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# Article

# Demographic characteristics and employability skills among tertiary graduates in Ghana: Evidence from the National Service Scheme

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# **DEVELOPMENT ECONOMICS | RESEARCH ARTICLE**

# Demographic characteristics and employability skills among tertiary graduates in Ghana: Evidence from the National Service Scheme

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economics & finance

Moses Segbenya<sup>1</sup>\*, Nana Yaw Oppong<sup>2</sup>, Emmanuel Arthur Nyarko<sup>3</sup> and Sally Abena Baafi-Frimpong<sup>4</sup>

Abstract: This study examined the effect of demographic characteristics on graduates' perceptions of employability skills in Ghana. Three demographic characteristics-gender, educational level and sector of national service were used against nine employability skills. The explanatory sequential design from the pragmatists' philosophical paradiam was adopted for the study. A sample of 2269 national service persons and 363 employers at workplaces where graduates had their national service was drawn from a study population of 77,962. Thirty participants, including 17 graduates and 13 employers, were also interviewed. Data were collected with the help of a questionnaire and a semi-structured interview guide. Data were analysed with descriptive and inferential statistics such as means, standard deviations, Pearson correlation matrix and independent sample t-test. The study found three most important employability skills to employers: the ability to work under pressure with less supervision, the application of computer and technical skills, and processing and interpreting numerical data. A novel finding of the study was that gender and academic qualification were found to have significantly influenced the application of computer and technical skills, numerical data, ability to work under pressure, and entrepreneurial skills. Male graduates had more appreciation for mathematical and information and communication technology (ICT)related employability skills, while female graduates had a more positive inclination towards emotional intelligence skills and written and verbal communication skills. It was recommended that more attention be given to a partnership between academic institutions, the national service secretariat and the industry to avoid a mismatch between employability skills acquired by graduates and employers' requirements. The findings of this study, therefore, have implications for teaching pedagogies at tertiary levels and training for job entrants by industry.

Subjects: Personnel Selection, Assessment, and Human Resource Management; Human Resource Management; Human Resource Management

Keywords: Employability skills; demographic characteristics; gender; educational level; sector of national service





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### 1. Introduction

The relevance of employability skills for employers, job entrants, educational institutions and governments globally cannot be underestimated (Prikshat et al., 2019). Employers need a human resource (including new job entrants) with the requisite employability skills to be able to replace lost talents due to retirement, death and voluntary labour turnover (Prikshat et al., 2019). Thus, the chances of gaining employment for every new job entrant, including graduates, depend on the skills required by employers (World Economic Forum, 2014). For this reason, trainers of graduates need to pay attention to their career aspirations and the skills needed to succeed (Frimpong et al., 2015; Prikshat et al., 2019; Rizvi et al., 2013; Santiana et al., 2022). One key area for consideration is the tertiary level's academic programmes before transiting into the job market (Prikshat et al., 2019). The relevance of employability skills for tertiary graduates goes beyond the required skills demanded by employers. It includes entrepreneurial skills that could contribute to employment creation to support themselves and the national socio-economic development (Ibna Seraj et al., 2022; Rizvi et al., 2013; Santiana et al., 2022).

The burden of acquiring the requisite employability skills requires that educational institutions introduce relevant academic programmes that can provide essential employability skills (Gary, 2018). Additionally, educational institutions must offer diverse academic programmes that cater for various skills required by various industries in public and private sectors (Gary, 2018). Thus, the nexus of industry and academia is needed to be strengthened to achieve a useful linkage. The curriculum remained a vehicle through which higher educational institutions equipped graduates with the requisite employability skills (Segbenya, Oppong, et al., 2021). Furthermore, educational institutions use industrial attachment or apprenticeship training with industry as a form of praxis for theoretical academic programmes (Rizvi et al., 2013). Thus, the role of higher education in the acquisition of relevant employability skills cannot be underestimated.

Governmental, non-governmental and international organisations worldwide have provided support for the acquisition of relevant employability skills among graduates (Santiana et al., 2022). These support systems manifest through the provisions of skills training such as targeted vocational training programmes and life skill training programmes focused on financial management, effective negotiation and communication, critical thinking, problem-solving, leadership and negotiations, among others. Employability skills required by employers in the 21<sup>st</sup> century have been classified into four main categories (Prikshat et al., 2019). The first comprises intellectual resources such as foundation and cognitive skills. The second are meta-skills which comprise information technology skills, teamwork and political skills, and communication and system thinking skills. The third category is job-specific resources, such as core business skills, leadership skills and self-management skills (Prikshat et al., 2019).

Although academic institutions continue to churn out several graduates every year, employers' continue to complain about inadequate requisite employability skills among graduates amid high graduates unemployment (Gary, 2018). Employers often complain of a lack of fit between skills acquired by graduates entering the job market and the skills required in various sectors and occupations by employers (Segbenya, Oppong, et al., 2021). These discrepancies manifest in the form of skills shortage, qualification mismatch, or overqualification. This means that the contents of academic programmes and courses have largely failed to meet the expectations of the industry in terms of the required 21st-century employability skills by employers (Gary, 2018). Furthermore, the industry and academia linkage is still weak. This has an implication for quality education as captured by Sustainable Development Goal Four by 2030.

Governments' attempt to bridge or reduce the discrepancies between skills required by employers and skills acquired from academic institutions as well as recouping part of the investments made into educating undergraduates, have introduced mandatory national service as a practical training period for graduates (Gary, 2018). The mandatory national service is used by countries like Turkey, Switzerland, Singapore, Israel, South Korea, North Korea, Eritrea, Nigeria, Norway, Sweden, and Ghana, among other 20 African countries, to equip graduates transiting into the job market with employability skills. In Ghana, compulsory or mandatory national service ensures that "graduate under the age of 40 years from tertiary institutions undertakes a compulsory one-year national service in all sectors of the economy to enhance their employability skills (Santiana et al., 2022).

Mandatory or compulsory national service is a national policy where all tertiary graduates are posted to all parts of the country for a one-year on-the-job experience (Santiana et al., 2022) before transiting into the job market. The National Service Scheme of Ghana has been in operation since 1973 'for skill development amongst tertiary graduates after the completion of an accredited degree or diploma programme to support the national human resources needs in various sectors such as education, technology and agriculture, among others. National service personnel are paid an allowance of less than \$100 a month after being posted to private or public sector organisations requesting their services (British Council, 2016).

# 1.1. Study gap

Studies have revealed at the global level that employability skills are critical for tertiary graduates transiting into the job market (Gary, 2018; Ibna Seraj et al., 2022; Prikshat et al., 2019; Segbenya et al., 2022). Studies on national service have focused on the contributions, motivation, and perception of challenges associated with national service (Ajayi, 2016; British Council, 2016; Frimpong et al., 2015; Schroyens et al., 2019). Other recent studies were on the effects of COVID–19 on the acquisition of employability skills and the role of national service in enhancing employability skills among tertiary graduates in Ghana (Segbenya, Baafi-Frimpong, et al., 2021). All these existing studies did not consider the effects of demographic characteristics of tertiary graduates on the employability skills acquired during national service. Meanwhile, employability skills could be perceived differently based on the qualifications, gender and sector of employment for graduates (Ibna Seraj et al., 2022; Santiana et al., 2022; Segbenya, 2014; Segbenya, Baafi-Frimpong, et al., 2021). Thus, the aim of this study is to examine the influence of demographic characteristics on employability skills among tertiary graduates. Additionally, the perspective of employers on employability skills is necessary to guide what employability skills to be pursued by graduates as well as realign academic curriculum to equip graduates with employability skills (Segbenya, 2014).

