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Stakeholder's Perspectives of the Twenty-First Century Skills

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Today, the shift toward technology industries has made the applicable skills in high demand in the workforce. However, job training and education in general have not changed enough to keep up with the on-going trends. Concerns over the skills gap in our global workforce have exploded. In response to the demands of labor market and to close the skills gap, educational institution should focus on supporting skill development to cultivate the competencies that students need, making education in twenty-first century skills essential to prepare the students for the new and unknown in this fast-changing world of technology. This research aims to investigate the importance of twenty-first century skills for the employability of undergraduate students. The findings indicate that twenty-first century skills are the needed employability attributes, which transcend beyond qualifications and experience, that employers are looking for. It is also discovered from this study that the most effective way to attain twenty-first century skill is to focus on integrating twenty-first century knowledge and skills into the education support systems for our nation to realize its goal of successfully meeting the challenge of the twenty-first century.

Keywords: twenty-first century skills, employability, undergraduates, curriculum, workforce

INTRODUCTION

Skills such as employability skills are important for new graduates to have in order to satisfy the demands of the labor market. In the past, only work maturity skills, basic education skills, and job-specific skills were included in the three competency areas approved by the U.S. Department of Labor to be included into Job Training Partnership Act (JTPA) programs that could satisfy the job market in the twentieth century (Bhaerman and Spill, 1988). Prior to the twenty-first century, occupation-specific skills and high academic qualifications were sufficient for graduates to break into the workforce. However, with the rapid technological advancement which began in the twentieth century, the selection criteria for a sizable portion of employees in the workforce began to change (Griffin and Care, 2014). Moreover, present-day employers favorably look upon employees who possess twenty-first century skills. These skills include, but are not limited to, working independently, problem-solving, verbal communication, allocating time efficiently, and ability to function well in stressful situations (McGunagle and Zizka, 2020). These skills were incorporated into the twenty-first century employability skills through technological advancement such as artificial intelligence, big data, extended reality robotics, internet of things, 3D printing, and blockchain (Marr, 2019). The technological advancement from the twentieth century not only created a demand for employees with the twenty-first century skills but also created a demand for data-literate employees (Pirzada and Khan, 2013). Employees with twenty-first century skills can

collect, organize, and understand data as well as predict outcomes, experiment, summarize, and communicate the results (Yahya et al., 2017). The absence of these skills in a significant portion of the employees thus hinders economic development as their skill sets will not be favorable to the labor market (Alshare and Sewailem, 2018). Nevertheless, many traditional programs with the same curriculum are taught in traditional ways at the cost of neglecting the knowledge and skills necessary for today's job market and that of the future (Bunshaft et al., 2015). This has caused a significant gap between the skills taught in academic programs and the skills required to attain employment in today's market (Akdere et al., 2019). According to an analysis of twenty-first century students' business skills in Qatar in 2018, approximately 75% of employers in the Gulf Cooperation Council (GCC) feel that educational institutions do not foster the development of twenty-first century skills among their students (Alshare and Sewailem, 2018). This shows that many employees in the workforce are unequipped for employment in today's workforce, subsequently pointing toward the importance of twenty-first century skills in today's employees. Thus, the aim of this research is to investigate the perception of twenty-first century skills needed for employability among undergraduate students. It also investigates the effectiveness of universities' curriculum-based learning to identify the gaps in adapting to twenty-first century skills while looking into the stakeholders' perspectives of the twenty-first century skills that are necessary for undergraduates.

LITERATURE REVIEW

Data Opportune and Employability

The twenty-first century skills are vital to secure employment in this era. The most common twenty-first century skills include digital literacy, problem-solving skills, creativity, critical thinking, and collaboration skills. The most important skills attributed to employability are critical thinking, digital literacy, and creativity. In this work, critical thinking is understood as the ability to understand, analyze, and evaluate information and draw conclusions from the given set of information. It also requires one's sound reasoning and analytical thinking in using information, facts, and data to solve workplace problems (Casner-Lotto and Barrington, 2006; Rios et al., 2020). It is believed that employees with critical thinking skills are innovative and they are most likely to come up with innovative ways, which can add values to the workplace and increase the overall efficiency of the systems and procedures (Tang, 2019). In this regard, employers often expect employees to have critical thinking skills for them to be able to provide values and insights for the company. Critical thinking also plays a vital role in leadership qualities, building teamwork skills, and saving time in the decision-making process. Whereas, digital literacy is the ability to perform tasks effectively in a digital environment where information is presented in a numerical form through computers. It also includes the ability to read and infer media, create data and images, as well as evaluate and apply new knowledge obtained from digital environments (Jones and Flannigan, 2006;

Bejaković and Mrnjavac, 2020). People are highly employable when they have a set of skills like digital literacy, computer skills, and ICT skills as it helps them to adapt to changes in a working environment.

