both technical innovation and practical utility had a significant positive effect on reputation-seeking intention to use job boards. Furthermore, the results confirmed that practical utility perceptions toward a job board depend on technical innovation, content accessibility, and functional adequacy of job boards, supporting the hypotheses H'_5, H_6', and H_7'. Fig. 3 shows the standardized estimate coefficients diagram for the model.

Table 9. The results of path analysis for the hypothesized paths (*Source:* Authors' own research)

Hypothesis	Hypothesized paths	Standardized estimate coefficient	Significance level	t-value	Result
H'_1	Technology innovation to reputation-seeking intention to use	0.40	$P < 0.01$	11.57	Accepted
H'_2	Content accessibility to reputation-seeking intention to use	0.01	$P < 0.05$	0.30	Rejected
H'_3	Practical utility to reputation-seeking intention to use	0.52	$P < 0.01$	8.40	Accepted
H'_4	Functional adequacy to reputation-seeking intention to use	0.04	$P < 0.05$	0.84	Rejected
H'_5	Technology innovation to practical utility	0.12	$P < 0.01$	4.41	Accepted
H'_6	Content accessibility to practical utility	0.50	$P < 0.01$	18.84	Accepted
H'_7	Functional adequacy to practical utility	0.39	$P < 0.01$	13.93	Accepted

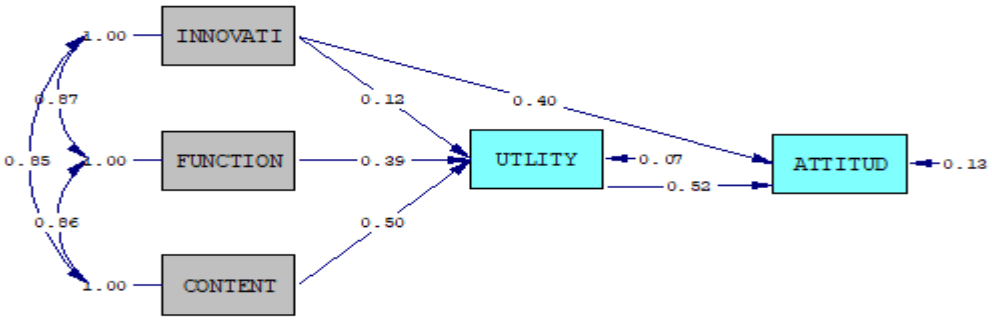


Figure 3. The results of significance and standard estimation coefficients for the hypothetical relationships between latent factors (*Source:* Authors' own study)

The goodness-of-fit statistic of the research model is presented in Table 10. Comparison of fit indices with their corresponding recommended values provided evidence of a good model fit.

Table 10. Goodness-of-fit statistics of the research model (*Source:* Authors' study)

Index	Value	Recommended value	Result
χ^2	1.76	≤ 2	Fitness of model
P-value	0.19	≥ 0.05	Fitness of model
RMSEA	0.0001	≤ 0.05	Fitness of model
NFI	0.96	≥ 0.95	Fitness of model
CFI	0.96	≥ 0.9	Fitness of model
GFI	0.97	≥ 0.9	Fitness of model

5 Discussion

5.1 Discussion of key findings

While our findings support IT adoption literature and previous studies anchored on jobseekers' behavioral intentions toward e-recruitment systems and services, this study represents some novel insights into e-recruitment adoption through its exploratory design leading to several multidimensional factors that significantly depict antecedents of behavioral intentions of jobseekers.

A strong correlation between the two variables of jobseeker's (computer) self-efficacy and perceived ease of use in the functional adequacy factor is in line with the model of the antecedents of perceived ease of use (Venkatesh and Davis, 1996). Furthermore, as Chang and Kim (2018) found, accuracy, security, self-efficacy, and perceived ease of use had a positive effect on PU, which is in line with our finding that content accessibility and functional adequacy positively affect practical utility. Moreover, our findings support previous studies indicating that jobseekers' perceptions of technological capabilities and functionalities and self-efficacy in using job boards are important competence-related variables, in turn affecting their adoption intentions (Khalid, et al., 2021; Nguyen, 2021; Woon and Singh, 2019; Zhang, et al., 2018; Lin, 2010; Cober, et al., 2004).