Apart from the unique focus of this study on the influence of demographic characteristics on employability skills, this study also capitalised on the limitations of the previous studies to fill the lacuna in the literature (Ajayi, 2016; British Council, 2016; Frimpong et al., 2015; Schroyens et al., 2019). That is, this study has national coverage as it draws participants from all sixteen administrative regions of Ghana. This national study gives a better picture of employability skills among tertiary graduates in Ghana. The analytical tools were also not limited to descriptive statistics, but inferential analytical tools were also used to better generalise the outcome of the study to its population.

The outcome of this study will benefit tertiary educational institutions and their graduates, as well as employers in the industry who employs the graduates based on their employability skills. This study, therefore, contributes to the literature on industry and graduate employability skills. This study also measures the fit between employability skills acquired by national service persons and what employers require. This study further examines how gender, sector of national service, and educational levels of graduates influence how they perceive employability skills acquired during mandatory national service in Ghana. Specific research questions guiding the study were:

- (1) How do the employability skills acquired by tertiary graduates relate to what employers in Ghana require?
- (2) How does the gender/sex of tertiary graduates influence their perception of employability skills?

- (3) How do the academic qualifications of tertiary graduates influence their perception of employability skills?
- (4) How does the sector of national service for tertiary graduates influence their perception of employability skills?

# **2 Literature Review**

# 2.1 Theoretical perspectives on employability skills training

The social learning theory (SLT) developed by (Ajayi, 2016) underpins this study. The basic assumption of the theory was that skills as part of behaviours are not innate but are learned through structured learning interventions. It is argued that detailed integration of the theory in examining graduate employability skills development will tackle and reduce the controversy and uncertainty about the fit between the graduate skills required by industry and those emphasised at academic institutions training graduates.

The three types of behaviours explained by social learning theory are respondent conditioning, observational conditioning, and operant conditioning (Ajayi, 2016), suggesting that new patterns of behaviour can be acquired through direct experience or by observing the behaviours of others. Respondent conditioning is the most fundamental learning mechanism and suggests that all human beings learn to adapt to their environment. This type of learning depends on the influence of certain environmental stimuli on the uncontrollable responses of a person. An example is a student automatically responding to the learning experience by being willing to meet every learning demand placed on him/her. The second principle of the SLT, observational learning (Ajayi, 2016), relates to where the behaviour of the learner imitates others over time by reinforcing consequences. Through this approach, instructions are given, instructions are obeyed, and reinforcement consequences ensue. This suggests that when learning employability skills is provided appropriately by trainers of graduates, it will greatly influence them.

Operant conditioning, the third principle, is more appropriate for this study because the third pillar posits that consequences follow a behaviour. Operant conditioning occurs as a natural process through which people learn from the consequences of their actions and accordingly modify subsequent behaviour. Related to this process is the human beings' attempt to acquire a new behaviour or modify an existing one through the operant learning process. This principle of the theory fits the current model of imparting and internalising employability graduate skills, i.e., production of what graduates learn and the applicability later on the job.

The consequences associated with operant behaviour are categorised into four major forms- i) something bad is taken away (negative reinforcement); ii) something good is presented (positive reinforcement); iii) something good is taken away (negative punishment), and iv) something bad is presented (positive punishment). The reinforcement, either positive or negative, is rewarding (Clarke, 2018). Here, negative reinforcement can be related to taking away the ignorance of the student's learning experience before enrolling in the undergraduate programme, and the "good" learning experience is presented. Positive reinforcement is the core consideration of this study. It involves how the learning experiences presented to the graduates are to prepare them adequately for the job(s) ahead as expected by employers.

# 2.2 An empirical and perspective on employability skills

Prikshat et al. (2019) conducted a study on the conceptualisation and scale development of a work-readiness integrated model. A sample of 362 human resource professionals and managers were the respondents for the study. The study used a resource-based view to conceptualise a multi-dimensional model. The study identified four key areas of employability skills: intellectual, personality, meta-skills and job-specific skills. The final measuring framework developed further has ten subscales and 53 items for measuring employability skills.

sub-scales were core business skills, communication, information technology, system thinking, teamwork, leadership, self-management, cognitive skills, foundation skills, innovation, and creativity.

Segbenya, Oppong, et al. (2021) also conducted a study on the role of national service in enhancing employability skills among tertiary graduates in the Central Region of Ghana. The study used a quantitative approach and a longitudinal descriptive design to draw 375 national service personnel from the Central Region of Ghana for the study. The study found that paying attention to details, working effectively with others, and effective written communication were the top three employability skills acquired by tertiary graduates. The preferred employer was the government, and the preferred industry was education, financial services and public administration with defence. It was recommended that the national service secretariat should post-national service personnel to organisations that reflect the career aspirations of personnel.

# 2.3 Conceptual perspectives on employability skills

The study of (British Council, 2016) also examined skilled labour shortage for apprenticeship system in Ghana from a qualitative perspective. Twenty-five respondents from industry and regulators were drawn and interviewed. Data were analysed qualitatively, and the study found that responsible factors for the skilled labour shortage in Ghana were: lack of regulations, ineffective apprenticeship programmes, training mismatch, outdated training programmes, and under-investment in education and training. The study concluded that challenges associated with the availability of skilled labour in Ghana affected the ability of firms to find skilled labour across industries. Therefore, it was recommended that social partnerships between training and apprenticeship programmes. Based on the literature reviewed, a conceptual framework to guide the study was designed and can be seen in Figure 1. The framework highlights the interconnectedness of the variables of the study.

Employability skills are generally classified into hard and soft skills. In terms of employability, soft skills are characterized as competencies not directly tied to a particular job but are fundamental and basic as well as vital for any position because they are more concentrated on how individuals relate to others at the workplace (Bariu et al., 2022; Clarke, 2018; Ibna Seraj et al., 2022; Santiana et al., 2022). Critical thinking, decision-making, communication, problem-solving, self-confidence, negotiation, interpersonal, teamwork and work ethics, and self-management were the



Figure 1. Conceptual framework showing the effects of demographic characteristics of tertiary graduates on their perception of employability skills. ten soft skills identified in studies as necessary for employability (Bhattacherjee et al., 2023; Hayimro et al., 2022; Hoque et al., 2023; Ikutal et al., 2023; Jiang et al., 2023; Mesfin et al., 2022; Mezhoudi et al., 2023; Naderi Mahdeei et al., 2023; Syed et al., 2022; Xia et al., 2022; Yawson & Yamoah, 2023)

On the contrary, hard skills are specialized abilities required for a given work and are helpful for the technical tasks that the industry values most, future job profiles, and the creation of educational curricula (Damoah et al., 2021; Fatima Warraich & Ameen, 2011; Ibna Seraj et al., 2022; Mesfin et al., 2022; Santiana et al., 2022; Sarkar et al., 2020; Segbenya, Baafi-Frimpong, et al., 2021; Segbenya, Oppong, et al., 2021; Yael et al., 2022). For instance, according to (Bariu et al., 2022; Segbenya, Baafi-Frimpong, et al., 2021) IT workers require knowledge of standard software applications, programming languages, the ability to create user-friendly graphical user interfaces, databases, networking, and computer hardware. Thus, according to the literature, technical skills are important for a specific industry, and if workers want to be successful in their employment, they must learn how to use them. A summary of the soft and some technical skills is presented in Appendix A.