A lack of digital literacy will not only result in unemployment, poor productivity, and decreased efficiency but it may also affect the chances of getting a job, promotion, or pay raise (Bejaković and Mrnjavac, 2020). This is in line with the results obtained from the PIACC data which showed that 5.4% of the interviewed respondents from several EU member states mentioned that a lack of digital literacy and computer skills had affected their chances of getting a job, promotion, and even a salary raise. Such finding shows that digital literacy plays an important role in one's career (Pellizzari et al., 2015; Bejaković and Mrnjavac, 2020). On the other hand, creativity is defined as the ability to produce new ideas while integrating current ideas and applying novel ideas in a real-world environment (Markle et al., 2013; Rios et al., 2020). Many of the rapidly growing careers and developing industries depend on employees' creative capabilities to think eccentrically, question the people, picture new scenarios, and create astounding works. In this regard, employees are expected to be creative in generating new ideas and novel solutions to problems. Thus, they need to think of new alternative techniques, detect the problems, analyze alternative solutions for the problems, and generate innovative ideas at the workplace. The discussion thus suggests that critical thinking, digital literacy, and creativity are important skills attributed to employability as these are the skills that most employers look for in their employees. Therefore, acquiring these skills would increase one's job opportunities and career growth which will help them to navigate in their future career.

Graduates with excellent academic credentials are required in the twenty-first century workforce, but they must also be prepared with a variety of skills and qualities. The ability to perform twenty-first century tasks is the new civil right of our time (Bellanca, 2010). One of these twenty-first century skills is digital literacy. Digital skills are the strength to succeed with electronic communication and technologies, enabling individuals to be prepared for the twenty-first century, enhance organizational productivity, and become better citizens (Pirzada and Khan, 2013). Data literacy is the ability to understand the meaning of data, including how to read charts, form proper conclusions, and recognize when data is being utilized in a deceptive or inappropriate way. It plays a big role in enhancing soft skills such as critical thinking and problem-solving. A survey conducted by Crawford et al. (2011) in Michigan State University has found that soft skills are ranked the most important by employers while discipline knowledge is ranked most important by the faculty and students. Although companies value data literacy abilities, there is a gap between what is taught at universities and what is needed when a graduate joins the job market. A particular concern is that the majority of employees are unable to comprehend data and make data-driven choices. Thus, there is a need to change the curriculum so that it can help students to develop competencies that are needed in the twenty-first century (Voogt and Pelgrum, 2005; Anderson, 2008). In Europe, the mismatch between what the education system offers and what businesses require is causing a major skills

deficit that harms young people's aspirations, and ultimately, the future prosperity (CEDEFOP, 2014; International Labor Office, 2014). In summary, as data becomes the global language, data literacy becomes a must for anybody who wants to make a difference in the world. It is necessary to recognize the value of data and provide resources that can help young people to develop data literacy skills so that they are better equipped for the workforce of the twenty-first century. Therefore, it is essential for people to be able to efficiently and correctly work with data and become literate in it.