Content accessibility, functional adequacy, and technological innovation were found to have a significant impact on practical utility, which in turn influences reputation-seeking intention to use. This finding supports previous studies by indicating that when

jobseekers perceive easier and catchier access to accurate, relevant, and timely information and more self-efficacy and technology empowerment and innovation associated with adoption, they feel more determined to exploit job boards (Meah and Sarwar, 2021; Chen, Warden and Liuu, 2021; Woon and Singh, 2019; Priyadarshini, Sreejesh and Jha, 2019; Roy-Chowdhury and Srimannarayana, 2013; Williamson, et al., 2010; Kroustalis, 2009; Cober, et al., 2004). The results are similar to those of Poudel (2018), revealing that usefulness, technology self-efficacy, perceived enjoyment, ease of use, and attitude toward websites drive jobseekers to apply for jobs through online recruitment.

Consistent with the theory of brand equity and previous studies suggesting reputation, trust, image, and organizational brand as predictors of behavioral intentions toward e-recruitment websites (e.g., Cober, et al., 2004; Williamson, et al., 2010; Allen, Mahto and Otondo, 2007; Lin, 2010, Mahmood and Ling, 2017; Irawan, Adiputra and Arshanty, 2021; Schaarschmidt, Walsh and Ivens, 2021; Rahman and Patra, 2020; Candra, et al., 2020), our findings support this contention and extend the e-recruitment literature by revealing multidimensionality of reputation-seeking intention to use factor. The strong correlation between reputation and intention to use circuitously highlights the impact of network effect, social influence, and trust in decision-making.

Consistent with TAM (Davis, 1985; Davis, Bagozzi and Warshaw, 1989) and previous studies (e.g., Siew, et al., 2018, Candra, et al., 2020; Khalid, et al., 2021; Nadlifatin, et al., 2022), this study revealed a robust relationship between PU and ease of use, which are being clustered under one factor named practical utility that, in turn, affects e-recruitment adoption intentions.

Furthermore, this study revealed the strong influence of attitude on job pursuit intention, since attitude items were reflected in nearly all the latent factors influencing behavioral intentions identified through EFA. This finding is in line with the TAM2 (Venkatesh and Davis, 2000), which omits the attitude construct in their model because PU and perceived ease of use are two fundamental attitudinal beliefs of TAM that lead to a positive or negative attitude in an individual.

Technological innovation and practical utility revealed a substantial effect on reputational-seeking intention to use. While the latter finding is widely supported in the previous studies (Kaur and Kaur, 2022; Nadlifatin, et al., 2022; Nguyen, 2021; Candra, et al., 2020; Selvanathan, et al., 2019; Chang and Kim, 2018; Zhang, et al., 2018; Kashi and Zheng, 2013; Brahmana and Brahmana, 2013), none of the primary models of technology acceptance and previous studies have theoretically incorporated and empirically tested technology innovation as an influential factor on adoption intention variables such as the intention to use, attraction, or attitude toward e-recruitment services. A possible explanation could be the unprecedented pace of technology advancements and digital transformation that makes innovation an integral and inevitable part of each E-business (including e-recruitment) service provision.

5.2 Theoretical contributions

As Lin (2010) argued, e-recruitment adoption models without considering jobseekers' perceptions would be incomplete and potentially misleading. In support of his argument, this study develops a research model that successfully applies several well-established models and theoretical frameworks in the e-recruitment adoption realm to investigate online job search behavior in a novel context.

While previous studies have only examined the effect of one-dimensional variables such as PU and ease of use or reputation, content, or esthetics on the attitude or behavioral intentions toward e-recruitment and job search websites (e.g., Cober, et al., 2004; Allan, Mahto and Otondo, 2007; Goldberg and Allen, 2008; Kroustalis, 2009; Lin, 2010; Williamson, et al., 2010; de Goede, van Vianen and Klehe De Geode, 2011; Gregory, Meade and Thompson, 2013; Kashi and Zheng, 2013; Brahmana, and Brahmana, 2013; Alsultanny and Alotaibi, 2015; Huang and Chuang, 2016; Mahmood and Ling, 2017; Zhang, 2018; Siew, et al., 2018; Arsanti and Yuliasari, 2018; Grimaldo, and Uy, 2020; Schaarschmidt, Walsh and Ivens, 2021; Nadlifatin, et al., 2022), using an EFA approach, this study has revealed the multidimensionality of the latent factors discovered through its exploratory approach. This phenomenon implies that, for instance,

a combination of perceptions of ease of use and usefulness and attitudes toward job boards (as practical utility factor), rather than just each of these variables independently, directly influences the intention to use job search websites.

