Competency in information and communication technology and use of e-recruitment portal in Dodoma city, Tanzania  

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ABSTRACT

The recruitment functions of human resources have transitioned from a conventional paper-based system to utilizing the internet through electronic recruitment portals. Electronic recruitment is widely recognized as a strategy that organizations utilize to attract people who possess the necessary education, experience, and abilities. The objective of this study was to evaluate the factors that influence job-seekers’ utilization of e-recruitment platforms for job applications in the public sector of Tanzania. The study employed a cross-sectional survey approach to gather both quantitative and qualitative data from Dodoma City. A standardized questionnaire was used to collect quantitative data from 384 job applicants. The interview method was used to acquire qualitative data from ICT officials of PSRS. Job-seekers were chosen through the utilization of a random sample technique, whereas PSRS ICT officials were deliberately recruited. The study’s findings indicate that there is a positive and significant correlation between job seekers’ use of e-recruitment and their ICT competencies. Thus, the study determined that ICT competencies play a vital role in determining the utilization of the e-recruitment portal of PSRS for job applications. Therefore, the study suggests that PSRS should revamp its portal to enhance its user-friendliness.

Introduction

Governments worldwide have adopted and initiated e-government programs as an innovative way of increasing efficiency and effectiveness in the management of public sector activities (Rahman & Patra, 2020; Mshanga, 2020; Ekanayaka & Gamage, 2019). Electronic government program involved replacing the paper-based and bureaucratic government activities into modern dynamic computer assisted system in service delivery. The aim of replacing the old manual or paper-based activities with electronic platforms was to optimise government roles to the public (Mmari, 2013). Recruitment of civil servants is one among many government roles, which were optimised using electronic platforms known as electronic recruitment portals or e-recruitment portals (Rahman & Patra, 2020; Mshanga, 2020). The history of e-recruitment dates back to the early 1990s when e-recruitment become known due to development in technology that enormously transformed the traditional paper-based recruitment technique (Leonidas & Tibuhinda, 2023; Wahid, 2011).

Principally the e-recruitment was popularised by recruiting organisation, which started using website for recruitment purposes on behalf of other firms (Grönlund & Horan, 2005). Later, through a range of technological transfer strategies, there was a spill over effect in the use of e-recruitment globally, including in developing countries such as Bangladesh (Chowdhury et al., 2013), Nigeria (Ozuru & Chikwe, 2015), Uganda (Moses, 2018), Ethiopia (Kebede, 2017) and Tanzania (Mmari, 2013; Mshanga, 2020). According to United Nations E-government Survey (2014), the developed compared to developing countries, have aggressively adopted e-government as a means of making their economy more efficient. Therefore, they have achieved visible results in governance, administrative of civil services, civic participation in policy making, accountability (Solinthone & Rumyantseva, 2016) and human resource management functions such as recruitment (Urio, 2020).
The e-recruitment systems offer improved efficiency and effectiveness of employment process in organisations by ensuring quick, accurate, convenient, affordable, time saving and reliable way to apply for jobs (Rahman & Patra, 2020; Alsultanny & Alostabi, 2015). Through e-recruitment, organisations are able to attract larger number of jobseekers and select the highly talented employees, highly qualified and experienced potential employees (Ekanayake & Gamage, 2019; Chaitra & Rajasulochana, 2018). Not only that but also, e-recruitment is innovative way the jobseekers use to effectively and efficiently apply for jobs in organisations (Maqbool, Hussain, Khan, & Tariq, 2020; Allahawiah & Tarawneh, 2015).

In Africa according to Malekano (2021), e-recruitment utilisation has outstandingly achieved attractiveness in the public sector, and many countries recruit civil servants using e-recruitment portals (Chiwara, Chinyamurindi & Mjoli, 2017; Vumilia, Onyancha & Mtenga, 2021). Despite the achievements, e-recruitment in Africa face difficulties related to its technological design, infrastructural capabilities, organisational capabilities and users’ factors. According to Sabo (2012) most African countries import their e-recruitment platforms, which do not match with the African realities, and this can be a reason they fail to realise its full potential (Anduru, Rachel., and Goril, 2021). In addition, there has not been enough preparation and sensitization of potential users of e-recruitment (Mshanga, 2020; Nguti & Mose, 2021). Users are categorised as human resources officers in the organisations and jobseekers that use e-recruitment for recruiting employees and for applying for jobs respectively. This study however focuses on jobseekers. For a job-seeker to use e-recruitment frequently must have the required competencies in using ICT devices and programs. Such competencies include ICT knowledge, ICT skills, ICT experience, ICT training/education and interaction with ICT change agent.

The recruitment and selection of public employees in the United Republic of Tanzania (URT) was carried over from the colonial era, when it was carried out under the Public Administration System (PAS), which had murky human resources regulations. The process of filling the vacant post was guided by general order, administrative circulars and staff circular whereby graduates and secondary school leavers were recruited by direct employment through Manpower Allocation Committee of central government. Later on the power to appoint employees up to middle level was delegated to Civil service Commission, Local government Service Commission and Teachers Service Commission (Mshanga, 2020). However, each commission had its own guidelines, criteria, and processes for filling positions, which led to differential treatment of job seekers and public employees, respectively, in terms of hiring and advancement.

