information

Article

Impact of Acquisition of Digital Skills on Perceived Employability of Youth: Mediating Role of Course Quality

Daisy Mui Hung Kee [1,*,†], Aizza Anwar [1,†], Sai Ling Gwee [2] and Muhammad Fazal Ijaz [3,*]

[1] School of Management, Universiti Sains Malaysia, George Town 11800, Penang, Malaysia
[2] Penang Youth Development Corporation, Jelutong 11800, Penang, Malaysia
[3] Department of Intelligent Mechatronics Engineering, Sejong University, Seoul 05006, Republic of Korea
* Correspondence: daisy@usm.my (D.M.H.K.); fazal@sejong.ac.kr (M.F.I.)
† Shared first authorship.

Abstract: Penang Youth Development Corporation took the "Penang Young Digital Talent Program" initiative to bridge the gap between Malaysian youth's current digital skills and emerging technologies market demands. The program comprises different online courses such as web design, digital marketing, etc. The objective of this study is to understand the level of participants' digital competency and, secondly, investigate the impact of participants' digital competency on their perceived employability and examine the mediating role of course quality. This study employed a cross-section design method, and data were collected using purposive sampling. The participants (Nn= 385) of this program range from 18 to 22 years old, either born in Penang or have resided in Penang for a minimum of 3 years. The data were analyzed using Smart PLS 3.0. Post-online course findings show that digital content creation, information and data literacy, and problem-solving have a significant and positive relationship with perceived employability. Moreover, course quality significantly mediates the impact of communication and collaboration, digital safety and information and data literacy on the perceived employability of Malaysian youth. The findings of this research have implications for policymakers responsible for education, emphasizing youth's acquisition of digital skills to help them succeed in the current workplace.

Keywords: digital skills; digital competency; course quality; perceived employability

Citation: Kee, D.M.H.; Anwar, A.; Gwee, S.L.; Ijaz, M.F. Impact of Acquisition of Digital Skills on Perceived Employability of Youth: Mediating Role of Course Quality. *Information* **2023**, *14*, 42. https://doi.org/10.3390/info14010042

Academic Editors: Joanna Paliszkiewicz and Marcin Ratajczak

Received: 10 November 2022
Revised: 4 January 2023
Accepted: 6 January 2023
Published: 9 January 2023

1. Introduction

Just as we have seen the rise of e-mail, e-commerce, and e-government around the globe, e-education will also be accessed by people worldwide. In order to establish significant standards in curriculum, international organizations such as the United Nations, World Bank, and World Trade Organization (WTO) need to be involved in this effort to reaffirm the need to be receptive to innovative educational approaches, such as online courses [1]. With numerous studies showing a clear correlation between students' digital preparedness and academic success, the value of being tech-savvy has skyrocketed [2]. However, there is a lack of clarity regarding which digital skills are required for 21st-century abilities. While digital technologies keep growing, the future of work is threatened by gaps between what is taught in schools and what is needed in the workplace. Some groups of the population lack the necessary digital literacy to compete successfully for future employment. Traditional and developing learning deficiencies can place individuals at higher socioeconomic risk as technology advances, worsening inequality and career prospects [3]. Researchers have always encouraged skill development policymakers and institutions to examine the gap between workforce digital competency and employers' requirements [4] and asked the policymakers to develop digital competencies actively. An active role in designing innovative methods for fostering digital competency is imperative; it should be part of any institutional education agenda [5]. It is one of the fundamental essential competencies

required for digital learning and employability toward succeeding in a digital job economy that is constantly shifting and changing [6]. The students demonstrated a reasonably high level of perceived employability, which signals optimism around their likelihood of success in the labor market after graduation. An individual's self-perceived employability is their level of confidence in their own abilities to find employment [7]. Students who are about to enter the workforce for the first time take the time to carefully consider the careers they are interested in and the skills they would need to succeed. Students tend to reflect on their progress, taking into account both internal and external variables.