Communicate, Collaborate, and Solve Problems

The global evolvement along with rapid transitions in the job market within the twenty-first century has resulted in significant changes to the set of criteria that employers seek within an employee. In this regard, employers are now looking for employees with certain skills that can benefit the company rather than academic qualifications. To be able to compete in the market, it is essential for graduates to develop their employability skills (Fajaryati and Akhyar, 2020). Mahmud and Wong (2016) advocate the idea of how social and communication skills are equally important to acquire intercultural competence which elucidating the exact challenges encountered to concoct a mechanism of facilitation for a smooth transition to the university setting. The exact situation will be experienced by the graduates when they enter the workforce which consequently, lessen the feeling of uncertainty. Primarily, communication skills are important for graduates to improve their employability opportunities, which are the building blocks of future career. Past studies have discovered a positive correlation between communication skills and graduates' employability (Rukuni et al., 2018; Hossain et al., 2020). Furthermore, communication skills are not only limited to oral communication but also consist of effective listening, asking good questions, and writing communication professionally using social media (Suarta et al., 2017), thus allowing messages to be delivered and received effectively to avoid any confusion during work. By communicating appropriately, people can give feedback to each other at work to improve their performance, which directly contributes to the success of an organization. If one is equipped with communication skills, they can build a peaceful relationship between co-workers and customers. At the same time, employees who communicate well with colleagues, managers, and customers are always deemed as significant assets to an organization (Page, 2021). Hence, graduates with communication skills are likely to have better employability. Secondly, collaboration skills are one of the employability attributes required for graduates to succeed in the workforce. Research has revealed that collaboration skills have the ability to promote graduates' employability when they are stepping into the workplace (Habets et al., 2020) as it allows them to work as a team to accomplish common tasks efficiently by exchanging information and expertise (Suarta et al., 2017). In addition, individuals with excellent collaboration skills are able to share the workload and motivate their teammates to foster a productive working environment. Employers are now

recruiting graduates with collaboration skills because they can take the accountability to contribute their thoughts and effort in the process of approaching a target. Thus, collaboration skills are positively related to graduates' employability. Thirdly, problem-solving skills are also among the skills that affect graduates' employability. Research shows that employers value candidates who have skills in problem-solving (Fajaryati and Akhyar, 2020) and it is the skills that are critically required in the workplace nowadays (Suarta et al., 2017). Many employers expect employees to have the ability to detect problems and generate appropriate alternative solutions. Based on the systematic review studied by Mahmud et al. (2021), it reveals that the pandemic demonstrated that students possess different skills, including strategic thinking and problem-solving skills. Problem-solving skills make individuals more adaptable to cope with any changes happening in the workplace. Besides, employees with problem-solving skills could also bring innovations and improvements to an organization (Stottler, n.d.) to help the organization maintains a competitive edge. Therefore, problem-solving skills play a vital role in enhancing graduates' employability. Such argument thus posits that communication skills, problem-solving skills, and collaboration skills are some of the twenty-first century skills that can improve employability because it fulfills the labor market demands. Consequently, these skills constitute to aptitudes that can benefit job-seeking graduates.

Disparities of Skills

The highly technologized world that we see today is a product of the rapid technological advancement which began in the twentieth century. Ever since, a decreasing number of employers continued to hire employees based on occupation-specific skills and high academic qualifications, while more employers began to hire them based on the possession of twenty-first century skills in addition to previously required qualifications (Griffin and Care, 2014). Contrary to the skills taught in universities, twenty-first century skills are not job-specific or restricted to any particular industry, but rather they can be transferred across all industries and occupations. However, many fresh graduates do not possess twenty-first century skills as they are not taught in universities (Alshare and Sewailem, 2018). This causes a gap between the skills obtained in universities and those required in the workforce. One of the reasons why twenty-first century skills should be taught in universities is because they are transferable across all industries and occupations (McGunagle and Zizka, 2020). This is important because unlike "soft skills," the requirements for "hard skills" will continually change over time as certain software and machinery become irrelevant and replaced with newer technology. Therefore, fresh graduates cannot solely rely on "hard skills" to succeed in the workforce and need to attain "soft skills." Due to the transferability of "soft skills," their appeal will still prevail in the job market regardless of the currently used technology or existing occupations. Another reason why twenty-first century skills should be taught in universities is that it allows employees to make connections between their field of study with their occupation and field of work by applying their skills to various contexts. Moreover, they need to be able to produce robust and innovative solutions to real-life business

problems in their field of work and occupation. According to McGunagle and Zizka (2020), current-day employers assert that many fresh graduates cannot effectively contribute to the workplace as they severely lack in the understanding of how a business runs. Overall, twenty-first century skills should be taught in universities because they are transferable across all industries and occupations, and they allow fresh graduates to make connections between their field of study with their occupation and field of work.