In Tanzania, a number of initiatives and reforms to enhance recruitment procedures started in the 1990s (Mgonja & Tundui, 2012). Among the reforms is Civil Service Reform. The management and employment policy were introduced by the government in 1999 and called for open competition, adherence to academic and professional credentials, experience, track records, and learning potentials. (URT, 2008). The public service regulations of 2003 clearly set all procedure for the recruitment and selection as follows: Vacant posts in the public service are created through attrition and creation of a new post which is also subjected to size of budget allocated, permit granted and thereafter open recruitment into the public service. This increased the number of job applicants to the public offices, thus the recruitment and selection process suffered from poor selection, delay in recruitment, poor record keeping and inefficiency. In making efforts to address these challenges, the government established various statutes, such as the Public Service Regulations 2003, Public Service Scheme 2003, and Public Service Act No.18 of 2007, to regulate the recruitment and selection processes based on the worker’s experience, track record, and professional qualification (Mmari, 2013).

Similarly, the Government of Tanzania (GOT) established the Public Service Recruitment Secretariat (PSRS) in 2009 in order to centralise the recruitment and selection in the employment process with the aim to increase transparency and equality in recruitment, appointment and promotion (Malekano, 2021). This is because every Ministry, Department and Agencies (MDAs) had their independent procedures and criteria for recruitment (Mmari, 2013; Mshanga, 2020). The PSRS was established in accordance with the Public Service (Amendment) Act, 2007 under Section No. 29. The Secretariat was established as a special body responsible for all recruitment matters in public service. By adhering to principles of equity, transparency and merits, the Secretariat is responsible for recruitment process, which include advertise vacant posts; conduct interview in collaboration with other experts; prepare and conduct induction courses (Mshanga, 2020). After establishment, PSRS continued to use a paper-based system of recruitment and selection, which proved to face many challenges: high costs, untimely decision, favouritism, tribalism, corruption, poor data management, lack of transparency and nepotism (URT, 2009; Malekano, 2021).

With time and changes in technology and the labour market, the PSRS improved the recruitment process by shifting from old paper-based method to modern internet-based recruitment process. In 2014 the PSRS introduced e-recruitment portal that was envisaged to increase efficiency, effectiveness, fairness, and transparency in recruitment and selection procedures. Moreover, the e-recruitment portal was a deliberate effort of GOT to simplify the process of job application and also to reduce costs among jobseekers (Vumilia et al, 2021). The introduction of e-recruitment in the public sector is linked with Public Service Reforms Programs (PSRP) Phase I and II, which were launched in from 1990s and 2000s. The reforms were part of New Public Management reforms (Mgonja & Tundui, 2012). The reforms aimed at applying corporate management principles in the delivery of public services to increase productivity, accountability, and transparency in the public service delivery (Msacky, 2021).

In the context of New Public Management, transformation of PSRS in the recruitment of civil servants to improve governance, effectiveness, efficiency, transparency, value for money and speed became the fundamental principle in public administration in the
United Republic of Tanzania (URT) (Vumilia et al, 2021). Among the key transformations in the PSRS, include the introduction of e-recruitment to address the persistent challenges (high costs, untimely decision, favouritism, tribalism, corruption, poor data management, lack of transparency and nepotism) of the paper-based recruitment system (Mshanga, 2020). These initiatives were motivated by National ICT policy of Tanzania of 2003 and the recently amended policy of 2016, and the National employment policy of 2008, which envisaged that an application of ICT in recruitment process of civil servants will ensure efficiency, equality, and transparency in governance (URT, 2003; URT, 2008; URT, 2016). It is at this point where e-recruitment was adopted as a key engine of facilitating the recruitment process in public service. The secretariat recognized the importance of ICT as a strategic tool in transforming the public service recruitment process.

However, since the introduction of this e-recruitment portal a number of complaints related to use of the system have been drawn from job seekers (Vumilia et al., 2021, URT, 2014). Among of the complaints includes job seekers to forget username, email and password; job-seekers failing to attach the required documents as per adverts, falsification of credentials and inability to properly use the system (Leonida & Tibuhinda, 2023). Reviewed literature focused on how e-recruitment is implemented (Mshanga, 2020), the potentials of e-recruitment (Vumilia et al., 2021), role and practice of e-government (Mohamed, 2015) and efficiency of PSRS recruitment process (Mmari, 2013). Also, some other studies from Tanzania focus on effectiveness of digital platforms in promoting recruitment in public entities (Leonidas & Tibuhinda, 2023) and e-recruitment system for schools and hospitals in ecclesiastical province in Arusha City, Tanzania (Anduru, Rachel, & Goril, 2021). Moreover, the focus of these studies was mainly pinpointing organisational bottleneck to the effective use of electronic recruitment from the view point of the employees of the organisation. Thus, there is a pause of literature focused on the influence of ICT competencies of job seekers in the use of electronic recruitment portal. A study based on the perspective of job seekers on the use of electronic recruitment portal may promote inclusivity, equity, and transparency in the employment process in Tanzania. Therefore, this study aimed to assess the influence of ICT competencies on the use of e-recruitment portal among job seekers in Dodoma city, Tanzania

**Literature Review**

**Theoretical review**

This study is discussed on the premises of Unified Theory of Acceptance and Use of Technology 1 (UTAUT 1). The Unified Theory of Acceptance and Use of Technology 1 (UTAUT 1) was developed by Venkatesh, Morris, Davis and Davis (2003). The theory was developed from eight other technology acceptance theories or models. At the core, the UTAUT 1 provides four predictors of technology use behaviour, as modified from the eight technology adoption models. The basic form of the UTAUT 1 is as shown in Figure 1. In addition to behavioural intention and use behaviour, the UTAUT 1 consists of four constructs. The first construct, performance expectancy, refers to the degree to which users believe that the use of technologies will result in performance gains. This may also be viewed as the perceived usefulness of technology. The second construct, effort expectancy, applies to the ease of use of technology. The UTAUT 1 in the third construct, social factor, explains the degree to which a user perceives that significant persons believe technology use to be important. Facilitating Conditions is the fourth construct that describe the perceived extent to which organizational and technical infrastructure required for the support of technology exists.