The study on students' perceived employability has been accelerated in recent decades [8,9] and is yet an under-researched area [8]. There is a shift in focus to the level of individual digital skills and competencies on perceived employability. Digital competence is "the confident, critical, and creative use of ICT to achieve goals relating to job, employability, learning, leisure, inclusion, and/or participation in society" [10] (p. 1). Many other fields, including social and cultural competence, have influenced the idea. One European Commission's recommendations advocated a new framework for cultivating digital competence [10]. Information processing, communication, content creation, problem-solving, and security are the five pillars upon which the framework rests. Similarly, [11], a systematic review on digital competency, refers to it as 21st-century digital skills for workers. Because of this, it is more important than ever to provide the youth with high-quality online courses through an e-learning platform. One of the most important criteria for evaluating an online course's quality is its content standard [12].

Penang Youth Development Corporation (PYDC), a Penang state government agency, understands the need and identifies the gap in digital skills for Malaysian youth. It introduced a "Penang Young Digital Talent Program" comprising e-commerce, web design, and digital marketing, etc. It is a digital skill program that assists participants in acquiring digital competency. The data were collected after participants completed their online courses. Consideration of the facts mentioned above and the prevailing literature gap has motivated the development of the framework of this study. The research aims to examine the impact of participants' digital competency on perceived employability and investigate the mediating role of course quality. Hence, this study intends to seek answers to the following questions:

- How does digital competency impact perceived employability of Malaysian youth?
- Is the relation between digital competency and perceived employability of Malaysian youth mediated by course quality?

This research enriches the literature on the relationship between digital competency and perceived employability and contributes to 'Sustainable Development Goals' (SDGs); #4 "quality education". Teaching staff can use these findings to improve student digital learning. Furthermore, the outcome of this study will also provide valuable insights to educational institutions and policymakers to design policies that develop digital competency and skills of Malaysian youth for improving their employability and assisting with being a progressive society through youth enrichment. The remainder of this study is organized as follows. The next section focuses on the theoretical foundations and hypotheses development. Section 3 presents the research methodology. Section 4 contains findings and data analysis methodologies, Section 5 is a discussion, and the last section, Section 6, concludes this study, followed by future directions.

2. Literature Review

2.1. Digital Competency and Perceived Employability

Digital competence entails the ability to work with cutting-edge technologies and digital information, familiarity with ICT ideals [10], and understanding that users have the right to innovate, control, design, and realize their full potential in this space. The capacity for doing so is associated with cognitive-thinking techniques for using digital information and completing tasks in digital settings. To be successful in the twenty-first century, digital skills are crucial, such as problem-solving, communication, creativity, and digital content creation [13]. Fonseca and Picoto emphasize the following as core competencies in the

context of digitalization: "(1) evaluating data, information and digital content; (2) browsing, searching, filtering data, information, and digital content; (3) interacting through digital technologies; (4) managing data, information and digital content; and (5) collaborating through digital technologies" [14] (p. 54).

The information processing aspect evaluates users based on their capacity to "identify, locate, retrieve, store, organize, and analyze digital information, judging its relevance and purpose." On the other hand, the communication criterion evaluates users based on their potential to "communicate in digital environments, share resources through online tools, link with others and collaborate through digital tools, interact with and participate in communities and networks, cross-cultural awareness." The ability of users to 'create and edit new content (from word processing to images and video); integrate and re-elaborate previous knowledge and content; produce creative expressions, media outputs, and programming; and deal with and apply intellectual property rights and licenses are what is meant when we talk about content creation. On the other hand, the term "safety area" can also refer to the skills that students have acquired in the areas of "personal protection, data protection, digital identity protection, security measures, safe and sustainable use." Finally, problem-solving is a test of the users' ability to identify digital needs and resources, make informed decisions regarding which digital tools are the most appropriate according to the purpose or need, solve conceptual problems using digital means, demonstrate their creative use of technologies, solve technical problems, and update one's own and others' competences. The technological advancements of the fourth industrial revolution have had far-reaching effects on corporate settings. They have created an employment market, making it necessary to have digital skill sets to be employable, especially important given Malaysia's early stage of Industry 4.0 [15].