# 3. Method

# 3.1. Research design

The study used the explanatory sequential design from the pragmatists' philosophical perspective (mixed research method). The design help to understand existing circumstances surrounding the discrepancy between employability skills acquired by tertiary graduates and the employability skills required by employers (if any) (Gravetter & Forzano, 2014; Segbenya et al., 2023; Segbenya, Baafi-Frimpong, et al., 2021). According to (Segbenya, 2012), this approach normally uses qualitative data to confirm or disconfirm the quantitative data and fill the gaps left by the quantitative data (Creswell, 2014). is of the view that the design involves collecting quantitative data in the first phase, analysing the results, and then using the results to plan the second qualitative phase. Thus, the quantitative results guide the researcher to know which participant to select for the qualitative phase and the types of questions that will be asked.

A sample of 363 employers and 2,269 national service personnel (based on Krechie and Morgan's (1970) Sample Determination Table) were drawn from a study population of 77,962 national service personnel posted to both public and private sectors for the 2019/2020 national service year (Schroyens et al., 2019; Segbenya, Baafi-Frimpong, et al., 2021). Additionally, 13 and 17 employers and graduates, respectively, were selected for interviews for the qualitative data of the study. The 30 interviews were deemed appropriate and adequate because it was at this point that no new information was emerging from the field (Saturation).

# 3.2. Sampling procedure

Due to the COVID-19 pandemic, the snowball sampling technique was preferred for the study because of the introduction of a shift system for workers to allow some of them to work from home. Additionally, the study was a national one. Therefore, the snowball sampling helped to identify respondents to help the researchers find the remaining respondents through their recommendations (Schroyens et al., 2019). In addition, the simple random sampling technique was employed to select employers from various sectors. However, participants (graduates and employers) were later purposefully selected and interviewed due to the design of the study.

# 3.3. Research instruments

Due to COVID-19 and the shift systems at workplaces, a google soft copy version of the questionnaire was developed and sent to respondents, who also forwarded it to other national service respondents and their employers. The items of the adapted questionnaire (from Prikshat, Kumar & Nankervis, 2019) were measured on a four-point Likert scale (Strongly Disagree = 1, Disagree = 2, Agree = 3 and strongly Agree = 4). The four-point Likert scale was

adopted to avoid the neutral position in a five-point Likert scale where respondents will neither agree or disagree. This study was of the view that such a neutral position of respondents could affect the final results if mean and standard deviations are used to report the results for the items or variables of the study.

The Likert Scale, commonly used in social science research, was adopted for this study because it affords the researchers to get a large self-report from respondents' extent of agreement or disagreement with given guestions (Segbenya et al., 2023). Because the responses are fixed, the data collection and analysis is very swifter as compared to other scales or information from openended, gualitative survey questions. Although questions with simple yes or no responses give basic data, they do not provide subtle differences in opinion (Fatima Warraich & Ameen, 2011). By providing a variety of answers, the Likert Scale adopted in this study gives further and better detail, which is why it's often used in psychological and social science research (Fatima Warraich & Ameen, 2011, Frimpong et al., 2015, Gary, 2018, Gravetter & Forzano, 2014, Thyer & Myers, 1998 - Yawson & Yamoah, 2023). The questionnaire had two main sections or parts centred on the respondents' demographic characteristics and the research questions guiding the study. The aualitative data were collected with a semi-structured interview guide, focusing on the demographic characteristics of respondents and the research questions guiding the study. The validity of the research instrument was checked with Cronbach Alpha and a value of 0.942 for the composite items measuring employability skills. The questionnaire was therefore deemed acceptable and was used for the data collection since the minimum threshold of .70 was adequately met.

The quantitative data collection was done in 2020, while the qualitative data were also collected in October 2022. Details of the data collection phases can be seen in Figure 2. All variables met the minimum 0.70 Cronbach Alpha threshold as suggested by (Ayentimi et al., 2018; National Service Secretariat, 2019), which indicates that the questionnaire was good to be used. Additionally, the researchers ensured that all ethical principles, such as anonymity, confidentiality, freedom to participate and withdraw, and no harm to subjects, were adhered to while collecting the data. The data gathered from the questionnaire were analysed with both descriptive and inferential statistics.



Figure 2. Data collection processes for the explanatory sequential design for the study.

Table 1. Demogra	phic characteristic	s of respondents		
Demographic Characteristics		Graduates	Employers	Total
Gender				
Female	No	1082	308	1390
	%	47.7%	84.8%	52.8%
Male	No	1187	55	1242
	%	52.3%	15.2%	47.2%
Total	No	2269	363	2632
	%	100.0%	100.0%	100.0%
Highest Academic qualifications				
Diploma	No	2135	0	2135
	%	94.1%	0.0%	81.1%
First Degree	No	134	165	299
	%	5.9%	45.5%	11.4%
Masters Degree	No	0	198	198
	%	0.0%	54.5%	7.5%
Total	No	2269	363	2632
	%	100.0%	100.0%	100.0%
Sector of national service/ employment				
Education	No	2189	77	2266
	%	96.5%	21.2%	86.1%
Health	No	44	99	143
	%	1.9%	27.3%	5.4%
IT and	No	7	22	29
Telecommunication	%	0.3%	6.1%	1.1%
Manufacturing and	No	4	44	48
wholesale	%	0.2%	12.1%	1.8%
Electricity, gas and	No	9	88	97
water	%	0.4%	24.2%	3.7%
Hotels and	No	8	33	41
Restaurants	%	0.4%	9.1%	1.6%
other Government	No	1	0	1
institutions	%	0.0%	0.0%	0.0%
Others	No	7	0	7
	%	0.3%	0.0%	0.3%
Total	No	2269	363	2632
	%	100.0%	100.0%	100.0%

(Continued)

Demographic				
Characteristics		Graduates	Employers	Total
Sector category				
Public	No	2229	286	2515
	%	98.2%	78.8%	95.6%
Private	No	40	77	117
	%	1.8%	21.2%	4.4%
Total	No	2269	363	2632
	%	100.0%	100.0%	100.0%

Source: Field survey (2021); N= 363 employers & 2269 Tertiary Graduates.

# 4. Results of the study

The presentation of the results of the study in this section is in two parts: results for the demographic characteristics and the research question of the study. The results on the demographic characteristics of the respondents are presented in Table 1. It is clear from Table 1 that the majority of the national service respondents were males (52.3%), had their national service at educational institutions (96.5%), were diploma holders from Colleges of Education in Ghana (94.1%) in the public sector (98.2%). Furthermore, the demographic characteristics, as indicated in Table 1, show that the majority of the employers involved in this study were females (84.8%), master's degree holders (54.5%), were in the health institutions (27.3%), in the public sector (78.8%). The demographic results for this section are to help readers to appreciate the background of respondents in terms of the dimensions reported to better understand the main results reported about these same respondents in the main analysis.

# 4.1. Research question one: how do the employability skills acquired by tertiary graduates relate to what employers in Ghana require?

The results of research question one can be seen in Table 2. Among all the nine employability skills from the literature presented to both employers and tertiary graduates in Ghana, it is clear that the skills acquired by tertiary graduates do not match what employers require. Apart from logical reasoning and critical thinking, organisational and leadership skills and working effectively with others/emotional intelligence ranked by both employers and university graduates as  $6^{th}$ ,  $8^{th}$  and  $9^{th}$  important employability skills, all the remaining employability skills considered in this study were ranked differently. For instance, employers ranked the ability to work under pressure and under little supervision as the number one important employability skill (M = .1504, SD = .09170), while tertiary graduates ranked these same employability skills as the  $4^{th}$  important skills acquired (M = .1024, SD = .09836).