Currently, there is a gap between the skills taught in universities and the skills required in the workforce because many educational institutions continue to prioritize on teaching theoretical knowledge and "hard skills" while often neglecting the teaching of "soft skills," such as communication, collaboration, and critical thinking (Alshare and Sewailem, 2018). Unlike "soft skills," "hard skills" are non-transferable as they are typically applicable only within their specific industries, occupations, or even tasks. Examples of "hard skills" include manual calculations, bookkeeping, language proficiency, and machine operations. Although certain "hard skills" such as programming and software operation are beneficial and required for attaining employment, it only accounts for 15% of the reason why an individual attains employment while the remaining 85% is achieved through the possession of "soft skills" (Alshare and Sewailem, 2018). Due to the fact that universities do not prioritize on teaching "soft skills," a significant portion of fresh graduates struggle to attain employment. According to the Ernst and Young Report 2015, three-quarters of employers in the Gulf Cooperation Council (GCC) felt that educational institutions do not equip fresh graduates with the necessary skills to attain employment (Alshare and Sewailem, 2018). Due to this reason, universities should integrate twenty-first century skills in their curriculum to bridge the gap between the skills taught in universities and those required in the workforce. Another contributing factor to the skill gap is the teaching of obsolete skills or obsolete methods of teaching in universities (i.e., non-interactive, lecture-based learning). Outdated curriculums are caused by the lack of new textbooks, small shelf collections, as well as outdated subject documents and course materials that are not revised to include new knowledge (Nghi and London, 2018). Along with outdated curriculums comes outdated teaching methods, which stifle creativity and reinforce passive learning in comparison to student-centered, inquiry-based learning which enables students to develop higher-order analytical, behavioral, problem-solving, and decision-making skills. Overall, two main reasons that prompted the gap between the skills taught in universities and those required in the workforce exists are the prioritization of teaching theoretical knowledge and "hard skills" over "soft skills" as well as the teaching of outdated curriculums in universities.

Nonetheless, it is asserted that skills, both hard skills and soft skills, can significantly improve organizational performance which could be a catalyst for knowledge creation.

One method in which twenty-first century skills can be implemented in learning is through inquiry-based learning, which probes students to ask questions, helps to develop their problem-solving skills, and increases their interest in the subject (Nghi and London, 2018). According to a study conducted in Turkey in 2016, the critical thinking level of students taught using the inquiry-based learning approach was significantly higher than students taught using the traditional lecturing method (Duran and Dökme, 2016). Another method in which twenty-first century skills can be implemented in learning is through hands-on learning such as active learning and problem-based learning, where students learn through participating in activities rather than reading materials or attending lectures. This learning style helps to develop students' twenty-first century skills because it ensures that they thoroughly understand the concepts taught in the course rather than blindly memorizing the concepts without properly understanding the concepts and its purpose (Nghi and London, 2018). According to a study conducted in North Carolina State University in 2017, the assessment scores of their students had steadily increased by 4,360% within 5 years after the Software Engineering graduate course was revised to incorporate industry experience, industry role-playing exercises, progressive assignments, and team projects. This proves that incorporating twenty-first century skills in the curriculum through hands-on learning is an extremely beneficial method to implement such skills into learning, and to a greater extent, ensures that fresh graduates are equipped with twenty-first century skills when they enter the workforce. Overall, two effective methods in which twenty-first century skills can be implemented in the curriculum are inquiry-based learning and hands-on learning. To conclude, twenty-first century skills should be taught in universities because they are transferable across all industries and occupations while allowing employees to make connections between their field of study and their occupation and field of work. The gap between the skills taught in universities and the skills required in the workforce exists due to the negligence of "soft skills," the teaching of obsolete skills, and the continuation of teaching through obsolete methods, such as non-interactive and lecture-based learning.

RESEARCH METHODOLOGY

This study employed a quantitative research approach in which a survey was designed by deriving pertinent constructs from the existing literature. The survey comprised of five sections. The

TABLE 1 | Skills attributed to employability.

Items	SD	D	N	A	SA
S1: Importance of twenty-first century skills	2	1	10	37	119
S2: Twenty-first century skills and employability opportunity	3	2	16	44	104
Average percentage	1.48%	0.89%	7.69%	23.96%	65.98%

TABLE 2 | Ranking of important skills.