Employability is the ability of the individual to gain initial employment, maintain employment, move between roles within the same organization, obtain new employment if required, and, ideally, obtain suitable and fulfilling jobs [16]. Perceived employability is the belief that one has the power and the possibility to secure gainful employment commensurate with one's degree of qualification [17]. Individual employability is a combination of different elements: assets (knowledge, skills, and attitudes), deployment (abilities such as job search skills), presentation and personal circumstances and the external labor market [18]. In the current era, the employability of individuals is greatly influenced by external job market conditions, such as the demands for digital skills [19].

A recent study aimed to improve students' digital skills to prepare them for digitally-enabled health sector work. Only 39% of students believe they have the necessary abilities to enter the job, and only 11% say their university provides enough resources to help them build their digital skills and competencies. Students improved their knowledge in this area by participating in a workshop on digital skills and employability designed by educators, librarians, and professionals in the field of career services. The results obtained after the session demonstrate that this learning intervention positively affected the student's knowledge of their digital talents and the significance of this fundamental skill for both higher education and the workplace [20]. Thus, the hypotheses are as follows:

Hypothesis H1. *Information and data literacy positively influence perceived employability of students.*

Hypothesis H2. *Communication and collaboration positively influence perceived employability of students.*

Hypothesis H3. *Digital content creation positively influences perceived employability of students.*

Hypothesis H4 *Problem-solving positively influences perceived employability of students.*

Hypothesis H5. *Safety positively influences perceived employability of students.*

2.2. Mediating Role of Course Quality

E-learning is becoming increasingly popular among today's students because of the abundant resources available to them through these mediums [21]. The popularity of online and remote education suggests a need to raise standards [22]. If one wants to know how good an online course is, the most crucial thing to consider is the content's quality [12]. The literature review provides a variety of opinions on overall e-learning quality. In the researcher's opinion [23], the quality of an e-learning program is determined by the methods used to assess its effectiveness.

Consequently, course quality is linked to efficient and successful content and effective pedagogy [24]. Students' perception of the quality of their online courses can be determined by understanding their intent to continue using the online platform for learning activities after completing their current studies [25]. As a result, it is now more crucial than ever for educational institutions to offer students top-notch online courses via the e-learning platform. Students may view the e-learning system as a viable instructional tool if it provides them access to digital skills [26]. Courses were evaluated based on how well they combined theoretical study with hands-on experience and how well they taught their students and provided them with resources. The authors determined that "the development of competencies and skills and the fitness-for-purpose of studies in relation to the job market are very important dimensions—the latter more so in the choice of studies" [27] (p. 5). When learners feel that the design of the course contents provided by the e-learning system meets their demand for digital skills, it improves their perception of perceived employability. Therefore, students must consider online courses' quality for career success and employability.

Hypothesis H6. *Course quality mediates the relationship between information and data literacy and the perceived employability of students.*

Hypothesis H7. *Course quality mediates the relationship between communication and collaboration and the perceived employability of students.*

Hypothesis H8. *Course quality mediates the relationship between digital content creation and the perceived employability of students.*

Hypothesis H9. *Course quality mediates the relationship between problem-solving and the perceived employability of students.*

Hypothesis H10. *Course quality mediates the relationship between safety and perceived employability of students.*

3. Methodology

3.1. Participants and Data Collection

The study aims to determine Malaysian youth's digital competency and its impact on perceived employability after completing PYDC online courses. A purposive sampling technique was employed in this study. The individuals enrolled in the Penang youth digital talent program were part of this study. The data were collected after participants completed their enrolled courses within 2 weeks. The questionnaire was created and distributed online through Google Forum to prevent bias and protect the participants' privacy. Participants were informed of the study's aims and asked to assess their digital competence level and perceived employability.