The second most important employability skill, numeracy/processing and interpreting numerical data (M = .1371, SD = .08822) for employers, was again ranked  $3^{rd}$  by tertiary graduates (M = .1301, SD = .09820). Application of computer and technical skills ranked as the  $3^{rd}$  most important employability skills by employers (M = .1214, SD = .09289), were rather ranked  $1^{st}$  by tertiary graduates. The results mean that there was a disparity in skill acquisition and skills required by employers.

# 4.2. Justifications for ranking of employability skills by stakeholders

It is clear from the descriptive results in Table 2 that there were top five employability skills that cut across both graduates and employers. These skills were the application of computer and technical skills, numeracy/processing and interpreting numerical data, entrepreneurial skills, the

Table 2. Emplo	oyability skills acd	quired by gradua	tes and require	ed by employers					
			Graduates				Employers		
Code	Employability skills	z	Mean	Std. Dev.	Ranking	z	Mean	Std. Dev.	Ranking
ES1	Application of computer and technical skills	2269	.1581	.09754	1 st	363	.1214	.09289	3rd
ES2	Numeracy/ Processing and interpreting numerical data	2269	.1301	.09820	3rd	363	.1371	.08822	2 <sup>nd</sup>
ES3	Effective verbal and written communication	2269	.0925	.09624	7 <sup>th</sup>	363	.1164	.10497	5 th
ES4	Paying attention to detail	2269	.0953	.09539	5th	363	.1214	.09149	4 <sup>th</sup>
ES5	Entrepreneurial skills	2269	.1407	.09545	2 <sup>nd</sup>	363	.1073	.10076	7 <sup>th</sup>
ES6	Working effectively with others/ Emotional Intelligence	2269	.0148	.01557	d <sup>th</sup>	363	.0177	.01628	9 <sup>th</sup>
ES7	Organisational and leadership skills	2269	.0378	.03774	8 th	363	.0376	.04012	8 <sup>th</sup>
ES8	Ability to work under pressure & less supervision	2269	.1024	.09836	4 <sup>th</sup>	363	.1504	02100.	1 st
									(Continued)

			Graduates				Employers		
ES9	Logical reasoning and critical thinking	2269	.0928	86760.	9 <sup>th</sup>	363	.1158	26760.	6 <sup>th</sup>
Keys	<b>ES1</b> = Application ( Paying attention t to work under pre	of computer and te o detail ; <b>ESS</b> = Entri sssure & less superv	chnical skills; <b>ES2</b> = epreneurial skills; <b>E</b> 5 ision; <b>ES9</b> = Logical	Numeracy/Process <b>56</b> = Working effecti reasoning and crit	sing and interpretin vely with others/En ical thinking	g numerical data; <b>E</b> notional Intelligenc	<b>S3</b> = Effective verbo e; ES7= Organisation	al and written com nal and leadership	munication; <b>ES4</b> = skills; <b>ES8=</b> Ability

Table 2. (Continued)

Source: Field survey (2021); N = 363 employers & 2269 Tertiary Graduates.

ability to work under pressure, and effective verbal and written communication. Employers' justification for rating these skills higher and why the disparity in the ranking of the employability skills among the two stakeholders was sought. This section explains this further.

Some employers justified that the work schedules were gradually becoming digitalised, and graduates needed to be familiar with the application of computer and technical skills. Another employer was of the view that graduates/job applicants with a high level of application of computer and technical skills make teaching such graduates when employed easier. A participant indicated, "In this technological world, applicants/graduates without the application of computer and technical skills would not survive, and employers will not be prepared to engage such graduates" (Employer Number 3 October 2022). This means that employers consider both the present and future relevance of employability skills to engage graduates.

Justification for numeracy/processing and interpreting numerical data skills was based on the fact that some organisations especially in the health sector, work with software that deals with quantitative data and there was a need for graduates to be able to enter, analyse and interpret such data for management decisions. A participant from the health sector revealed that: "We work on pensión contributions that are calculated before payments are made, and there was the need for applicants to have the skills of processing and interpreting numerical data" (Employer Number 8 October 2022).

With the high cost of operations and unpredictable dynamism in the business environment, employers were of the view that job applicants should be able to work under pressure and with no supervision. "Competition and the need to serve the customers better all the times to be able to exist, employers are now basically looking for graduates who can work under pressure and will not need the supervisor to always be present before they can deliver" (Employer Number 10 October 2022).

Graduates' justification for the need for entrepreneurial skills was based on the general lack of employment opportunities in the economy. Hence their decision to pay more attention to a skill that affords them the opportunity to create and manage their own employment. A graduate interviewed indicated, "It is not easy finding a job in Ghana because even the retired are given a post-retirement contract limiting vacancies and making it difficult for graduates to be employed. The best option for us as graduates is to acquire entrepreneurial skills to enable us to create and manage our jobs" (Graduate number 11 October 2022).

# 4.3. Reasons for disparity

The study further explored the reasons for the disparity between employers and graduates in terms of employability skills. Employers assigned two reasons for the disparity, and the first was over-dependency on the theoretical delivery of academic content without practical consideration. The second reason assigned by employers was the lack of collaboration between industry and academia before designing academic curricula. An employer indicated in an interview that: *"Employability skills acquired by graduates were just on paper because there was no practical aspect of teaching and learning at the Universities. University authorities were not in talks with the industry players before designing their programmes, and their programmes are not tailored to meet industry requirements" (Employer, Number 6 October 2022).* 

According to graduates, the basic reason for the disparity stems from the fact that most employers are looking for soft skills but most of the academic programmes equipped graduates with hard and technical skills. Another reason for graduates was that employers were reneging on their responsibilities to train graduates after employment and were demanding work experience from graduates before they could be employed. A graduate indicated in the interview session that "employers are now interested in the variety of skills acquired by the graduates rather than being limited to one particular skill. Most employers do not want to spend money and resources to give practical training to graduates; they rather ask for work experience of two or more years" (Graduate Number 3 October 2022)

# 4.4. Test for normality of data

A test for the normality of the quantitative data was carried out for inferential analysis to be conducted based on the study objectives, and the results are presented in Table 3. According to (Creswell, 2014; Segbenya, 2012), the normal distribution has characteristics such as the mean, mode and median being either equal or almost; it is symmetrical; it is asymptotic and is neither too peaked nor too flat. According to Fidel and Tabachnick (2001), normal data equally have its skewness value ranging between -0.5 to 0.5. Results for the normality of the data presented in Table 3 confirmed that the data achieved a normality status since all the skewness values were within the -0.5 to 0.5 thresholds. Also, the mean and mode values were almost the same for all employability skills studied, suggesting the data was symmetrical. This paves the way for further inferential or higher statistical analysis apart from the descriptive analysis.

Based on the achievement of normality of data, two further inferential analyses were conducted for research objective one. The first test was to establish a relationship between the nine employability skills using the Pearson correlation matrix, and the results are presented in Table 4. The results as can be seen from the highlighted portion of the Table, suggest that two employability skills: application of computer and technical skills (es1) ( $r=.356^{**}$ ; p=000); and entrepreneurial skills (ES5) ( $r=.495^{**}$ ; p=000) had a moderate, positive and significant relationship with logical reasoning and critical thinking skills.

