Partnership of University Institutions with Industries and Graduates' Employability in Cameroon: Case of Graduates of Technical and Professional Schools of the University of Ngaoundéré

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ABSTRACT

Context: Graduate employability remains a global interest in this 21st century as workplace demands and economic sustainability are growing, changing, and driving new competencies and needs as well as the need for an innovative, flexible, and motivated workplace. The quality of university graduates is not only crucial to individual productivity but also to national productivity, economic growth, and development. This quality could be enhanced by effective collaboration between institutions of the university and the industry. Therefore, this study examines the influence of the quality of partnerships between university institutions and industries on the employability of graduates from technical and professional schools of the University of Ngaoundere. *Methods:* A cross-sectional study using an online questionnaire was conducted amongst graduates from the University of Ngaoundere recruited through snowball and purposive sampling. The data were analyzed by SPSS Software, Version 20, using descriptive statistics and simple linear regression. *Results:* Findings revealed that the quality of the partnership between university institutions and industries strongly and significantly influences graduates' employability ($R^2 = 0.505$, $\beta = 0.711$, $p < 0.001$). *Conclusion:* Therefore, the study recommends that effective educational policy and strategy should be adopted to improve graduates' employability by focusing on improving collaboration and cooperation between university institutions and industries.

Keywords: graduates' employability; partnership; industry; university; graduates

INTRODUCTION

In the 21st century, graduate employability around the world is a major challenge because of the rise of artificial intelligence, information and communication technology, and robotics. It is compounded by the fact that educational programs do not help students get the skills necessary to enter the job market. The curricula are archaic and composed of classical courses that are not related to the competencies expressed by the job market. The labor market needs skills influenced by the explosion of knowledge and digitalization and the emergence of the 4th industrial revolution which leaves graduates stranded when they cannot meet these demands (Teneng, 2016). The global rate of unemployment in 2020 amounted to 5.42% from 5.39% in 2018 (Aaron, 2021). A major focus was on higher education in the last two decades to regenerate economic roots, increase national growth, and develop significant direction to meet new challenges of the world (Harvey, 2000).

However, the working world and the environment of institutions differ from each other; institutions do not provide any security for the employment of students (Muhammad & Hina, 2018).

As such, many higher education graduates find themselves unemployed for a long time after leaving school. The problem of unemployment is worse in Sub–Saharan Africa as the ILOSTAT report in January 2021 shows that the unemployment rate is 6.6% in 2020 while that of Cameroon is 3.6% the same year. Despite widespread initiatives in higher education in most African countries, gaps between employer satisfaction and graduate performance in the workplace persist, hence a call for concern. Employers criticize the inability of graduates to contribute effectively to the workplace primarily for their limited capacity to demonstrate a range of generic and specific skills (Mahbub et al., 2016).

Unemployment is a big challenge amongst highly educated workers in low-income countries including Cameroon. 82% of low-income countries and 70% of lower – middle–income countries with data, show a higher unemployment rate for those with an advanced educational level (Rapport d'Analyse de L'annuaire Statistique de l'Enseignement Superieur, 2018). Institutional arrangement reveals Cameroon being very strategic, especially in issues of the younger generation, yet the lack of effective professional education for youths remains a major concern and therefore results in massive youth unemployment in Cameroon (Teneng, 2016).

Mbonteh (2021) corroborates this when he noted that there is a focus on employability, professionalization, and quality assurance by the new Cameroon university governance aimed at linking the Cameroon HE studies to the job market. The framing of professionalization on quality assurance reveals that the socio-professional milieu intervenes in teaching and training, professionals are included in the timetables, and there is a collaboration agreement on internships between the socio-professional milieu and the professional schools (MINESUP Quality assurance, 2023). However, field statistics reveal that most graduates from these professional schools are found wanting in the job market due to inadequate skills or skills mismatch. This is evident by the timid involvement of the professional sectors in training, resulting in the production of graduates without real practical skills and hence an increase in the unemployment rate (MINESUP, 2023). This is against the norms of the 3rd generation university which is oriented towards the acquisition of skills geared towards job creation and innovation to impact society.