The study participants were in the age range of 18–22 years old, born in Penang, or resided in Penang for a minimum of 3 years consecutively. The participants must be able to understand, write and communicate in English. In this study, a quantitative research design was applied. Out of 385 respondents, 148 (38%) were males, and 237 (62%) were female. The majority of respondents (64%) are 15–16 years old, and the majority are Chinese (70.4%)

participants. The results reported that after students completed their online courses with PYDC, out of 385 participants, information and data literacy = 79%, communication and collaboration = 83%, digital content creation = 66%, safety = 75%, and problem-solving = 68%.

3.2. Measurement

This study comprises a digital competence scale comprising information, communication, content creation, safety, and problem-solving adopted from Al Khateeb's [28] study to examine participants' digital competency levels. All responses of digital competency were measured on a 5-point Likert scale ranging from 1 (not applicable) to 5 (to a very large extent). The participants were asked to indicate about course quality on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The sample items are "The course provided by PYDC is useful" and "The course provided by PYDC is understandable." Students indicate on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) about perceived employability. The sample items are "I will have the relevant skills for the future career" and "My knowledge will stay relevant and have better future career success."

3.3. Data Analysis Techniques

The data were analyzed using SPSS and Smart PLS 3.2.7 software. SPSS was used to determine descriptive statistics. The study used a structural equation model (SEM) to examine the proposed relationship [29]. PLS-SEM is a non-parametric technique, and it is suitable for analyzing complicated research models. The two-step approach was employed; firstly, the outer measurement model was tested to examine convergent and discriminant validity; secondly, the inner model was evaluated for the proposed hypotheses [26].

4. Findings

4.1. Evaluation of the Outer Measurement Model

Firstly, the measurement model was examined to determine the instruments' validity and reliability, as shown in Table 1. The convergent validity is determined by composite reliability (CR), average variance extracted (AVE), and outer loading, and results reported that each variable is above the recommended criteria—CR and AVE are above 0.7 [30]. Moreover, it is recommended that the researchers should be mindful while deleting the outer loadings between 0.4 and 0.7. The researcher is advised to delete the items if it assists in improving the reliability; if an indicator's reliability is low, and eliminating this indicator goes along with a substantial increase in composite reliability, it makes sense to discard this indicator [31]; thus external loadings are 0.6 and above.

Additionally, the discriminant validity is measured by using the "Fornell–Larcker criterion method" and the "heterotrait–monotrait method" ratio (HTMT). The Fornell and Larcker [32] results are presented in Table 2. The Fornell and Larcker [32] method compares the square root of the average variance extracted (AVE) with the correlation of latent constructs. A latent construct should better explain the variance of its own indicator rather than the variance of other latent constructs. Therefore, the square root of each construct's AVE should have a greater value than the correlations with other latent constructs [30].

Table 1. Reliability and validity.

Construct	Item	Loadings	Cronbach's Alpha	CR	AVE
Information and Data Literacy (ID)	ID1	0.797	0.929	0.942	0.670
	ID2	0.847			
	ID3	0.779			
	ID4	0.769			
	ID5	0.818			
	ID6	0.875			
	ID7	0.879			
	ID8	0.822			
	ID9	0.818			