Based on a comprehensive study of technology acceptance models and previous studies in the e-recruitment adoption, this study reveals that due to the rapid technological change, the dimensions of jobseekers' perceptions and attitudes toward e-recruitment systems are also evolving rapidly. Nowadays, users make objective and subjective multidimensional evaluations when deciding or providing feedback on attitudes and intentions to use technologies (particularly e-recruitment systems and job boards).

Overall, this study contributes to both theory and application. At the conceptual level, the research findings support technology acceptance models in online recruitment and show their applicability to jobseekers' reactions to websites and the need to update and consider factors based on innovation and technology growth that reflect users' expectations and jobseekers. This study highlights the role of the technological innovation factor, which consists of innovation in design, services, and content, in the perceptions of reputation-seeking intention to use, reflecting the importance of innovation and creativity and timeliness in technology deployment, which could boost user intentions toward e-recruitment ventures.

From an e-recruitment perspective, this study makes a significant theoretical contribution by developing, validating, and implementing a researcher-developed questionnaire, the SEDA-IUQ, that incorporates behavioral science and HR management perspectives with ideas based on the website quality and human–computer interaction. The SEDA-IUQ can serve as a comprehensive and multi-perspective evaluation of behavioral intentions toward job boards, overcoming the limitations of previous scales and questionnaires.

5.3 Practical implications

This study offers valuable insights into the entire e-recruitment industry, including corporate recruitment websites, third-party job boards, and job search platforms. It directly contributes to the e-recruitment and third-party job boards to make them more effective and valuable for their users, highly customer driven, and constantly addressing the concerns and demands of jobseekers in a global context.

For practitioners, particularly e-recruitment service providers, this study could be helpful because it addresses the factors influencing the intention of jobseekers for online job applications, enabling them to design and administer job boards and corporate recruitment websites effectively. This study suggests that jobseekers prefer attractive job boards with an innovative approach to design, service delivery, and content to other job search resources. Our results also indicated that practical utility plays a vital role in determining behavioral intentions toward job boards; hence, e-recruitment service providers should seek to provide plenty of useful features, services, and capabilities.

Another crucial practical finding was that jobseekers' behavioral intentions toward job boards may be driven by how they perceive the technological innovation and practical utility associated with job boards. Indirect effects on behavioral intentions were found through content accessibility and functional adequacy. Therefore, job board developers and administrators are projected to focus on technological innovation (in design, content, features, and services), practical utility, functional adequacy, and content accessibility to differentiate themselves from competitors in the market.

Employing an innovative and creative approach to design and development coupled with presenting practical, accessible services and facilities may raise awareness and interest among jobseekers. These efforts may significantly affect jobseekers' behavioral intentions and encourage them to exploit job boards, leading to a steady flow of qualified applicants.

Results from this study have shed light on the online job search behavior of today's jobseekers who consider several variables (such as esthetics, usefulness, ease of use, self-efficacy, reputation, and attitude) simultaneously when forming perceptions and intentions toward the usage of online recruitment systems. Specifically, website esthetics exceed the traditional concepts of esthetics (limited to design) and address innovation from several dimensions of design, services, content, and facilities. Both E-recruitment system

developers and HR experts can utilize our findings to improve the effectiveness of their activities.

5.4 Limitations and future research

Despite the comprehensiveness of the proposed model and its empirical support and fascinating insights that this study offers to the e-recruitment and job boards' adoption literaturę. The findings should be carefully considered, given the limitations in concepts, methods, scope, and sample size. First, the study utilized a cross-sectional measurement method, limiting the ability to observe and make definitive conclusions about causal relationships between research variables. Therefore, longitudinal data could provide a more transparent basis for the transient causal relationships suggested by the proposed research model. The second limitation is the reliance on survey data through self-report measures. While self-reporting in this type of study is widespread, future studies that collect data through various sources and methods could produce critical insights and implications for the e-recruitment adoption context.