Twenty-first century skills	Rank	N	Mean
Communication	38.5%	65	0.385
Critical thinking	18.9%	32	0.189
Problem solving	11.8%	20	0.118
Collaboration	10.7%	18	0.107
Productivity	7.7%	13	0.077
Creativity	7.1%	12	0.071
Digital literacy	5.3%	9	0.053
Other skills			
Interpersonal skills	36.7%	62	0.367
Learning skills	24.9%	42	0.249
Personal skills	12.4%	21	0.124
Technical skills	11.8%	20	0.118
Adaptation skills	10.7%	18	0.107
Entrepreneurial skills	3.6%	6	0.036

first section focused on the demographic of the respondents, which included questions about their age, gender, profession, and country of origin. The other four sections were to gather data on critical skill attributes that are required for employability and how much each skill influences a graduate's chances of securing a job. It also aims to provide solutions on how to bridge the gap between what is taught at universities and what is needed in the workplace as well as the degree of significance of data literacy among graduates. The survey was administered through social media, such as Instagram, WhatsApp, and Telegram. All data were then computed into data tables using Microsoft Excel and processed for statistical analysis. The respondents of this were selected *via* the purposive sampling strategy, which required them to meet certain requirements imposed by the scope of the research. In this context, the research required them to be of a certain age, institution-based, graduates, and employers. The purpose of selecting these respondents is to

learn more about their perspectives on the importance of twenty-first century skills in the workplace today. The data was cross-tabulated to determine any links between the data gathered from closed-ended questions in the survey that were not instantly evident in the data. Descriptive statistics (frequencies and percentages) were used in the analysis to make more defensible judgment about stakeholders' perspectives of the twenty-first century skills which is further elaborated in the discussion section.

RESULTS

In this survey, there are a total of 169 respondents. The percentage of respondents aged 50–57 years old (29%) were disproportionately large in comparison to those between the age of 58–65 years old (6.5%). The percentage composition for each age group is as follows: 18–25 years old (15.4%), 26–33 years old (24.9%), 34–41 years old (10.7%), 42–49 years old (13.6%), 50–57 years old (29%), and 58–65 years old (6.5%).

The results in **Table 1** show that 70.4% ($n = 119$) and 61.5% ($n = 104$) of the respondents strongly agreed with S1 and S2, respectively. The average percentages ranged between 0.89 and 65.98%. Therefore, it can be concluded that the respondents recognize the importance of twenty-first century skills for better employability and career growth.

Table 2 illustrates the most important skills attributed to employability and the importance of twenty-first century skills for employability. The results showed that communication obtained the highest percentage (38.5%) for the most critical skills that employees lack when they enter the workforce. Meanwhile, digital literacy obtained the lowest percentage (5.3%), thus indicating that the respondents did not acknowledge the importance of digital literacy in employment. When asked about other skills that are necessary for better employability, the majority of respondents had ranked interpersonal skills as

TABLE 3 | Communication, collaboration, and problem-solving skills affect employability.

Items	SD	D	N	A	SA
S6: Communication skills and productivity	0	2	9	47	111
S7: Collaboration skills for better employability opportunity	0	2	17	61	89
S8: Employees with problem-solving skills are innovative thinkers, adaptable, with lateral mindset.	0	2	14	45	108
S9: Employers prefer to hire graduates with the ability to collaborate, communicate, and solve problems.	0	0	12	45	112
S10: Gaduates must be well equipped with communication, collaboration, and problem-solving skills before entering the workforce.	0	1	23	53	92
Average percentage	0	0.83%	8.88%	29.70%	60.59%

TABLE 4 | Skills' Gap (ordinal data).

Items	SD	D	N	A	SA
S11: Occupation-specific skills taught in university are no longer sufficient for graduates to meet the needs of job markets.	4	14	44	49	58
S12: Academic knowledge itself is sufficient for a fresh graduate to be fit for employment.	48	53	35	15	18
S13: University courses/subjects/curriculum/syllabus should be updated to avoid teaching obsolete skills.	0	2	18	53	96
S14: There is a severe gap between the skills taught in educational institutions and the skills required in the workforce.	2	6	21	56	84
Average percentage	7.99%	11.09%	17.46%	25.59%	37.87%

TABLE 5 | Ranking on the most effective means to attain twenty-first century skills.