Table 1. *Cont.*

Construct	Item	Loadings	Cronbach's Alpha	CR	AVE
Communication and Collaboration (CC)	CC1	0.765	0.958	0.963	0.686
	CC2	0.803			
	CC3	0.788			
	CC4	0.866			
	CC5	0.867			
	CC6	0.815			
	CC7	0.854			
	CC8	0.847			
	CC9	0.813			
	CC10	0.834			
	CC11	0.837			
	CC12	0.846			
Digital Content Creation (DC)	DC1	0.538	0.927	0.939	0.584
	DC2	0.787			
	DC3	0.814			
	DC4	0.801			
	DC5	0.781			
	DC6	0.840			
	DC8	0.754			
	DC9	0.747			
	DC10	0.779			
	DC11	0.764			
	DC12	0.763			
Problem Solving (PS)	PS2	0.651	0.937	0.942	0.622
	PS3	0.698			
	PS4	0.780			
	PS5	0.810			
	PS6	0.856			
	PS7	0.827			
	PS8	0.856			
	PS9	0.769			
	PS10	0.848			
	PS11	0.791			
Safety (SF)	SF1	0.752	0.924	0.932	0.514
	SF2	0.748			
	SF3	0.786			
	SF4	0.763			
	SF5	0.746			
	SF6	0.649			
	SF7	0.709			
	SF8	0.704			
	SF9	0.717			
	SF10	0.717			
	SF11	0.688			
	SF13	0.628			
Course quality (QC)	QC1	0.892	0.949	0.959	0.798
	QC2	0.856			
	QC3	0.914			
	QC4	0.927			
	QC5	0.883			
	QC6	0.885			
Perceived Employability (PE)	PE1	0.894	0.966	0.971	0.829
	PE2	0.905			
	PE3	0.914			
	PE4	0.906			
	PE5	0.914			
	PE6	0.911			
	PE7	0.928			

Notes: CR, composite reliability; AVE, average variance extracted.

Table 2. Assessment of discriminant validity using the Fornell–Larcker method.

	1	2	3	4	5	6	7
1. CC	0.828						
2. DC	0.626	0.764					
3. PE	0.637	0.519	0.91				
4. ID	0.753	0.628	0.702	0.818			
5. PS	0.254	0.365	0.222	0.247	0.789		
6. QC	0.567	0.386	0.794	0.617	0.104	0.893	
7. SF	0.56	0.568	0.434	0.591	0.34	0.308	0.717

Note: Diagonal values represent the square root of average variance extraction, while off-diagonal values represent the correlation, CC = communication and collaboration, DC = digital content creation, PE = perceived employability ID = information and literacy, PS = problem-solving, QC = course quality, SF = safety.

The HTMT [29] results are shown in Table 3. HTMT values close to 1 indicate a lack of discriminant validity. HTMT cut-off values of 0.90 for HTMT ratio are recommended by [33]. Taken together, the previous results confirm and support the scale reliability, discriminant, and convergent validity as approved in the study measurement outer model.

Table 3. Heterotrait–monotrait (HTMT) ratio for the constructs.

	1	2	3	4	5	6	7
1. CC							
2. DC	0.655						
3. PE	0.661	0.544					
4. ID	0.796	0.677	0.739				
5. PS	0.232	0.353	0.202	0.231			
6. QC	0.593	0.404	0.829	0.653	0.091		
7. SF	0.558	0.572	0.426	0.600	0.369	0.300	

Note: CC = communication and collaboration, DC = digital content creation, PE = perceived employability ID = information and literacy, PS = problem-solving, QC = course quality, SF = safety.

4.2. Assessment of the Structural Inner Model

The bootstrapping (5000 samples) technique was used to calculate the direct and indirect effects of hypothesized relationships, as presented in Table 4. A one-tail test bootstrapping technique was used to examine the direct effect. Hypothesis 1 results indicate that information and data literacy have a significant and positive relationship with perceived employability ($\beta = 0.499$, $p < 0.01$). Therefore, hypothesis H1 of this study was accepted. Furthermore, hypothesis 2 was also supported because communication and collaboration have a significant and positive relationship with perceived employability ($\beta = 0.230$, $p < 0.01$). Hypothesis 3 of digital content creation was not related to perceived employability ($\beta = 0.075$, $p > 0.01$). Problem-solving ($\beta = 0.023$, $p > 0.01$) and safety ($\beta = -0.041$, $p > 0.01$) have no relationship with the perceived employability of the students. Hypothesis 4 and hypothesis 5 were also not acceptable.

Table 4. Summary of hypotheses testing.