Professionalization of education in Cameroon emanates from the difficulties of the state in curbing youth unemployment and providing an appropriate solution to the problem of mismatch and limited skills between training and employment. The new university reform is aimed at bringing schools closer to the labour market by matching training to employment. The university must therefore train with the enterprise and for the enterprise. Nevertheless, the implementations of these guidelines reveal a mismatch between diploma awards with the productive fabric of the country's economy (MINESUP, 2023:5). In 2020, the estimated youth unemployment rate in Cameroon was 5.82% in 2018 and 5.84% in 2019 (Aaron, 2021*).* Knowledge-Based Economy (KBE) is a prerequisite for any nation's economic development but Cameroon is not transitioning towards it (Wirba, 2021). The ranking by the Knowledge Economic Index (KEI) and the literature review on the role played by Higher education developed by the World Bank (1995-2020) showed that she is not progressing in all four pillars of the KEI, neither in the Global Competitive index as its KBE moves towards a decline. Universities that are often disconnected from their societies, local contexts, and environment do not partner with the job market, making employment difficult for graduates (Pascal, 2012). As a planning strategy, higher education in

Cameroon could create partnerships with industries and impact creativity and innovative spirit in students.

With the rising number of graduates from the universities, the employment of these graduates has been a serious problem caused by the inability of the government to absorb graduates into the public service which has exacerbated the problem of unemployment, coupled with the fact that the skills acquired from higher education were grossly inadequate for creativity and innovation as required by the labour market (Fonkeng & Ntembe, 2009). Asongwe et al. (2016) add that the driving force for change is the increased demand for more professionalization of Higher education programs to suit the exigencies of the job market. In addition to effective collaboration between professional schools and industries, school establishments could enforce quality assurance by carrying out self-assessment; assessing the ability of its educational resources to provide knowledge, know-how, and skills, and carrying out internal monitoring and evaluation of its activities, which intern lead to skills acquisition.

Arranz et al. (2022) in their study found that an effective collaboration between higher education institutions and industries contributes significantly to the enhancement of employability amongst graduates. Also, Jackson et al. (2021) conducted a study and observed that the synergetic value of small and medium-sized enterprises and co-working is a good strategy to foster students' entrepreneurial capabilities, particularly communication and critical thinking skills, innovative behavior, and confidence building. Another study conducted found similar results by revealing that university-enterprise collaboration increases students' employability and work readiness (Lubbe et al., 2021). Studies conducted in Nigeria show that partnership between private sectors and university institutions is a good strategy because the private sectors provide necessary resources for teaching; effective partnership between private sector and university helps develop employability skills of students through improving the connectivity of teachers and students, support teachers and instructors to adapt pedagogies and develop new teaching and learning tools, identify demanded skill (Olabiyi et al., 2022). This indicates the importance of collaboration in employability. Aki et al. (nd) argue that without input from and cooperation with industries or enterprises, universities are hardly able to achieve their vocational mission of equipping their students with enough skills and competencies needed for the labor market. In their study, Rybnicek & Rolland (2018) noted that successful collaboration between industry and university is enhanced by the availability of resources ranging from finances, equipment, time planning accuracy, and partners' commitment. The quality and quantity of resources equally are a predictive factor of the quality and usefulness of the collaboration. Nsanzumuhire & Wim (2020) discerned some forms of university-industry collaboration that should be frequently practiced by universities and industries including,

educational, research-related collaboration, and academic entrepreneurship interaction. This collaborative spirit goes a long way to render students innovative, creative, and job-market-ready. University-industry partnership helps to reduce the misalignment between technological transfer activities and academic goals and therefore narrow the distance between business needs and academic research (Cudic et al., 2022).

Mgaiwa (2021) believes that developing effective university–industry partnerships, aligning university education with the country's development plan, regular university curriculum review, and strengthening the quality assurance systems will boost the smooth graduate transition to the world of work. In the same light, quality assurance could evaluate pedagogy, auto-evaluation, research carried out in schools, social responsibility of the school environment, and managerial aspects geared towards skills acquisition. Partnership advocates that the Ministry of Higher Education makes an effective alliance with the labor market in the aspect of curriculum planning and development, delivery of study programs, and providing avenues for full industrial practices by students. This could help implement LMD's advocate for professionalization and fully prepare students for the world of work (Rapport d'Analyse de l'Annuaire Statistique de l'Enseignement Superieur, 2018). Ngu (2018 p.15) describes employability as the skills, knowledge, and competencies that enable a worker to secure and retain a job, progress at work and cope with changes, secure another job if the need arises. Ngu and Teneng (2020) investigated the effects of Technical, Vocational Education and Training (TVET) inputs on graduates' employability in the Diamare Division, Far North Cameroon, and found that educational policy implementation, curriculum content, learning, and workshop infrastructure, the partnership between Government Technical High Schools and the world of work significantly influence graduate employability. Since the BMD reform, Cameroon University has had a shift that is opened to the world and connected to the labor market (MINESUP, 2023). In line with previous research, Eduarda & Pilar (2020) examine the programs of skills for youth employability and provide an updated overview of policies, practices, and instruments related to the qualification framework in Cameroon and found that human capital and educational system are the bases of all fundamental development. Marta et al. (2020) analyzed the role of higher education institutions in promoting the development of competencies for employability and found a mismatch between university graduates' competencies and employers' needs. They equally observed that graduate employability and competence development around the world depend on the strong sense of innovation and collaborative practices implemented in higher education.