**Figure 1:** UTAUT 1; *Source: Venkatesh et al., (2003)*

Performance Expectancy

Effort Expectancy

Social Influence

Facilitating Conditions

Behavioral Intention

Use Behavior

Gender

Age

Experience

Voluntariness of Use
Moreover, the theory also includes four moderating variables namely, age, gender, experience, and voluntariness of use. According to UTAUT 1, performance expectancy, effort expectancy, and social factors have direct effects on behavioural intention, which along with facilitating conditions have indirect effects on the behaviour intention than use behaviour. The effects of the interactions between performance expectancy, effort expectancy, and social factors with age and gender influence technology acceptance. Also, there are effects of interactions of age and facilitating conditions as well as experience and facilitating conditions on the use behaviour (Venkatesh et al., 2003). The UTAUT 1 theory is appropriate to this study since the main objective of the Tanzania Public Service Management and Employment Policy of 2008 was to introduce guidelines, philosophy, and practices that guide the transformation of the Tanzania public service to a high performing and dynamic process (URT, 2008). Thus, the new practice in the public sector includes the emphasis on the use ICT competence to improve governance and service delivery

Empirical review

Researches in use of ICTs have reported that ICT skills, experience, knowledge and education as significant components affecting use of e-recruitment in applying for jobs (Bakkabulindi, Nkata & Amin, 2009). Moreover, Rahman and Patra (2020) and Moussa and El-Arbi (2020) reveal that users’ technical skills and knowledge enhance their rapid familiarization with new technological advancements consequently increasing its usage and effectiveness. In addition, Nguti and Mose (2021) conducted a study and found that user skills, knowledge, and experience influence effective and efficient use of information and communication technologies. Furthermore, Borras and Edquist (2015) revealed that inadequate training negatively influenced the rate of usage of e-recruitment portal for job application. In addition, Al-Dmour, Love and Al-Zu‘bi (2013) reported that jobseekers’ education level, ICT skills, experience and commitment are essential factors affecting the adoption and use of information and communication systems in various undertakings. Ojo, Oluwatuminini, Ani and Adedeji (2021) also established that user competence in terms of skills, knowledge, and experience had a positive and significant relationship with the use of e-recruitment portal to apply for jobs.

Vumilia et al., (2021) examined the extent, benefits and challenges of utilisation of e-recruitment system in Moshi Catholic Diocese (CDM) in Tanzania. The findings revealed that the use of e-recruitment system is higher than traditional system in CDM. Moreover, the results suggest that e-recruitment is performing well since nearly every one of the employees who were hired using e-recruitment system had been found to be exceedingly dependable and effective in doing their tasks. Allahawiah and Tarawneh (2015) investigated the factors affecting the use of Information and Communication Technologies (ICTs) by Southern Colleges Teachers in Balqa applied university teachers. The findings show that the skill in using ICT explained 3.63 variance of extent to which faculty members used ICT. This result refers to the fact that holding educational courses aiming at increasing people’s familiarity and knowledge about ICT will improve the usage of these technologies. Based on the literature, most studies had established a positive relationship between ICT competence and use of e-recruitment. Thus, this study hypothesises that; H1: ICT competence has no positive and significant influence on the use of e-recruitment portal in Tanzanian public sector

Conceptual framework

Figure 2 is conceptual framework that depicts how independent variables (jobseekers’ ICT competence) influence a dependent variable (use of e-recruitment). The conceptual framework was developed from UTAUT theory and IMCM. The framework hypothesises that a higher level of job-seekers’ ICT skills, ICT training/education, ICT knowledge, ICT experience and interaction with ICT change agents results into frequent use of the PSRS e-recruitment portal to search and apply for jobs in public sector. Despite these facts, very little is known concerning influence of ICT competencies on use of PSRS e-recruitment portal to apply for jobs in Tanzanian public sector. This study is an attempt to fill the gap.

![Figure 2: Conceptual Framework for job-seekers’ ICT competence and use of e-recruitment; Source: Rahman and Patra (2020), Mousa and El-Arbi (2020) and Ojo et al., (2021)](image)

Research and Methodology

Study area

This study was conducted in Dodoma City in the United Republic of Tanzania. The City was chosen due to high rate of population growth whereby the population census report show that population of Dodoma City increased from 410,956 in 2012 (National Bureau of Statistics [NBS], 2012) to 765,179 (NBS, 2022) with annual rate of 6.4% in the last ten years (NBS, 2022). The population growth has attracted a lot of economic and social activities (Msuya, Moshi & Levira, 2020). Also, population growth has resulted into
increase in number of jobseekers in the city and municipal councils (Msuya, Moshi & Levira, 2020). Also, the growth of population in Dodoma may be associated with the transfer of government official business to Dodoma ‘The Capital City’, from Dar es Salaam in 2016 (Msacky, 2021).