Hypotheses and Path		*B* Value	*t*-Value	*p*-Value	Confidence Interval (95%)		Results
H1	ID -> PE	0.499	6.09	0.000	0.363	0.636	Support
H2	CC -> PE	0.230	2.705	0.003	0.082	0.365	Support
H3	DC -> PE	0.075	1.383	0.083	−0.010	0.168	Not Support
H4	PS -> PE	0.023	0.603	0.273	−0.036	0.088	Not Support
H5	SF -> PE	−0.041	0.909	0.182	−0.112	0.035	Not Support
H6	ID -> QC -> PE	0.287	6.820	0.000	0.206	0.368	Support
H7	CC -> QC -> PE	0.164	3.615	0.000	0.077	0.254	Support
H8	DC-> QC -> PE	−0.011	0.346	0.729	−0.072	0.056	Not Support
H9	PS -> QC -> PE	−0.025	1.022	0.307	−0.071	0.025	Not Support
H10	SF -> QC -> PE	−0.068	2.274	0.023	−0.129	−0.011	Support

Note: ID = information and literacy, CC = communication and collaboration, DC = digital content creation, PE = perceived employability, PS = problem-solving, QC = course quality, SF = safety.

A two-tail test bootstrapping technique was used to examine the mediating role of course quality. The quality of the course mediates the relationship between information and data literacy ($\beta = 0.287$, $p < 0.01$), communication and collaboration ($\beta = 0.164$, $p < 0.01$) and perceived employability. Thus, Hypotheses 6 and 7 were accepted. However, the quality of the course does not mediate the relationship between digital content creation ($\beta = -0.011$, $p > 0.01$), problem-solving ($\beta = -0.025$, $p > 0.01$) and perceived employability. Thus, hypotheses 8 and 9 were not accepted. Course quality mediates the relationship between safety ($\beta = -0.068$, $p < 0.01$) and perceived employability. Hypothesis 10 was accepted.

The structural model is presented in Figure 1. The R^2 value is the most often used metric to predict the accuracy of a model's estimates [34]. It summarizes the cumulative impact of the independent variables on the dependent variable [34]. The effect ranges from 0 to 1, with 1 indicating total accuracy in the measurement. R^2 values of 0.75, 0.50, and 0.25, respectively, indicate significant, moderate, and modest levels of predictive accuracy, respectively [35]. The R^2 value of course quality was 0.418, indicating that 41.8% of the variance in course quality was explained by different digital skills, and the R^2 value of perceived employability was 0.719, suggesting that 71.9% of the variance in perceived employability was explained by course quality and different digital skills.

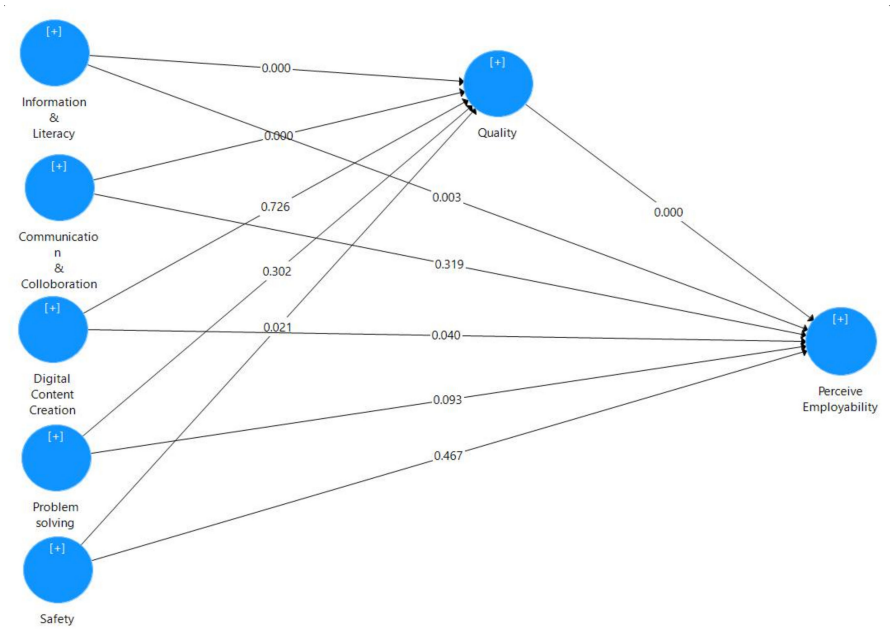

Figure 1. Structural model.