Cristina & Maga (2020) investigated the impact of boosting entrepreneurship skills on the promotion of employability in higher education and revealed that MOTIVEM is helping to enhance students'

abilities that employers value the most. It also helps students to develop soft skills creativity and entrepreneurship, to create something from zero, be proactive, and solve a need that exists in society and prepares them for the labor market. Teneng (2016) revealed that a lack of marketable skills and skills that do not match the demands of the labour market are some of the reasons that prohibit graduates from getting employed. She found out that there is a significant relationship between the curriculum content of higher education and graduate employability. Teneng recommended that all educational stakeholders be consulted when designing the curricula of higher education. Asongwe et al. (2016), assessed the influence of resource inputs in the professionalization of higher education and found that there is insufficient infrastructure, documentation, personnel, and equipment and this does not reflect professionalization. Another study conducted in public universities in the North-West and South-West regions of Cameroon revealed that teachers' quality affected students' employability (Atem & Joseph, 2020). Also, a more recent study in Cameroon on graduate employability in the Universities of Buea and Bamenda found that curriculum content and infrastructural resources significantly affect graduates' acquisition of employability skills (Atem, 2023). While there are studies on factors associated with graduates' employability in Cameroon, little attention was paid to the role of university–industry partnerships on employability. Therefore, this study seeks to address the employability gaps amongst graduates which include limited skills, skills mismatch, and no skills) by examining the influence of the quality of partnership between university institutions and industries on the employability of graduates from the Professional schools of the University of Ngaoundere.

METHODS
Research design and participants
The study is a cross-sectional online survey conducted from February to March 2023 amongst graduates from the professional and technical schools of the University of Ngaoundere. They were recruited using stratified random sampling in probability sampling and in none probability sampling, snowball, and purposive sampling techniques were used. A total of 991 graduates took part in the study with the use method of data collection.

Instruments and data collection procedures
A self-administered questionnaire was used to collect data. The questionnaire comprised three sections. Section A, collected socio-demographic information, section B was based on measuring partnerships with industries, and section C, measured employability. The questionnaire was developed by the researchers. Partnership with industries measurement scale comprised 13 items measuring the degree of the self-perceived quality of the relationship between university institutions and industries and employability. The measurement scale comprised 13 items measuring self-perceived employability skills.

Participants were asked to indicate the degree of their agreement with the statements using a 5-modality Likert scale ranging from 1- strongly disagree to 5-strongly agree. The questionnaire was pilot-tested amongst 40 graduates to ensure the consistency of the measurement scale. The consistency was evaluated using Cronbach Alpha (α) and it revealed that both measurement scales (partnership with industries scale and employability scale) were reliable respectively with $\alpha= 0.94$ and $\alpha=0.89$. Data were collected online through Google Forms and the link to the questionnaire was sent to participants using WhatsApp groups identified participants shared the link with their friends who graduated from the Technical and professional schools of the University of Ngaoundéré.

Data Analysis
Data were analyzed using IBM SPSS Software, version 20. Frequency and percentage distributions were used to summarize the categorical data and mean and standard deviation for continuous data. Simple linear regression analysis was used to test the net effect of the explanatory variable on the outcome variable (graduates' employability).

Ethical consideration
Institutional Review Board of the Faculty of Education/University of Yaoundé I approved the study (Authorization code: 45/21/UYI/VDSSE). The study used an anonymous questionnaire which did not collect information on the identity of the participants. Also, voluntary participation and confidentiality were ensured.

RESULTS
Participants' characteristics
The results showed that amongst 991 participants, 66% were male and 34% were female. 66% held a Master degree. Amongst the participants, 82% were doing other jobs, 42% had less than 6 years of work experience and 40% had 6 to 10 years of work experience. 76% of the participants were not involved in teaching, 20% were support staff, 3% were lecturers and 1% of them were administrators.