Research design and approach

This study employed cross-sectional survey design to assess the influence of ICT competencies on the use of PSRS e-recruitment portal. The cross-sectional design was used as it has the potential of collecting information from a population at a single point in time (Hunziker & Blankenagel, 2021). Also, this study adopted a mixed concurrent approach, where both quantitative and qualitative data were collected and analysed from job seekers and selected officials. According to Creswell (2014), the use of mixed approach (quantitative and qualitative) allows for triangulation of data. Similarly, Kothari and Garg ((2014) add that the mixed approach in research enhances data reliability and authenticity of results, and hence effective description of the association of job-seekers’ ICT competencies and use of PSRS e-recruitment portal. However, the quantitative approach dominated the study while qualitative part of the study assisted in explaining the quantitative results. The quantitative approach dominated the study because this study intended to estimate the relationship between ICT competencies and use of PSRS e-recruitment portal among job seekers.

Target Population, Sampling methods and Sample size

The target population of this study include all job-seekers in Dodoma Region. The report from Tanzania Employment Services Agency (TAESA) shows that up to June 2023, there were 1,000,050 registered job seekers from Dodoma Region of Tanzania (URT, 2023). Thus, the database for TAESA was used as the sample frame from which job-seekers list was obtained from. TAESA is an employment service unit under the Prime Minister’s Office Labour, Employment, Youth and People with Disability established under Executive Agency Act Cap 245 R.E. 2002. It was imperative to use TAESA list as sampling frame because most graduates register with TAESA mass employ them with the potential employers in Tanzania. This study employed systematic and purposive sampling techniques to select the job seekers and the key informants of the study respectively. The formula by Yamane (1967) expressed in equation (1) was used to compute for 384 sample size for the job seekers from the total population (1,000,050) with a confidence level of 95%.

\[
N = \frac{N}{1 + Ne^2}
\]

Where \(N\) = Sample size, \(N\) = Population size, \(e\) = The level of precision

Then, from the population list, 384 job-seekers were randomly selected using systematic method. This method was chosen since it ensures selection of true representative sample when the target population under investigation is larger and homogenous (Kothari, 2004). Also, purposive technique was used to select five ICT officers from PSRS for interview as key informants. The selection of the key informants was based on their knowledge of ICT and e-recruitment portal. The five officers from PSRS are experienced in dealing with the control, maintenance and handle complaints of e-recruitment portal.

Data collection

Data were collected from the job seekers using a structured questionnaire. The questionnaire was useful to collect the quantitative data related to demographic characteristics and ICT competencies of job-seekers. The ICT competency aspects in the questionnaire were measured using the 5-point Likert scale which allowed the researcher to cover a wider geographical area using less time and cost as proposed by Krishnaswami and Ranganath (2010) that closed ended questions are quick to answer. Thus, a total of 384 structured questionnaires were administered by a researcher to job seekers who use PSRS e-recruitment portal to apply for jobs in the government of United Republic of Tanzania. However, only 379 questionnaires were very well completed and thus utilized for data analysis. This is equivalent to a response rate of 98.69%. This response rate is good in accordance to Garg and Kothari (2014) who posited that a response rate of more than 70% is good for statistical analysis. Similarly, the qualitative data from the key informants were collected using interview method. The interview was conducted to five ICT officers of PSRS on ICT skills, knowledge and experience.

Data analysis

The data were analysed using quantitative and qualitative techniques. In case of quantitative data, both descriptive and inferential statistics were used for analysis. Basic descriptive statistics such as mean and frequency were used to describe the sample and the characteristics of the respondents. The inferential statistics based on chi-square, Kendall’s tau-b correlation coefficient and binary logistic regression model was applied to examine the link between job-seekers’ competencies and the use of e-recruitment portal. The binary logistic regression model was applied since the use of e-recruitment variable dichotomized into two responses; 1= job-seeker uses PSRS e-recruitment portal and 0= if job-seeker do not use PSRS e-recruitment portal.
The following equation express the binary regression model as:

\[
\log \frac{\pi(x)}{1-\pi(x)} = \beta_0 + \beta_1 x_1 + \ldots + \beta_p x_p
\]

Whereby, \(\pi(x)\) represent the likelihood of e-recruitment portal to use and perform well, \(x_1, \ldots, x_p\) represent set of independent variables and \(\beta_0, \ldots, \beta_p\) represent parameters of respective independent variables. The qualitative data were analysed using thematic analysis. The qualitative data were transcribed from the interview notes and audio after the data collection. The data were typed and saved in Microsoft word format. The anchors codes were created for each research question and labels assigned to them. Then, the researcher prepared a matrix form with list of codes and group the codes based on participants’ responses and record number of their occurrences. Then a researcher created the themes of the highly mentioned codes. Consequently, the qualitative results were used to supplement quantitative results for every variable.