More recently, scientists have advocated that, in addition to calculating R^2, effect sizes (f^2) can be reported to quantify the predictive power of each independent construct [33]. The results ranging from 0.35 to 0.15 to 0.02 indicate a big, medium, and small effect, respectively [34]. The information and literacy variables reported a small effect on perceived employability ($f^2 = 0.560$) and medium effect on course quality ($f^2 = 0.152$). Course quality reported large effect size on perceived employability ($f^2 = 0.691$).

Another metric that must be evaluated in the structural model is predictive relevance (Q2) or blindfolding. It is intended to determine whether the model has predictive power in this particular research [36,37]. There were 0.330 values for course quality and 0.592 values for perceived employability in the Q2 survey. In this investigation, the Q2 values were more than zero, which indicates that the model had predictive validity.

5. Discussion

Being tech-savvy is a desirable trait in the ever-shifting job market. To date, not enough research has been undertaken to answer the fundamental question about digital literacy's role in being employable. One needs diverse skills and knowledge to succeed in today's

information technology industry. This research revealed that the "Penang Young Digital Talent Program" fosters digital competency to achieve the Penang government's vision of a stable and progressive society. The data were collected after participants completed their course on Malaysians' knowledge, communication, content creation, safety, and problem-solving skills to gauge their perceived employability. The study's objective was to determine the impact of digital skills acquisition on students' perceived employability and the indirect role of course quality. Out of 10 hypotheses, 5 hypotheses were accepted. Two direct and three indirect relationships were supported.

Hypothesis 1 and hypothesis 2 report that information and digital literacy and communication and collaboration have a significant relationship with perceived employability. It indicates that when participants believe they are equipped with digital information and literacy and communication and collaboration skills, they tend to perceive being employable. In light of the demographic results, it is suggested that most Chinese females who participated in the age group of 15–16 years old have better perceived employability after taking a course.

Hypotheses 3, 4, and 5 were not supported. The results reported that digital skills such as digital content creation, problem-solving, and safety have no significant impact on participants' perceived employability. It contradicts the literature on digital skills and competency. Those who have not learned even the most fundamental aspects of digital technology run the greatest risk of being out of work for an extended period of time [38]. Nevertheless, the rationale could be that 65% of participants were 15–16 years old and 28% were in the 17–18 age group. Thus, they might not need digital content, problem-solving, and safety skills for their jobs. It is important to point out that these employability skills may vary among industries and types of jobs [39].

Hypothesis 6 is supported in that course quality mediates the relationship between information and literacy and perceived employability. The results indicate that participant's perceived employability was better when the good course quality helped them learn digital information and literacy. Hypothesis 7 is significant; course quality mediates the relationship between communication and collaboration and perceived employability. The results report that participants find that course content quality assists them with digital communication and collaboration skills, leading to perceived employability. Hypothesis 10 is significant; course quality mediates the relationship between safety and perceived employability. The result of the hypothesis reported that participants believe that course quality related to digital safety skills decreases their perceived employability, whereas hypothesis 8 and hypothesis 9 are not supported. It indicates that study participants do not find course quality related to digital content creation and problem-solving to assist them with perceived employability. Although, existing studies conducted at a university reported that students improved their digital knowledge by participating in a workshop on digital skills and lead to better employability. In total, 39% of students believe they have the necessary abilities to enter the job [20]. However, in this study, 65% of participants were 15–16 years old, and 28% were in the 17–18 age group. Thus, they might not need digital content, problem-solving, and safety skills to enter that job market, so hypotheses were not supported.

6. Conclusions

6.1. Theoretical and Practical Contribution

The study's findings can be used as a springboard for further work on enhancing students' digital capabilities and improving their employability. It contributes to the body of knowledge by illuminating that several factors influence how online students evaluate their employability. Graduates may not be very well aware of the rapid changes in work style and environment. However, all organizations have shifted their work to online platforms, using various digital tools that have made them realize that entry-level digital skills are now essential and will become more critical in the future. The study's findings contribute to the understanding that digital information is now a prerequisite for most white-collar jobs. The ability to use technology is essential for entering the workforce.