FIGURE 1: Characteristics of participants.

	N = 991, f	%
Gender		
Male	654	66
Female	337	34
Level of education		
License	159	16
Master	654	66
PhD	178	18
Professional qualification		
Lecturer	89	09
Professor	89	09
None	813	82
Work experience years		
0 – 5	416	42
6 – 10	396	40
11 – 15	158	16
16 +	20	02
Subject taught		
Classical	89	09
Professional	99	10
Others	317	32
None	486	49

Results of the analysis indicate that the mean score of employability varied significantly according to the gender of graduates with female graduates scoring higher in employability (M=52.56, SD=9.04) than male graduates (M=8.92, SD=9.04) (t (989) =-5.132, p<0.001). Also, the mean score of employability varied according to their level of education with graduates holding PhD having a higher score (M=52.65, SD=8.86) than those who held a Master (M=51.09, SD=9.14) and those who held an undergraduate degree (M=46.11, SD=7.81) (F (2,988) =26.735, p<0.001). The results reveal that the mean score of employability differed statistically and significantly according to the professional qualification of graduates, with graduates from other ranks scoring high (M=51.51, SD=9.11) than those in the rank of Professor (M=46.48, SD=7.73) and Lecturer (M=45.97, SD=7.90) (F (3,987) =26.260, p<0.001). Even the mean score of employability is statistically and significantly different from less to high experienced graduates. Graduates with 11 – 15 years of work experience scored high (M=52.75, SD=8.84)

than those in other groups (graduates with 6 – 10 years, M=52.45, SD=8.98; graduates with more than 15 years, M=52.27, SD=9.13) and those with less than 6 years M=47.78, SD=8.63) ((F (3,987) =23.294, p<0.001). The mean score of employability statistically and significantly differed according to the subjects taught by graduates.

Graduates who were not in the field of teaching scored high (M=52.59, SD=8.90) than those who taught other subjects (M=48.87, SD=9.16), those who taught classical subjects scored (M=46.19, SD=8.03) and professional subjects (M=46.19, SD=7.66) ((F(3,987)=24.490, p<0.001).

FIGURE 2: Relationship between socio-demographic characteristics and employability.

VARIABLES	F	M (SD)	F/T	P-VALUE
Gender				
Male	650	49.48 (9.04)	-5.132	0.001
Female	341	52.56 (8.92)		
Level of education				
Licence	165	46.11 (7.81)	26.735	0.001
Master	649	51.09 (9.14)		
PhD	177	52.65 (8.86)		
Professional qualification				
Lecturer	94	45.97 (7.90)	26.260	0.001
Professor	87	46.48 (7.73)		
None	810	51.51 (9.11)		
Work experience in years				
0 – 5	415	47.78 (8.63)	23.294	0.001
6 – 10	398	52.45 (8.98)		
11 – 15	156	52.75 (8.84)		
16+	22	52.27 (9.13)		
Subject taught				
Classical	86	46.19 (7.66)	24.490	0.001
Professional	98	46.19 (8.03)		
Others	315	48.87 (9.16)		
None	492	52.59 (8.90)		

REGRESSION RESULTS

The simple linear regression model was adopted to analyze how the independent variable, partnership with industry influences graduate employability as seen on figure II. It revealed that the quality of partnership between university institutions and industries explained 50.5% of variations in graduates' employability (R^2=0.505). The overall model is significantly useful in explaining the influence of the quality of partnerships between university institutions and industries on graduates' employability; with a one-unit increase in the quality of the partnership between university institutions and industries leading to 0.711 increase in graduate employability $(F (1,989) =1009.282, \beta=0.711, p<0.001)$. As seen on the coefficient of regression, when the quality of partnership with industries increases by one unit, graduates' employability equally increases by up to 0.711 units. This implies that, the alternative hypothesis (Quality of partnership with industries significantly influences the employability of graduates of technical and professional schools of the university of Ngaoundere) is retained while the null hypothesis (The quality of partnership with industries hasn't got any significant influence on graduates' employability) is rejected.

FIGURE 3: Relationship between partnership with industries and graduate employability.

R=0.711, R^2=0.505, F (1,989) =1009.282, p<0.001

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.288	0.821		30.813	.000
	University-industries partnership	0.536	0.017	0.711	31.769	.000

DISCUSSION

The study aims to examine the influence of the quality of partnership between university institutions and industries on the employability of graduates from the technical and professional schools of the University of Ngaoundéré.