**Measurement of variables**

The dependent variable for this study is use of e-recruitment portal measured using binary responses coded as ‘1’= job-seekers use e-recruitment, ‘0’ = job-seekers do not use e-recruitment. On other hand, the independent variables were job-seekers’ ICT competencies measured categorically using five-point Likert scale (1= Strongly Disagree, 2= Disagree, 3= neither Disagree no Agree, 4= Agree, 5= Strongly Agree). The ICT competencies construct had seven items. The mean score criteria were used to generate a scale variable for construct ICT competencies. Thus, the ICT competencies were categorized into two levels using the overall mean score for decision. The overall mean score was 4.093. using the overall mean, the first category included items with average scores less than 4.093 and the second category included all items with average scores greater than 4.093. The first category was regarded as ‘disagreed to use e-recruitment and coded ‘1’, whereas the second was regarded as ‘agree to use e-recruitment’ and was coded ‘2’.

**Assumptions of logistic regression model**

Before running data in logistic regression model, assumptions relating to this model were tested and found to be acceptable.

- Firstly, the dependent variable must have binary responses or a dichotomy variable. This study’s dependent variable obeys this assumption. The dependent variable ‘use e-recruitment portal’ measured by binary responses ‘1’= job-seeker use e-recruitment portal to apply for job in public sector, ‘0’ if job-seeker do not use e-recruitment portal to apply for job in public sector

- Secondly, the model assumes that the independent variables are continuous and categorical. Independent variables in this study are in five-point Likert scales, which is categorical type.

- Thirdly, theoretically, the model should be fitted correctly. Neither over fitting nor under fitting should occur. The goodness of fit of the model was assessed using Hosmer and Lemeshow Goodness-of-Fit Test and the results (\(\chi^2 (4, N=379) = 2.901, p = 0.574\)), show that our logistic regression model for the assessment of job-seekers’ ICT competencies on use of e-recruitment portal fitted well to the data (\(\chi^2 (3, N=379) = 63.017, p= 0.000\)).

**Reliability**

The results show that, the overall Cronbach’s Alpha Coefficient of the seven ICT competence items is 0.82, which indicates that, data collection instruments were reliable as well as the collected data (Cronbach, 1951). As such, the construct ICT competence is good measure of job seekers’ use of e-recruitment portal.

**Results and discussion**

**Demographic characteristics of job-seekers**

**Sex of job-seekers**

The results in Table 1 indicate that, 53.3% (n=202) of surveyed job seekers were males and 46.7% (n=177) were females. This tells us that, most of the job seekers who use e-recruitment portal are males. This is supported by United Nations Conference on Trade and Development [UNCTAD], (2014); Mohamed, (2015) and Cai, Fan & Du (2017). Nevertheless, the difference between male and female is not significant (53.3%–46.7%=6.6%). In this study it was important to be aware of sex distribution among job seekers using e-recruitment portal of PSRS since equal gender representation is among of the worlds’ agendas in social, economic and political activities.
The statement which asks whether job seekers had a positive impact on job seekers by increasing their use of e-data portal to apply for jobs in URT government. The findings show that job seekers agree or not to possess ICT competencies to enable them use e-portals. The section presents results on the extent job seekers agree or not to possess ICT competencies to enable them use e-portals to apply for government jobs were middle aged people who have higher predisposition to innovative and open for change (Venkatesh et al., 2003; Mmari, 2013). These job seekers are flexible and ready to adapt and use new technologies including CTs, which is now widely used in job application and other social, economic and political undertakings (Vumila, Onyancha, Mtenga, 2021). The findings of this study are in line with the study conducted by Huang, Pan and Hsieh (2012) and Ojo et al., (2021) that younger users are more likely to use a new technology than older ones. It also gives an indication of the level of maturity and awareness. Thus, most job seekers were found to be above 20 years, which means were aware and mature enough to understand the questions and provide the required answers to fulfil the purpose of this study.

Education level of job-seekers

The findings in Table 1 shows that, majority of job seekers who use e-recruitment portal possess Bachelor degree education 58.0% (n=177) followed by those who have Certificate or Diploma level of education and Masters’ degree who were 19.8% (n=75) and 19.3% (n=73) respectively. The implication of the finding is that most of the job seekers have enough skills and knowledge to use e-recruitment portal, and knowledgeable enough to answer the questions in the questionnaire to inform this study. The level of education suggests that job seekers were able to read, understand and respond to the questions asked in the questionnaire. Therefore, the data provided by the respondents is considered reliable and appropriate to produce correct findings. These results were also found by Mofuga (2020). (Matimba & Musa, 2019; Mshanga, 2020; Matimba, 2021; Malekano, 2021) found that people with higher levels of education are likely to use new technology in different undertakings.

Work experience of job-seekers

Table 1 show that 50.9% (n=193) of surveyed job-seekers have job experience of less than one year, followed by job seekers with 1-5 years of experience who comprised 30.1% (n=114) of surveyed job-seekers. Also, those with experience between 6-10 years were 19.0% (n=72). About 92% and 58% of job-seekers with less than one year and 1-5 years job experience were not employed respectively. In addition, during in-depth interview with PSRS officials the study was informed that there are two categories of job seekers who use e-recruitment portal. The first comprise of those who have never been employed in the government who are either fresh from college/university or employed in private sector. The second category consists of those who are employed in government ministries, departments and agencies but seek for higher positions. This is why some of the job seekers have many years of work experience while others possess less than a year. Therefore, it can be concluded that both unemployed and employed people seek job in the URT government.