The remaining six employability skills also obtained a strong, positive and significant relationship with logical reasoning and critical thinking skills since their correlation (r) values ranged between .522\*\*and .736\*\*; and their alpha values (Sig) were equal to zero (which were below the 0.5 thresholds). The interpretation of the correlation values was based on Cohen (1988) criterion that Correlation coefficient of r = 0.10 to 0.29 or r = -0.10 to -0.29 Weak; r = 0.30 to 0.49 or r = -0.30 to -0.49 moderate; r = 0.50 to 1.0 or r = -0.50 to -1.0 Strong; and Level of significance (p-value) =  $p \le 0.05$  (2-tailed).

The second inferential analysis was a t-test analysis for mean differences between employers and graduates in terms of perception of employability skills, and the results are presented in Table 5. The results in Table 5 suggest that there was a statistically significant difference in perception for

Dimensions	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9
N	2632	2632	2632	2632	2632	2632	2632	2632	2632
Mean	.1530	.1310	.0958	.0989	.1361	.0152	.0378	.1090	.0960
Median	.1694	.1143	.1143	.1143	.1143	.0199	.0470	.1143	.1143
Mode	.11	.11	.00	.00	.00	.00	.00	.00	.00
Std. Deviation	.09772	.09690	.09781	.09527	.09686	.01570	.03807	.09885	.09529
Skewness	240	016	.482	.394	095	.464	.426	.322	.491
Std. Error of Skewness	.048	.048	.048	.048	.048	.048	.048	.048	.048
Keys	<b>ES1</b> = interpret atten Emotiona	Application Application Application Application Appressure	on of comp cal data; <b>E</b> ail ; <b>ES5</b> = I nce; ES7= C & less supe	outer and t <b>S3</b> = Effect Entreprene Organisatio ervision; <b>ES</b>	echnical sl ive verbal urial skills; nal and lea = Logical	kills; <b>ES2</b> = I and writter E <b>S6</b> = Work adership sk reasoning	Numeracy/ n commun ing effectiv ills; <b>ES8=</b> A and critico	Processing ication; <b>ES4</b> vely with o Ability to w al thinking	and = Paying thers/ ork under

### Table 3. Normality checks for quantitative data

Source: Field survey (2021); N = 363 employers & 2269 Tertiary Graduates.

I dDie 4. Corre	eldrion between		y skiils for u	ne stuay						
		ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9
ES1	Pearson Correlation	1								
	Sig. (2-tailed)									
	z	2632								
ES2	Pearson Correlation	**609.	-							
	Sig. (2-tailed)	000.								
	z	2632	2632							
ES3	Pearson Correlation	.424**	.599**	-						
	Sig. (2-tailed)	000.	000.							
	z	2632	2632	2632						
ES4	Pearson Correlation	.440**	.562**	.726**	1					
	Sig. (2-tailed)	000.	000.	000.						
	z	2632	2632	2632	2632					
ES5	Pearson Correlation	.545**	.503**	.522**	.578**	-				
	Sig. (2-tailed)	000.	000.	000.	000					
	z	2632	2632	2632	2632	2632				
										(Continued)

		ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9
ES6	Pearson Correlation	.357**	.507**	.625**	**669.	.526**	1			
	Sig. (2-tailed)	000.	000.	000.	000.	000.				
	z	2632	2632	2632	2632	2632	2632			
ES7	Pearson Correlation	.376**	.532**	.665**	.691**	.577**	.757**	1		
	Sig. (2-tailed)	000.	000.	000.	000.	000.	000 <sup>.</sup>			
	z	2632	2632	2632	2632	2632	2632	2632		
ES8	Pearson Correlation	.383**	.503**	.626**	.636**	.473**	.639**	.666**	1	
	Sig. (2-tailed)	000.	000.	000.	000.	000.	000.	000.		
	z	2632	2632	2632	2632	2632	2632	2632	2632	
ES9	Pearson Correlation	.356**	.522**	.655**	.688**	.495**	.728**	.736**	.725**	1
	Sig. (2-tailed)	000	000	000	000	000	000	000	000 <sup>.</sup>	
	z	2632	2632	2632	2632	2632	2632	2632	2632	2632
**. Correlation is	significant at the	0.01 level (2-taile	.(bi	-			-	-	-	
Keys: ES1= Appli	ication of compute	er and technical sk	ills; <b>ES2</b> = Numero	acy/Processing and	d interpreting nu	merical data; <b>ES3</b>	= Effective verbal c	and written comr	nunication; <b>ES4</b> = F	aying attention

to detail **;555** = Entrepreneurial skills;**£56**= Working effectively with others/Emotional Intelligence; £57= Organisational and leadership skills; **£58=** Ability to work under pressure & less supervision;**£59** = Logical reasoning and critical thinking

Source: Field survey (2021); N = 363 employers & 2269 Tertiary Graduates, \*\*p < 0.000, \*p < 0.05 = significant

Table 4. (Continued)

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ES1	Graduates	2269	.1581	.09754	.00205	6.684	000	.02588	.04736	.017
	Employers	363	.1214	.09289	.00488					
ES2	Graduates	2269	.1301	.09820	.00206	-1.377	.169	01694	.00298	
	Employers	363	.1371	.08822	.00463					
ES3	Graduates	2269	.0925	.09624	.00202	4.071	000.	.03542	.01236	.006
	Employers	363	.1164	.10497	.00551					
ES4	Graduates	2269	.0953	.09539	.00200	5.013	000.	.03630	.01586	600 <sup>.</sup>
	Employers	363	.1214	.09149	.00480					
ES5	Graduates	2269	.1407	.09545	.00200	5.907	000.	.02229	.04452	.013
	Employers	363	.1073	.10076	.00529					
ES6	Graduates	2269	.0148	.01557	.00033	3.311	.001	.00467	.00120	.006
	Employers	363	.0177	.01628	.00085					
ES7	Graduates	2269	.0378	.03774	62000.	960.	.924	00421	.00464	
	Employers	363	.0376	.04012	.00211					
ES8	Graduates	2269	.1024	.09836	.00206	9.150	000.	.05821	.03763	.031
	Employers	363	.1504	.09170	.00481					
ES9	Graduates	2269	.0928	.09498	.00199	4.279	000.	03350	.01245	.007
	Employers	363	.1158	.09497	.00498					
Keys	<b>ES1</b> = Application Paying attention work under press	of computer anto to detail ; <b>ES5</b> = E sure & less super	d technical skills; :ntrepreneurial ski vision; <b>ES9</b> = Logi	<b>ES2</b> = Numeracy/ ills; <b>ES6</b> = Working cal reasoning and	Processing and in effectively with ot t critical thinking	terpreting numer chers/Emotional I	ical data; <b>ES3</b> = Ef .ntelligence; ES7=	fective verbal and Organisational an	d written commund leadership skills	iication; <b>ES4</b> = ; <b>ES8=</b> Ability to
Source: Field sur	vey (2021); N = 363	employers & 226	9 Tertiary Graduat	tes, **p < 0.000, *p	< 0.05 = significan	Ţ				

Table 5. T-test results for the difference in perception of employability skills

Segbenya et al., Cogent Economics & Finance (2023), 11: 2225915 https://doi.org/10.1080/23322039.2023.2225915

Eta 2

Upper

Lower

Sig. (2-tailed)

ب

SE

Std. Dev.