Means	Frequency of each response
Integrated learning in education system	93
Work experience	47
External courses/programs	21
Others	8

the highest (36.7%) while entrepreneurial skills were ranked as the lowest (3.6%).

Table 3 shows results on the effects of communication, collaboration, and problem-solving skills toward graduates' employability. The majority of the respondents agreed or strongly agreed with all statements. In this regard, most respondents agreed or strongly agreed with items S6 (93.5%, $n = 158$), S7 (88.8%, $n = 150$), and S8 (90.5%, $n = 153$). Meanwhile, an average agreement of 90.9% was attained for S6, S7, and S8 as compared to the 1.2% of average disagreement. A great number of respondents also strongly agreed with item S9 (66.3%) while none of them disagreed with the item.

Table 4 shows the results for items S11 to S14. For item S11, 63.3% of the respondents (those who selected 4 or 5) agreed that the job-specific skills taught in universities are no longer sufficient for graduates to meet the current job market needs while others were neutral (26%) or either disagreed or strongly disagreed (10.7%) with the statement. For item S12, more than half of the respondents (59.8%) disagreed or strongly disagreed that academic knowledge itself is sufficient for fresh graduates to be fit for employment while 20.7% of them had a neutral stand and 19.6% of them either agreed or strongly agreed with the statement. For item S13, a vast majority of the respondents (88.2%) either agreed or strongly agreed that university courses, subjects, curriculum, or syllabus should be updated to avoid teaching obsolete skills. Whereas, 10.7% of the respondents were neutral, 1.2% of them disagreed, and none of them strongly disagreed with the statement. In addition, the percentage of respondents who either agreed or strongly agreed to the statement in Question 4 (82.8%) is similar to the percentage for Question 3, albeit a difference of 5.4%. In item S14, 12.4% of the respondents were neutral and 4.8% of them either disagreed or strongly disagreed that there is a severe gap between the skills taught in educational institutions and those required in the workforce.

Table 5 shows the ranking of responses of the most effective means to obtain twenty-first century skills. Top of the list

with 93 responses is by integrating twenty-first century skills through learning while working experience ranked as the second item on the list, and joining external courses and programs as the third item.

Table 6 illustrates the significance of being data literate toward employability. Most of the respondents either agreed or strongly agreed with all of the statements except S4. Despite the fact that 38% of the respondents ($n = 65$) were neutral regarding S4, the number of respondents who agreed was 34% ($n = 59$) compared to 26% ($N = 45$) who disagreed. Moreover, 53% ($n = 90$) of the respondents strongly agreed that technical skills alone are insufficient for employees to succeed in today's industry.

DISCUSSION

With the high percentage of the respondents agreeable to S1 and S2, it can be concluded that the respondents recognize the importance of twenty-first century skills for better employability and career growth. McGunagle and Zizka (2020) stated that it is essential for STEM students to have twenty-first century skills for them to be able to convey their ideas, comprehend business and personal ethics, grow their social skills, and respect a team of culturally diverse people in a working environment. According to Suarta et al. (2017), communication skills contribute to a strong relationship between employees and clients, which is vital for career success and contributes toward organizational success. Employers expect fresh STEM graduates to enter the workplace with high-level communication skills (Maxwell et al., 2009; McGunagle and Zizka, 2020). Most of the respondents have no urgency sense about the importance of digital literacy in employment. The development and growth of digitization have resulted in an increased demand for digital literacy, competencies, and skills, which has been confirmed by many studies (OECD Development Centre, 2014; Donlevy et al., 2016). Theoretical discussion and practical experience have shown that an increasing number of jobs require employees to use information and communication technologies (ICT) and possess digital skills (Bejaković and Mrnjavac, 2020). Employees are requested by employers to equip themselves with problem-solving, teamwork, communication, interpersonal, and job-specific skills (Bhagra and Sharma, 2018).

Results from **Table 3** revealed that employees understand the importance of communication, collaboration, and problem-solving skills at the workplace and these skills correspond with each other to maximize employees' productivity. Furthermore,

TABLE 6 | The significance of data literacy for employability.