Extent of ICT competencies of job-seekers

The section presents results on the extent job seekers agree or not to possess ICT competencies to enable them use e-recruitment portal to apply for jobs in URT government. The findings in Table 2 show that items measuring ICT competencies construct had positive Mean of between 3.9604 and 4.2902 and Standard Deviations of between 0.74266 and 0.96200. The results show that the statement ‘I have good ICT knowledge’ recorded high average of 4.2902 (SD=.76648; range 2-5) indicating that there is very small data variability around the mean. The finding implies that job seekers strongly agreed to possess good ICT knowledge. This might affect job seekers in a positive way by increasing their use of e-recruitment portal of PSRS to apply jobs in URT government. Though the statement which asks whether job seekers had attended a seminar regarding the importance of using ICT scored the minimum

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<th>Measurement</th>
<th>Frequency</th>
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</table>

*Source: Field Data 2023*
averaged among all statement in ICT competencies construct, it still in the category of agree. The mean average was 3.9604 (SD=0.90910; range 1-5) signifying that the item possesses consistency data, and that majority of the respondents agreed to a great extent that they had attended a seminar regarding the importance of using ICT, which enhanced their knowledge and skills regarding the value of ICTs.

Table 2: ICT Competencies affecting Use of e-Recruitment Portal (n=379)

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can use the e-recruitment portal without assistance</td>
<td>379</td>
<td>1.00</td>
<td>5.00</td>
<td>4.1557</td>
<td>.96200</td>
</tr>
<tr>
<td>I have good ICT knowledge</td>
<td>379</td>
<td>2.00</td>
<td>5.00</td>
<td>4.2902</td>
<td>.76648</td>
</tr>
<tr>
<td>The government launched an ICT program in our society</td>
<td>379</td>
<td>1.00</td>
<td>5.00</td>
<td>4.2322</td>
<td>.83503</td>
</tr>
<tr>
<td>I am trained in ICT related devices</td>
<td>379</td>
<td>2.00</td>
<td>5.00</td>
<td>4.2269</td>
<td>.74266</td>
</tr>
<tr>
<td>I possess enough skills deal with online applications</td>
<td>379</td>
<td>1.00</td>
<td>5.00</td>
<td>4.0660</td>
<td>.85038</td>
</tr>
<tr>
<td>I attended a seminar regarding the importance of using ICT</td>
<td>379</td>
<td>1.00</td>
<td>5.00</td>
<td>3.9604</td>
<td>.90910</td>
</tr>
<tr>
<td>I had interacted with IT change agents</td>
<td>379</td>
<td>2.00</td>
<td>5.00</td>
<td>4.2216</td>
<td>.75834</td>
</tr>
<tr>
<td>Overall ICT competencies</td>
<td>379</td>
<td>1.00</td>
<td>5.00</td>
<td>4.1647</td>
<td>.83199</td>
</tr>
</tbody>
</table>

Source: Field Data 2023

Similarly, the results in Table 2 show that ICT competencies construct scored overall or average mean of 4.1647 (SD=8.3199; range 1-5). This means the construct has little dispersion and variability around the mean of the data set, on average. So, the values in statistical data set are close to the mean of a sample population. And since each statement in this construct scored mean average above 4.00 except for one (M=3.9604), the average mean falls in the strongly agree category in five-point Likert scale. This implies that most if not all job seekers agreed to a great extent that they possess ICT competencies in terms of knowledge, skills and education obtained from seminars and government programs. Also, most job seekers have experience with ICTs due to their interaction with a change agent such as advertisements, promotions and non-governmental projects.

The ICT competencies based on knowledge and skills of using communication and devices and technologies are among very important user factors, which determine the use of e-recruitment portal for application of jobs in public sector. According to Technology Acceptance Model, users will be ready to use a technology when they perceive it to be easy to use given their level of understanding and comprehension of new technology. On the contrary, if the new technology is difficult and need specialized knowledge then people will need training so that to be able to apply the technology (Allahawiah & Tarawneh, 2015; Chaitra & Rajasulochana, 2018). Therefore, given the fact that job seekers agreed to have the skills and knowledge it this study’s point of view that e-recruitment is highly used for job application. In the light of this, colleges and universities need to provide an adequate ICT skills and knowledge to students because it is helpful in the labour market when searching for jobs. This is supported by Mohamed (2015) who iterated that skills and knowledge regarding the use of technology are essential for its usability and level of use.

Moreover, job seekers also agreed to possess good experience with ICTs, which was attained through different seminars and trainings while in school and after school. According to Rohles, Backes, Fischbach, Amadieu and Koenig (2022), experience with a technology increases the chance that people will apply that technology in their daily life. Specifically, Leonidas and Tibuhinda (2023) ascertained that most users of ICTs had prior experience before using it. The findings of this study are also in line with McCarthy, Bauer, Truxillo, Campon, Iddekinge, & Campon (2018), and Kowshik, Shabnaz, Rodrick and Islam (2018), who agreed that experience with e-recruitment, is crucial determinant of use of e-recruitment portal for job application.