Mean

z

Category of respondent

**Group Statistics** 

95% Confidence Interval of the Difference seven out of the nine employability skills of the study. That means that there was a statistically significant difference in scores for numeracy/processing and interpreting numerical data skills in terms of graduates [(M = .1581, SD=.09754) and employers [M = .1214, SD=.09289; t(2630) = 6.684, p = .000]; Effective verbal and written communication skills in terms of graduates [(M = .0925, SD=.09624) and employers [M = .1164, SD=.10497; t(2630) = 4.071, p = .000]; and Paying attention to detail in terms of graduates [(M = .0953, SD=.09539) and employers [M = .1214, SD=.09149; t (2630) = 5.013, p = .000].

Also, there were statistical significance differences in the scores in terms of entrepreneurial skills (ES5) for graduates [(M=.1407, SD=.09545) and employers [M=.1073, SD=.10076; t(2630) = 5.907, p=.000]; Working effectively with others/emotional intelligence for graduates [(M=.0148, SD=.01557) and employers [M=.0177, SD=.01628; t(2630) = 3.311, p=.001]; organisational and leadership skills (ES8) for graduates [(M=.1024, SD=.09836) and employers [M=.1504, SD=.09170; t(2630) = 9.150, p=.000]; and lastly logical reasoning and critical thinking skills for graduates (ES9) [(M=.0928, SD=.09498) and employers [M=.1158, SD=.09497; t(2630) = 4.279, p=.000]. Thus, the effect size was further calculated, and the results are equally presented under eta squared, denoted with eta<sup>2</sup> in Table 5.

# 4.5 Research question two: how does graduates' gender influence their perception of employability skills?

In order to answer this research question, an independent-samples t-test was conducted to compare the perception of employability skills for male and female tertiary graduates. The results in Table 6 show a statistically significant difference in respondents' perceptions of four of the nine employability skills of the study. That is, there was a statistically significant difference in scores for the application of computer and technical skills in terms of males [(M = 4.33, SD = 2.823) and females [M = 3.47, SD = 2.708; t(2269) = 7.362, p=.000]; Processing and interpreting numerical data skills for males [(M = 3.35, SD = 2.438) and females [M = 2.98, SD = 2.429; t(2269) = 3.647, p=.000]. The remaining two employability skills with significant differences in scores were entrepreneurial skills for males [(M = 3.50, SD = 2.587) and females [M = 3.22, SD = 2.433; t(2269) = 2.675, p=.007]; and ability to work under pressure & less supervision for males [(M = 2.79, SD = 2.335) and females [M = 2.52, SD = 2.319; t(2269) = 2.800, p=.005].

Despite the statistically significant difference in the mean scores for the four employability skills, the effect size (eta squared (eta<sup>2</sup>) calculated using the formula (Eta squared =  $t^2/t^2$  + (N1 + N2-2) by (Thyer & Myers, 1998) was very small for the four employability skills. These skills were applying computer and technical skills, processing and interpreting numerical data, entrepreneurial skills, and working under pressure. The interpretation was in accordance with (Ayentimi et al., 2018) interpretation that effect sizes of 01=small effect, .06=moderate effect .14=large effect.

The results also revealed that there was no significant difference in scores for both males and females tertiary graduates for the remaining five employability skills of the study. The magnitude of the differences in the means was very small (as shown by the eta squared). Meanwhile, male graduates perceived all nine employability skills as higher than their female counterparts, as evidenced by the higher mean values.

Out of the four significant employability skills recorded in Table 6, it is clear that three of them (application of computer and technical skills, processing and interpreting numerical data, and Entrepreneurial skills) were rated higher by male graduates. Male graduates interviewed revealed that: "male graduates generally like mathematical and technology-related academic programmes as compared to their female counterparts, and that could explain why male graduates preferred these skills higher than their female counterparts" (Male graduate number 12 October 2022). It is also clear that female graduates perceived an "Ability to work under pressure & less supervision" higher than their male counterparts. An interview with a female graduate revealed that "women/ females are generally multitasked oriented and are able to organise their activities as compared to

Group Statistics								95% Confide of the Di	nce Interval fference	
Employability Skills	Gender	z	Mean	Std. Deviation	Std. Error Mean	T-Value	Sig. (2-tailed)	Lower	Upper	Eta2
1. Application of	Male	1082	4.33	2.823	.086	7.362	000.	.629	1.085	0.023
computer ana technical skills	Female	1187	3.47	2.708	620.					
2.Processing and	Male	1082	3.35	2.438	.074	3.647	000.	.172	.573	0.006
interpreting numericat data	Female	1187	2.98	2.429	.070					
3.Effective verbal and	Male	1082	2.44	2.101	.064	.108	.914	168	.187	0.000
written communication	Female	1187	2.43	2.203	.064					
4.Paying attention to	Male	1082	2.50	2.089	.064	.853	.394	-060	.252	0.000
details	Female	1187	2.42	2.160	.063					
5.Entrepreneurial skills	Male	1082	3.50	2.587	620.	2.675	.007	.076	.489	0.003
	Female	1187	3.22	2.433	.071					
6.Working effectively	Male	1082	2.40	2.132	.065	.203	.839	162	.199	0.000
witn otners/Emotional Intelligence.	Female	1187	2.38	2.241	.065					
7. Organisational and	Male	1082	2.57	2.234	.068	1.533	.125	040	.327	0.001
leagersnip skillsj	Female	1187	2.43	2.213	.064					
8.Ability to work under	Male	1082	2.79	2.335	.071	2.800	.005	.082	.466	0.004
pressure & less supervision.	Female	1187	2.52	2.319	.067					
9.Logical reasoning	Male	1082	2.47	2.128	.065	.812	.417	105	.254	0.000
מחמ כתונכמו נחוחאוחם	Female	1186	2.40	2.222	.065					
Source: Field survey (202	1), ** <i>p</i> < 0.000, * <i>p</i>	< 0.05 = significo	ant						-	

Table 6. Gender and employability skills among graduates in Ghana

*male counterparts*" (Female graduate Number 5 October 2022); and that could explain why female graduates dominated in terms of preference for ability to work under pressure

# 4.6. Research question three: how do the academic qualifications of tertiary graduates influence their perception of employability skills?

The third research question also sought to find out if the academic qualifications of tertiary graduates significantly influence their perceptions of employability skills guiding the study. Academic qualification was based on whether tertiary graduates held diploma certificates or Bachelor degrees (or undergraduate university degrees/certificates) at the time of undertaking the national services in Ghana. The research question was answered with an independent sample t-test analysis, and the results are presented in Table 7.

The results show that there was almost a statistically significant difference in scores for the two employability skills. The first of the two skills were processing and interpreting numerical data skills for tertiary diploma graduates was (M = 3.12, SD = 2.417), and that of the first-degree certificate holders was (M = 3.54, SD = 2.656); t(2269) = 1.931, p=.050. The second employability skill, which was nearly significant (because the p-value was a little above .05), was emotional intelligence with mean scores of (M = 2.37; SD = 2.179) for diploma certificate holders and First-degree certificate holders (M = 2.73, SD = 2.364); t(2269) = 1.823, p=.069]. The effect sizes calculated represented by eta squared (eta<sup>2</sup>) were very small (eta<sup>2</sup> = 01=small effect) based on (Ayentimi et al., 2018) classification that that effect sizes of 01=small effect, .06=moderate effect, .14=large effect.

Apart from the two employability skills, the study found that there was no significant difference in scores for both diploma and first-degree certificate holders for the remaining seven employability skills of the study. The magnitude of the differences in the means known as the eta<sup>2</sup> was not calculated due to non-significance values.

# 4.7. Research question four: how does the sector of national service for tertiary graduates influence their perception of employability skills?