Items	SD	D	N	A	SA
S1: Employability skills are also required along with technical skills in order to succeed in the industry.	1	1	21	56	90
S2: Skills like collecting and manipulating data effectively are needed for today's industry.	3	6	25	74	61
S3: Systematically analyzing data and using it for analyses are valuable skills for organizations in every industry.	0	3	40	54	72
S4: Fresh graduates are capable of collecting, organizing, and interpreting data, predicting outcomes, and communicating the results.	9	36	65	38	21
S5: Soft skill training (e.g., communication, problem solving) at the university level is crucial.	1	2	19	59	88
Average percentage	1.66%	5.68%	20.12%	33.25%	39.29%

it can be deduced that these skills are equally important and employers prefer to have employees with a combination of these skills (Fajaryati and Akhyar, 2020) instead of those who are only strong in either one of the skills. The finding also suggests that the development of communication, collaboration, and problem-solving skills among undergraduate students will significantly improve their employability opportunities, which is in line with the findings of previous studies (Rasul et al., 2013). In addition, it can be seen that the mean values for "agree" and "strongly agree" are 50.2 and 102, respectively, thus denoting a substantial degree of agreement.

In the era of big data, companies must invest in more than technology from them to be data-centric (Pothier and Condon, 2020). A previous study by Strauss (2016) found that 36% of 63,000 managers reported that newly hired graduates are lacking in data analysis skills, such as the competency in using applications like Excel, Tableau, and R. Furthermore, employees that can utilize data to expand the business, reduce expenses, enhance customer experience, and exploit data to its full potential are in high demand in today's corporate world (Pothier and Condon, 2020). Therefore, the ability to analyze and comprehend data is a critical twenty-first century skill. "Soft skills" related to data refer the ability to connect the dots and make sense of several independent concepts as well as deriving the links between them. Adoption of a data-driven program into the university curriculum will better prepare students for this data-driven century (Oguguo et al., 2020). The mean scores for this survey ranged from 2.8 to 66.4, thus representing a significant degree of satisfaction. This research shows that data literacy is vital in today's market and that a more effective data literacy program conducted at the university level will provide more possibilities for fresh graduates.

Even though twenty-first century skills are transferable across all occupations, employees may struggle to relate what they learn in external courses with what they learned in universities. Such option is also the most popular because work experience may not necessarily help employees to attain twenty-first century skills as it may take them years to learn it from their environment with little to no support. In addition, in today's world, the chance of employers hiring employees with little to no competency in twenty-first century skills is very low. Therefore, it will be difficult for fresh graduates to attain a job shortly after graduating, and hence, they will not be able to gain work experience.

CONCLUSION

This study was conducted with the aim to examine the importance of twenty-first century skills for the employability of undergraduate students. Based on the findings, it was discovered that such skills are indeed required for better employability,

with communication skills, critical thinking skills, interpersonal skills, and job-specific skills being propounded as the most important skills attributed to employability. This corroborates with numerous employability theories that postulate the important attributes of these skills. The study also found that communication, collaboration, and problem-solving skills have a positive impact on employability and that there is a severe gap between the skills taught in educational institutions with those required in the workforce. The findings further revealed that academic knowledge and occupation-specific skills are no longer sufficient for fresh graduates to be fit for employment and university courses, subjects, curriculum, or syllabus should be updated to avoid teaching obsolete skills. When asked about the most effective way for employees to attain twenty-first century skills, the majority of respondents answered "twenty-first century skills-integrated learning in education systems" followed by "work experience" and "external courses/programs." From the context of data literacy on employability, the findings showed that in today's industry, it is essential for graduates to possess the knowledge on how to analyze and interpret data. It is important to note that the majority of respondents inferred that these skills are equally essential and companies prefer to hire someone who possesses a mix of them. Many people also agree that these "soft skills" should be taught at the university level to equip graduates with these skills in preparing them for the workforce. Therefore, it is recommended for future research to elicit further elaboration from the respondents on the reasons why they picked each option in order to gain more insights for more accurate conclusions to be drawn. Future research can also use cluster sampling instead of purposive sampling strategy to ensure that the number of participants from each age group is the same. This will ensure the accuracy of responses as all age groups will be equally represented, thus eliminating bias among the respondents.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s

AUTHOR CONTRIBUTIONS

Both authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

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