Correlation between ICT competence and use of e-recruitment portal

Regarding ICT competence and use of PSRS e-recruitment portal to apply for jobs in the public sector, findings in Table 3 shows that job seekers ability to use the e-recruitment portal without assistance significantly \( \chi^2(4, N=379) = 12.755, p=0.013 \) related to job seekers’ use of e-recruitment to apply for jobs in the public sector, and the link based on Kendall’s tau b correlation coefficient is negative and moderate \( (r_{sb}=-.129, p=0.111) \). This signifies that, ICT competence is an essential determinant of job seekers’ use of PSRS e-recruitment portal to apply for jobs in the public sector. Similar results that show moderate relationship were observed for item ‘the government launched an ICT program in our society’ \( \chi^2(4, N=379) = 54.136, p=0.000; r_{sb}=-.194, p=0.001 \) and item ‘I have good ICT knowledge’ \( \chi^2(3, N=379) = 35.701, p=0.000; r_{sb}=-.235, p=0.000 \). In case of item which says ‘I possess enough skills deal with online applications’, the findings in Table 3 show significant relationship with job seekers use of PSRS e-recruitment portal to apply doe jobs in the public sector \( \chi^2(4, N=379) = 74.363, p=0.000 \). The Kendall’s tau b correlation coefficient also shows significant association between job seekers’ skills to deal with online job applications and their use of PSRS e-recruitment portal to apply doe jobs in the public sector, and the association is negative and strong \( (r_{sb}=-.338, p=0.000) \). This means that having enough skills regarding online job application is a good predictor of job seekers’ use of PSRS e-recruitment portal to apply doe jobs in the public sector.

However, Table 3 also show that the item ‘I am trained in ICT related devices’ was significantly related \( \chi^2(3, N=379) = 56.148, p=0.000 \) to job seekers’ use of PSRS e-recruitment portal to apply for jobs in the public sector. Moreover, a Kendall’s tau b coefficient of correlation depict a negative and strong association between training given to job seekers on how to use ICT related devices and job seekers’ use of PSRS e-recruitment portal to apply for jobs in the public sector, which was statistically significant \( (r_{sb}=-.282, p=0.000) \). This means that job seekers’ training on how to use ICT related devices is a determinant of job seekers’ use of PSRS e-
recruitment portal to apply for jobs in the public sector. Similar results were found for item ‘I attended a seminar regarding the importance of using information and communication technologies’, ($\chi^2 (4, N=379) = 37.775, p=.000$; $\tau_b=-.268$, $\rho=.000$) and item ‘I had interacted with IT change agents’, ($\chi^2 (3, N=379) = 48.595, p=.000$; $\tau_b=-.280$, $\rho=.000$).

Table 3: Correlation of ICT Competencies and Use of e-Recruitment Portal (n=379)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Chi square value</th>
<th>Chi square p</th>
<th>df</th>
<th>Kendall’s Value</th>
<th>Kendall’s tau b</th>
<th>Kendall’s tau b p</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can use the e-recruitment portal without assistance</td>
<td>12.755</td>
<td>0.013</td>
<td>4</td>
<td>-0.129</td>
<td>0.011</td>
<td></td>
</tr>
<tr>
<td>I have good ICT knowledge</td>
<td>35.701</td>
<td>0.000</td>
<td>3</td>
<td>-0.235</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>The government launched an ICT program in our society</td>
<td>54.136</td>
<td>0.000</td>
<td>4</td>
<td>-0.194</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>I am trained in ICT related devices</td>
<td>56.148</td>
<td>0.000</td>
<td>3</td>
<td>-0.282</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>I possess enough skills deal with online applications</td>
<td>74.363</td>
<td>0.000</td>
<td>4</td>
<td>-0.338</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>I attended a seminar regarding the importance of using ICT</td>
<td>37.775</td>
<td>0.000</td>
<td>4</td>
<td>-0.268</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>I had interacted with IT change agents</td>
<td>48.595</td>
<td>0.000</td>
<td>3</td>
<td>-0.280</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Overall ICT competencies</td>
<td>42.675</td>
<td>0.000</td>
<td>1</td>
<td>-0.336</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field Data 2023

Generally, the findings in Table 3 show that, overall correlation of construct ‘ICT competence’ among job seekers is highly significant ($\chi^2 (1, N=379) = 42.675, p=.000$) with their use of PSRS e-recruitment portal to apply for jobs in the public sector. The Kendall’s $\tau_b$ correlation coefficient also shows high significant association between ICT competence among job seekers and their use of PSRS e-recruitment portal to apply for jobs in the public sector. The association is negative and strong ($\tau_b=-.336$, $\rho=.000$). This result entail that job seekers’ use of PSRS e-recruitment portal to apply for jobs in the public sector depends on their competence in using ICTs. So, ICT competence is a good determinant of use of PSRS e-recruitment portal to apply for jobs in the public sector.

Moreover, a binary logistic regression was performed to estimate the association of job seekers’ ICT competencies and use of PSRS e-recruitment portal to apply for jobs in public sector. Findings in Table 4 indicate that the overall logistic regression model was statistically significant, ($\chi^2 (4, N=379) = 63.017, p = .000$). The model explained 15.3% (Cox and Snell $R^2$) to 26.0% (Nagelkerke R$^2$) of the variance in job seekers’ use of PSRS e-recruitment portal to apply for jobs in public sector, and correctly classified 83.6% of responses given by job seekers. The Cox & Snell R Square and Nagelkerke R Square, are referred to as pseudo R-squared and are both methods of calculating the explained variation of independent variables on dependent variable (Nagelkerke, 1991). They measure the quality of the prediction of the dependent variable by independent variables (Hu, Shao and Palta, 2006). In this model the -2 Log Likelihood statistics is 274.727, which is far from zero, and thus, a model fits well at predicting the association between job-seekers’ ICT competence and use of PSRS e-recruitment portal to apply for jobs in public sector. The -2 Log Likelihood measures how poorly the model predicts the decisions and the smaller the statistic the better the model (Cox, 1975; Nagelkerke, 1991). In addition, Hosmer-Lemeshow test ($\chi^2 (4, N=379) = 2.901, p= 0.574$), which means goodness of fit of a model is attained and thus data predicts well the association of job-seekers’ ICT competencies and use of PSRS e-recruitment portal to apply for jobs.