Research question four examined whether the sector where the national service personnel were posted influenced the perception of employability skills among tertiary graduates in Ghana. The sectors included the private sector and the public sector of the economy. An independent sample t-test was again computed to answer the research questions since the independent variables were categorical and had two levels: private and public sectors. As presented in Table 8, the results suggest there was no statistically significant difference in the mean scores for graduates for all the nine employability skills guiding the study depending on the sector of their national service.

The results (Table 8), therefore, indicate that graduates do not differ in their perception of employability skills on the basis of the sector they were posted to. Graduates in both sectors perceived employability skills alike. That is, there was no statistically significant difference in mean score for tertiary graduates doing their national service in public or private sectors and how they perceived the nine employability skills. Due to the non-significance, the eta squared (eta<sup>2</sup>) representing the effect sizes was not calculated.

# 5. Discussion of the results

Findings for objective one of the studies revealed that there was a disparity in relevant employability skills acquired by graduates and what was required by employers in Ghana. This means that skills acquired through academic programmes and compulsory national service were incongruent with employers' requirements. The disparity was blamed on a lack of collaboration between industry and academia and the theoretical delivery of course contents lacking practical attachment. The disparity could explain the high unemployment rate among tertiary graduates while employers continue to complain about job entrants, including tertiary graduates without requisite skills. The results, therefore, agree with the findings of (Segbenya, Baafi-Frimpong, et al., 2021) that the disparity of skills required and skills acquired contributes to unemployment in Ghana.

Table 7. The effect of the highest academic qu	ualification on employ	ability	skills							
								95% Confidence	! Intervals	
	Academic qualification.	z	Mean	Std. Deviation	Std. Error Mean	T-Value	Sig	Low	High	Eta <sup>2</sup>
Application of computer and technical skills]	Diploma	2123	3.88	2.782	.060	.410	.682	385	.588	
	First Degree	135	3.78	2.987	.257					
Processing and interpreting numerical data	Diploma	2123	3.12	2.417	.052	-1.931	.054	840	.006	0.002
	First Degree	135	3.54	2.656	.229					
Effective verbal and written communication	Diploma	2123	2.43	2.145	.047	-1.279	.201	621	.131	
	First Degree	135	2.67	2.359	.203					
Paying attention to detail	Diploma	2123	2.45	2.100	970.	-1.362	.173	628	.113	
	First Degree	135	2.70	2.528	.218					
Entrepreneurial skills	Diploma	2123	3.34	2.498	.054	784	.433	612	.262	
	First Degree	135	3.52	2.693	.232					
Working effectively with others/Emotional Intelligence	Diploma	2123	2.37	2.179	240.	-1.823	690.	735	.027	0.002
	First Degree	135	2.73	2.364	.203					
Organisational and leadership skills	Diploma	2123	2.48	2.209	.048	-1.597	.110	703	.072	
	First Degree	135	2.79	2.465	.212					
Ability to work under pressure $\boldsymbol{\&}$ less supervision	Diploma	2123	2.65	2.318	.050	.508	.612	301	.511	
	First Degree	135	2.55	2.553	.220					
Logical reasoning and critical thinking]	Diploma	2122	2.42	2.163	.047	-1.123	.262	596	.162	
	First Degree	135	2.64	2.415	.208					
Source: Field survey (2021) **p < 0.000, *p < 0.05 = signific	cant							-		

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Table 8. Sector	of national service	and employability	skills					
							95% Confidence Diffe	e Interval of the rence
		z	Mean	Std. Dev	t	Sig	Lower	Upper
Application of	Public sector	2214	3.89	2.790	1.600	.110	161	1.587
computer ana technical skills]	private sector	40	3.18	2.978				
Processing and	Public sector	2214	3.15	2.433	331	.741	891	.634
interpreting numerical data	private sector	07	3.28	2.641				
Effective verbal	Public sector	2214	2.44	2.157	.120	.905	634	.716
ana written communication]	private sector	40	2.40	2.182				
Paying attention	Public sector	2214	2.46	2.126	.335	.738	553	.780
to detail	private sector	40	2.35	2.370				
Entrepreneurial	Public sector	2214	3.36	2.514	1.276	.202	275	1.297
Skills	private sector	40	2.85	2.392				
Working	Public sector	2214	2.40	2.199	1.361	.174	210	1.161
errectively with others/Emotional Intelligence	private sector	40	1.93	1.700				
Organisational	Public sector	2214	2.50	2.228	005	966.	698	.695
ana leaaersnip skills	private sector	07	2.50	2.160				
Ability to work	Public sector	2214	2.65	2.326	.876	.381	403	1.054
unaer pressure & less supervision]	private sector	07	2.33	2.443				
Logical reasoning	Public sector	2213	2.43	2.177	482	.630	850	.514
ana crucal thinking	private sector	07	2.60	2.318				
Source: Field survey	(2021) **p < 0.000, *p <	0.05 = significant						ľ

The results mean that the disparity recorded between employability skills required and acquired could be addressed by educational institutions becoming aware of what employability skills are required by the respective industries or employers to be able to revise their curriculum to reflect these skills. The findings also suggest that graduates of tertiary institutions will also need to pay attention to skills required by employers so that they can find a way to personally pursue activities that can equip them with these requisite employability skills during their vacation or after school. Another implication of this finding of the study is that the National Service Secretariat could also be helpful in bridging the disparity between skills required and skills acquired by tertiary graduates by ensuring that these graduates are posted to sectors where the relevant employability skills could be acquired. Furthermore, employers hosting the national service period are exposed to job-related activities that will equip them with the relevant employability skills for the job market.

It is also revealing that entrepreneurial skills were ranked second by tertiary graduates. Entrepreneurial skills are required for job creation or self-employment in every economy. Thus, amid high graduates unemployment, the best employability skills necessary for tertiary graduates to gainfully employ themselves and other graduates are entrepreneurial skills. Thus, though employers will not value these skills, it is a prerequisite for job creation, as seen in this study. Therefore, the results of this study from the national perspective disagree with (Segbenya, Oppong, et al., 2021) findings with regional data that tertiary graduates in the Central Region of Ghana perceived entrepreneurial skills as very low.

The results further suggest that tertiary institutions will need to inculcate entrepreneurial education in their curriculum to fully prepare tertiary graduates for job creation to be able to contribute to reducing unemployment in the country among tertiary graduates. Apart from the competence for job creation, tertiary graduates will also need financial support (among other supports) from the government and financial institutions to be able to create their dream jobs.

In all, the application of computer and technical skills and numeracy/processing and interpreting numerical data were upheld by both graduates and employers as very important employability skills. With the emergence of COVID-19, most work schedules have been digitalised (Hair et al., 2017), and computer and technical skills have become more relevant than before. IT skills are becoming a basic skill required by employers. Employers rated the ability to enter and process quantitative or numerical data second, while graduates rated it third. The results agree with the findings of (Prikshat et al., 2019) that numeracy and computer skills have become basic and essential employability skills for graduates. The relevance of IT-related skills suggests that tertiary institutions should give much attention to pedagogy for teaching IT-related courses by incorporating more practical and hands-on sessions for tertiary graduates. This will call for stocking computer laboratories and also employing facilitators who can deliver in the practical sessions.

The findings of this study for research question two on the effects of gender/sex on employability skills also need further deliberations. This study has revealed that male and female tertiary graduates perceive four employability skills differently. That is, male tertiary graduates perceived the four significant employability skills more positively as compared to their female counterparts. Male graduates' higher rating for the application of computer and technical skills; processing and interpreting numerical data; entrepreneurial skills, and ability to work under pressure and less supervision; means that in terms of acquisition and importance of these employability skills, male tertiary graduates were in a position to acquire them as compared to their female counterparts. The first two of the four skills aligned themselves with mathematical and information communication and technology-related skills. This means that male graduates had more interest in and appreciation for ICT and related mathematical skills.