The present study focused only on the context of one country, so to make the research results more generalizable, it is recommended to apply the research model to other countries and cultures, leading to cross-cultural studies. Furthermore, despite the comprehensiveness of the model, the variables studied in the present study cannot explain all the influencing variables in the attitude and intention to use job boards, which can provide an opportunity for further and complementary studies. Despite these limitations, this study contributes to e-recruitment research by taking a crucial step toward filling the gap in this popular, but scarcely investigated research field in the Iranian e-recruitment context.

6 Conclusion

Although e-recruitment and job boards have been extensively studied in the technology adoption literature, very few related studies have been done in the Iranian context in this field, where job boards are a highly used medium of finding a job. Traditional job search is scarcely practiced widely due to the advancement of technology and infrastructure. Therefore, this study has been conducted to understand Iranian jobseekers' online job search behavior.

This study sought to draw on the previous literature and the theoretical foundations and models of technology acceptance by successfully developing, testing, and applying a model for predicting behavioral intentions of jobseekers toward job boards and also designing, validating, and applying a researcher-developed questionnaire to contribute to the literature of e-recruitment and human–computer interaction.

Utilizing an EFA approach to discover latent variables affecting behavioral intentions that direct measurements could not detect, it is observed that jobseekers' e-recruitment adoption intentions are influenced by technological innovation, content accessibility, functional adequacy, practical utility, and reputation-seeking intention to use. This study proposes a new model to explain the factors that shape jobseekers' adoption intentions to use job search websites. Moreover, relationships between the model components indicate the multidimensionality of each latent variable influencing the intention to use. A possible explanation for this phenomenon could be demographic changes, unprecedented technological revolution, and the continuously expanding body of knowledge, skills, and expectations of jobseekers toward online job search systems, for example, job boards.

7 Appendix A. SEDA-IUQ: The proposed questionnaire

(*Source:* Authors' elaboration)

Variables	Questions
Job board esthetics	1. All pages of this job board possess a kind of unique beauty. 2. I like the composition of multimedia and texts on this job board. 3. The organization of pages in this job board is clear. 4. The graphic aspect of this job board did not interrupt my focus and made it easier to use.
Job board content	5. This job board publishes diverse job opportunities. 6. The information provided by this job board can easily be understood. 7. This job board's vocabulary and writing style are consistent and clear. 8. The job description in this job board is accurate and comprehensive.
Jobseekers' self-efficacy in job board	9. The homepage of this job board immediately guides me to my desired destination. 10. I can easily find my desired information on this job board through trial and error. 11. When using this job board, the error messages clearly show how to fix errors. 12. In my opinion, most people quickly learn how to use this job board.
Attitude toward job board functionalities	13. This job board can be adapted to all browsers and devices. 14. Various functions provided by this job board – such as sign up, job search, and job application – are well integrated. 15. I like integrating different functions with social media in this job board. 16. The search engine on this job board extracts accurate information quickly.
Perceived usefulness of job board	17. This job board provides me with updated job opportunities. 18. Overall, this job board offers valuable services and information. 19. The additional facilities provided by this job board had many useful applications for me. 20. I do not have to look for other job search resources using this board.
Perceived ease of use of job board	21. Creating a user account on this job board is simple. 22. The variety of search options on this job board makes finding my desired job opportunities easier. 23. This job board's navigation tools and tags direct me quickly to my desired destination. 24. The comprehensibility of this job board content makes its use more accessible to me.
Job board reputation	25. In my opinion, this job board is a reliable recruitment portal both for jobseekers and employers. 26. Famous employers publish their job opportunities using this job board. 27. In my opinion, this job board tends to be an innovator rather than an imitator. 28. Licenses, awards, and testimonials of jobseekers and employers reassure me to use this job board.
Attitude toward job board	29. I consider this job board user-friendly. 30. This job board offers innovative services. 31. The overall organization of this job board is clear and understandable for all. 32. This job board has all functions and capabilities I expect to have.
Intention to use job board	33. I intend to register on this job board to get informed about the most current job opportunities in my field of expertise. 34. I intend to apply for job opportunities published on this job board. 35. I intend to continue using this job board till I find my ideal job. 36. I intend to recommend using this job board to friends and acquaintances.

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