Table 4: Results based on Logistic Binary Regression Model (N=337)

<table>
<thead>
<tr>
<th>Variable(s)</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>ICT competence (1)</td>
<td>.868</td>
<td>.376</td>
<td>5.328</td>
<td>.021</td>
<td>2.381</td>
<td>1.140</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.475</td>
<td>.388</td>
<td>80.093</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Source: Field Data 2023

Regarding the relationship between job-seekers’ ICT competence and job seekers’ use of PSRS e-recruitment portal to apply for jobs in the public sector (Table 4), it was found that job seekers who agreed to have good ICT competencies were significantly ($p=0.021$) two times more likely to report that they use PSRS e-recruitment portal to apply for jobs in the public sector compare to those who disagreed to have good ICT competencies (OR=2.381, 95% CI [1.140, 4.975]). Moreover, the logistic regression coefficient is positive ($\beta=0.868$) implying that as ICT competencies of job seekers increases use of PSRS e-recruitment portal to apply for jobs in the public sector also increases. This means that a unit increases in ICT competencies is associated with an increase of the use of PSRS e-recruitment portal to apply for jobs in the public sector by 0.868 units. The standard error (SE) of estimate reveals a small chance 0.376 that the estimate could be wrong, and Wald test value (5.328) is very large than SE to ensure the significant relationship between predictor and outcome variables.
Therefore, the hypotheses $H_2$: ICT competence has no positive and significant influence on the use e-recruitment portal in Tanzanian public sector was rejected. The plausible explanation is that, having knowledge, skills, experience and training on ICT increases the effectiveness in using e-recruitment portal to forward job application thereby making job seekers accept and adopt the e-recruitment as new way of applying for jobs, and hence increases the job seekers’ use of PSRS e-recruitment portal to apply for jobs in the public sector. The findings are in line with theoretical thinking of UTAUT-1 and Integrated Management Competence Model, which identifies knowledge, skills, abilities, traits, and behaviour (such as commitment) needed to enable effective performance of job application tasks using e-recruitment portal.

Moreover, during in-depth interview discussion the key informants informed the study that a significant number of job seekers lack skills and knowledge on how to use e-recruitment properly. A lot of job seekers submit incomplete job applications and some are not able to go through the whole process. There has been a tendency of submitting a job application without proper certification and other required credentials. Also, the practice of submitting job application to positions that requires higher education such as masters or PhD by job seekers with either Diploma or Bachelor degrees is common among job seekers. This suggests that job seekers lack technical knowhow to enable them use e-recruitment effectively. The findings corroborate with Allahawiah and Tarawneh (2015) who also indicated that ICT competencies such as experience with ICT related activities, ICT skills and knowledge have positively influenced the use technology like e-recruitment. According to Matibwa (2021), skills and knowledge related to ICTs can have considerable impact on the use of human resources management information systems. Moreover, Alsultanhy & Alotaibi (2015) revealed the similar results.

Conclusions

The main objective of this proposed study was to examine the influence of job seekers’ ICT competencies and use of e-recruitment portal to apply for jobs in public sector. Based on the findings of this study, ICT competencies are important determinants of using e-recruitment portal to apply for jobs. It has become evident that ICT knowledge affects job seekers’ use of PSRS e-recruitment to apply for job in the public sector. Job seekers with ICT knowledge has a higher propensity of using e-recruitment portal effectively to apply for job. Skills and experience on ICT based applications give job seekers confidence of using e-recruitment in job application. With confidence user is likely to use the technology without a sense of prejudice. It is better for job seekers to use e-recruitment because it maximizes the effectiveness.

The use of e-recruitment is important for the frequency of use, effectiveness of submitting job application online, and acceptance of the technology. The completeness and quality of job applications can be improved when job seekers are satisfied with e-recruitment portal. Therefore, this study concludes that job-seekers’ ICT competencies are important factors influencing the use of PSRS e-recruitment portal to apply for jobs in the public sector. The study recommends that management of PSRS has to develop user-friendly e-recruitment portal. Job portals should focus on minimizing entry of irrelevant information, which may not serve neither candidate nor organization requirement. Applying for a job more or less should be a click away for the candidates. Also, it is recommended that PSRS take initiatives to create awareness of prospecting job seekers about, usage of e-recruitment portal through seminar or training program. This will be beneficial for the websites to gain publicity and at the same time will put candidates at ease in terms of usability of job portals.

Regarding the area for further studies, this study focused on job seekers located in Dodoma City alone whilst the job seekers are all over Tanzania. Thus, for more representation of the population future studies are recommended to focus on other regions and cities from Tanzania. Likewise further studies may focus other factors that may influence the use of electronic recruitment portal like cultural, economic and social factors.

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Author Contributions: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing—Original Draft Preparation, Writing—Review And Editing by authors with equal participation. All authors have read and agreed to the published the final version of the manuscript.

Institutional Review Board Statement: Ethical review and approval were obtained for this study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

Conflicts of Interest: The authors declare no conflict of interest.

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