Meanwhile, female graduates also developed much likeness and appreciation for the four employability skills of the study as compared to their male counterparts. These were effective verbal and written communication, paying attention to details, working effectively with others/ emotional intelligence, and logical reasoning/critical thinking. The results mean that female graduates gravitate towards employability skills that relate to emotional intelligence and written and verbal communication skills more than male tertiary graduates. This means that female graduates appreciate non-mathematical and non-ICT-related employability skills. The results corroborate the findings of (Ayentimi et al., 2018) that female learners appreciate non-mathematical related skills.

Though gendered academic programmes have been a psychological issue facing graduates, it will be necessary for facilitators in tertiary institutions to pay attention to individual differences among these graduates. The considerations for individual differences or interests coupled with academic counselling could influence male tertiary graduates to accept female-perceived programmes and vice versa.

The research findings for research question three, especially the observed disparity between emotional intelligence and numeracy skills, which reflect respondents' academic experience, have several implications for the study. Diploma graduates perceived two significant employability skills (emotional intelligence skills and interpreting numerical data) as less important than their counterparts who pursued first-degree programmes from the university. This means that as tertiary graduates progress in their academic pursuit from diploma to bachelor degree programmes, they develop more likeness for emotional intelligence skills and skills for interpreting numerical data. The results suggest that higher qualifications enabled tertiary graduates to better appreciate and acquire the two employability skills. Thus, the conclusion of (Aiyahya et al., 2013; Buheji & Buheji, 2020; Hair et al., 2017; Segbenya & Berisie, 2020; Segbenya et al., 2019) that higher academic qualification enhances job applicants' chances of employability is therefore upheld for this study in terms of emotional intelligence and skills for interpreting numerical data.

This study has proven by highlighting its novelty in terms of findings that gender as a demographic characteristic of tertiary graduates influences their perception and the pursuit of employability skills, and employers and graduates rated the various employability skills differently. Other demographic characteristics, such as the sector of national service and academic qualifications, did not influence the perception of employability skills. Though earlier studies by (Ajayi, 2016; British Council, 2016; Frimpong et al., 2015; Schroyens et al., 2019) have identified some employability skills, this study has further contributed by showing how these employability skills were ranked by employers and also shown that the gender of graduates significantly influenced employability skills.

The discussion of the results of this study has shown that the findings of this study have some implications for tertiary educational institutions, employers of graduates/industry, the national service secretariat and the graduates themselves. As much the curriculum of educational institutions will need to be revised to incorporate input from industry, it is also expected that employers or industries where the national service personnel undertake their national service expose graduates to essential employability skills. For this purpose, the national service secretariat will have to be mindful of where they post these tertiary graduates for their national service.

# 5.1. Theoretical and practical implications

The findings of the study have several theoretical and practical implications. The social learning theory and the three axioms- respondents conditioning, observational conditioning and operant conditions-relate to the findings of this study. The first axiom of respondent conditioning suggests that tertiary graduates learned employability skills during their campus stay for their academic content. The second axioms take the argument to a higher level by arguing that tertiary graduates enhance their employability skills learned at school during their national service by observing other workers in the workplace during their compulsory national service to the country.

The implication of the third axiom of the theory (operant conditioning) is that there are consequences associated with the kind of employability skills acquired since the type of employability skills required by employers dictate the pace of employment and determine whether tertiary graduates will get their desired jobs. It is very important to note that this study contributes to the theory of the study by revealing that the relevance of the employability skills to tertiary graduates differ among them based on whether a tertiary graduate is a male or female and either pursuing a diploma or undergraduate first-degree academic programme from a university or Colleges of Education.

# 6. Conclusion and recommendations

This study examined the effects of demographic characteristics on employability skills among tertiary graduates in Ghana. Three demographic characteristics were examined – gender and educational level—measured in terms of the highest academic certificate acquired –and sector of national service. Nine employability skills were also examined from both national service personnel and employers' perspectives. The study found the ability to work under pressure with less supervision, application of computer and technical skills, and processing and interpreting numerical data skills as the three most important employability skills for employers. However, graduates rated these first three important employability skills 4th, 1st and 3rd, respectively.

Additionally, gender/sex was found to have a significantly influenced application of computer and technical, interpreting numerical data, ability to work under pressure & less supervision, and entrepreneurial skills. Male tertiary graduates had more appreciation for mathematical and ICT-related employability skills, while female graduates had a more positive inclination towards emotional intelligence skills; written and verbal communication skills. Furthermore, the educational level of graduates was found to have an effect on emotional intelligence and interpretation of numerical data skills. The third demographic characteristic-sector of national service was, however, found to have a non-statistically significant effect on all the nine employability skills of the study.

These conclusions demand specific actions from key stakeholders such as the government and the national service secretariat, management of higher educational institutions and tertiary graduates in Ghana. Therefore, it is recommended that tertiary graduates attach importance to employers' most relevant employability skills. This is needed to ensure that the disparity between required skills and acquired skills is reduced and eventually reduces the high level of graduate unemployment in Ghana. Higher educational institutions should partner with industry and revise their curriculum to equip tertiary graduates with the requisite employability skills. This will helped bridge the employability skill gap and enhance the opportunity for tertiary graduates to be employed after completing their academic programmes. The curriculum of higher education institutions should also consider giving more attention to the practical training of graduates and equipping tertiary graduates with entrepreneurial skills. This is needed for employment creation in order to reduce graduate unemployment in Ghana.

The national service secretariat should consider the gender and level of academic programmes of national service personnel when posting them to the various sectors of the economy for compulsory national service. This is because academic programmes pursued, qualifications and sex of tertiary graduates influenced their appreciation of employability skills.

# 7. Limitation of the study

This study is limited to the perception of tertiary graduates and employers on employability skills. The views of the educational institutions in terms of facilitators and heads of departments are not part of this study. The findings of this study are also limited to Ghana since all respondents were selected from Ghana.

# 8. Suggestion for further studies

This study only focused on the three demographic characteristics such as gender/sex, academic qualification and sector of national service and how these three variables affected the perception of employability skills among tertiary graduates in Ghana. Other demographic characteristics such as age, and type of academic programmes pursued, among others, could also be examined to

ascertain their effect on the appreciation of employability skills in further studies. Apart from the nine employability skills considered in this study based on literature, further studies could also interrogate other employability skills around the globe, especially in the 21<sup>st</sup> century and with the emergence of COVID–19. Lastly, graduates' plans after national service could also be a concern for further studies to ascertain whether the high level of unemployment has diluted their intention to work after their national service.

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# Appendix A: Soft and technical employability skills

S/N	Soft-skills	Technical skills
		Technical skills for some industries
1	Critical Thinking	1. Knowledge of standard software applications,
2	Decision Making	user-friendly graphical user interfaces,
3	Communication,	databases, networking, and computer hardware (Information and Technology)
4	Problem-Solving	2.Tool handling competency, presentation skills
5	Self-Confidence	employers. Competencies in the use of
6	Negotiation	techniques, skills and modern tools in the area of expertise, having the drive to acquire and
7	Interpersonal,	apply knowledge (Engineering and information and communication technology)
8	Teamwork	occupational expertise, personal
9	Work Ethics	(health care and finance)
10	Self-Management	