As a result, statistical data analysis showed that gender, level of education, professional qualification, and work experience influence graduates' employability. The results of this study are consistent with earlier studies, which revealed that the level of education affects employees' performance (Amegayibor, 2021; Hendrawijaya, 2019; Oyeniran & Akphorhonor, 2019; Omori & Bassey, 2019). Education plays a significant role in human development. It is a form of investment in human resources, helps to develop individuals' personalities and abilities, and also provides a direct contribution to the growth of national incomes through increased skills and work productivity (Hendrawijaya, 2019). The results are also in line with Sungmala & and Verawat (2021), which showed that work experiences have a significant effect on employees' engagement. The results also corroborate with the results of Hendrawijaya (2019), which found that gender affects employees' performance but contrast with findings of other studies that revealed that gender does not have a significant effect on employees' performance (Amegayibor, 2021; Met & Ali, 2014). The differences in the results can be attributed to the context, sample size, and measurement scales used by the studies. Therefore, this shows that major changes in demographic variables like gender, level of education, professional qualification, and work experience will have a considerable effect on graduates' employability.

The results of the study revealed that the quality of partnerships between university institutions and industries has a positive effect on the employability of graduates. This indicates that the higher the quality of partnership between university institutions and industries is, the better the employability of individuals who graduate from university institutions. These results corroborate the results of other studies. For example, the results of the study conducted by Arranz et al. (2022) also found that creating an active and effective collaboration between the University and the company both in depth and in breadth is a facilitator of the employment of higher education graduates. Also, Ferns et al. (2019) found out that collaborative partnership between industries and universities is important in improving graduate employability. In addition, partnerships are effective strategies to address perceived gaps in graduate employability, inform curriculum design, implement quality assessment practices, build social and professional networks, motivate and engage students, provide role models and mentors, and facilitate the development of professional identity for all stakeholders (Ferns, 2018).

The results are also consistent with those of Ngu and Teneng (2020), which revealed that partnership between Government Technical High Schools and the world of work contributes significantly to graduate employability. Teneng and Njebakal (2017) opine that through collaboration with industry, each University should have a placement system that allows students to do internships and facilitate their transition to the world of work. Also, Krouglov (2018) and Darko et al. (2019) argued that the way universities, faculties, schools, or departments build their relations with companies or enterprises has a significant impact on the development of employability skills. This shows that effective partnership between university and industry fosters graduate employability in the sense that universities learn from employers, which skills are relevant and should be incorporated into their educational programs (Mgaiwa, 2021). This suggests that effective university-industry partnerships are integral strategic planning that should be taken into consideration in educational policy, targeting graduate employability in the 21st century in Sub-Saharan Africa in general and particularly in Cameroon. So, to establish or improve the linkage between the industries and higher education institutions, institutions, and industries should collaborate to organize seminars and workshops where they will share information on the changing trends in industrial practices and how these changes can be integrated into the curriculum of university institutions (Rufai et al., 2013).

LIMITATIONS

Some limitations need to be mentioned. Firstly, the cross-sectional nature of the study limits the causal relationship between university-industry partnership and employability and equally the in-depth understanding of factors or barriers associated with employability. Secondly, generalization should be done with caution due to the sampling technique used to select participants and also the use of a self-designed questionnaire without validation could affect the results of the study. Thirdly, the study is limited to the relationship between university-industry partnership and employability, while other factors such as institutional management, funding, infrastructure, and motivation could mediate, and moderate this relationship. Other studies are needed to address these limitations by using a qualitative or mixed-method approach and extend the study to other university institutions. Also, further studies should expand the study area to include other variables such as institutional management, funding management, motivation, institutional self-assessment, quality assurance, curriculum revision, implementation and evaluation, and company infrastructures.

CONCLUSION

The results of the study show that the quality of partnerships between professional and technical higher education institutions and industries is a good predictor of graduates' employability. This indicates that when partnership between university institutions and industries is adequate and effective, graduates have a better chance to benefit from quality training that will help them to gain enough employability skills and ease their integration into

the world of work. With a key interest in professionalization as an agenda to improve graduates' employability in the 21st century, adequate educational policy and strategy are needed to address issues of effective partnerships with industries and other professional institutions. Therefore, the study suggests that effective educational policy and strategy should be adopted to improve graduates' employability by focusing on improving collaboration and cooperation between university institutions and industries.

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