Policymakers can play a significant role by investing in and supporting a digital education system and increasing the number of "Talent Programs" that are digitally supportive, as well as the number of students and teachers who are digitally confident and supportive.

6.2. Limitations and Future Research Directions

The Malaysian youth enrolled in the "Penang Youth Development Program" were the focus of this research. Therefore, care should be taken when generalizing the results to students who have exhibited digital competence. Another limitation of the study is that it examined students' perceptions of employability. It is because participants are 18–22 years old, and most students would be about to enter the workforce for the first time, which aligned with earlier studies [8,9]. However, future studies can explore the more objective indicators of employability, such as promotion, salary increase or obtaining a better-paid job, along with getting employers' opinions for better insight.

Future research on this topic may want to investigate the roles of satisfaction and personality in addition to course quality, which was not investigated in this study. The relationship between students' personality qualities and the potential moderating impact of students' demographics (such as gender or age) could be explored. Additional study possibilities could involve conducting qualitative research with focus groups and interviews to gain a deeper grasp of this subject.

Based on the continuously shifting demands of the labor market and growing industries, government institutions understand the need to adopt a more flexible and robust approach to developing and implementing digital courses. However, to do so, policymakers in each government and state will need to have an in-depth understanding of their own technological assets, challenges, and opportunities.

Author Contributions: Conceptualization, D.M.H.K., A.A. and S.L.G.; methodology, D.M.H.K., A.A. and S.L.G.; software, A.A.; validation, D.M.H.K., A.A., S.L.G. and M.F.I.; formal analysis, A.A.; investigation, D.M.H.K. and A.A.; resources, M.F.I.; data curation D.M.H.K., A.A. and S.L.G.; writing—original draft preparation, A.A.; writing—review and editing, D.M.H.K., A.A. and M.F.I.; visualization, D.M.H.K., A.A., S.L.G. and M.F.I.; supervision, D.M.H.K.; project administration, D.M.H.K., A.A. and M.F.I. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by Penang Youth Development Corporation, grant number 304/PMGT/6501158/P164. The funding source did not play a role in the study design, the collection, analysis, and interpretation of data, the writing of the report, or the decision to submit this manuscript for publication.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all participants.

Data Availability Statement: Not applicable.

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

References

1. Palvia, S.; Aeron, P.; Gupta, P.; Mahapatra, D.; Parida, R.; Rosner, R.; Sindhi, S. Online Education: Worldwide Status, Challenges, Trends, and Implications. *J. Glob. Inf. Technol. Manag.* **2018**, *21*, 233–241. [CrossRef]
2. Al Seghayer, K. Investigating the Adequacy of EFL Learners' L2 Digital Literacy Skills, Consistency of Self-Assessed Competence, and Actual Performance. *Int. J. Comput. Lang. Learn. Teach.* **2020**, *10*, 1–22. [CrossRef]
3. Lyons, A.C.; Zucchetti, A.; Kass-Hanna, J.; Cobo, C. Bridging the Gap Between Digital Skills and Employability for Vulnerable Populations. In *G20 2019 Japan*; JapanGov: Osaka, Japan, 2019; Volume 1.
4. Lee, S.H. Skills Development Driven by Labor Market Demand. In *Education in the Asia-Pacific Region*; Springer: Berlin/Heidelberg, Germany, 2020; Volume 55, pp. 271–277. [CrossRef]
5. Pettersson, F. On the issues of digital competence in educational contexts—A review of literature. *Educ. Inf. Technol.* **2018**, *23*, 1005–1021. [CrossRef]
6. Lucas, M.; Bem-haja, P.; Santos, S.; Figueiredo, H.; Ferreira Dias, M.; Amorim, M. Digital proficiency: Sorting real gaps from myths among higher education students. *Br. J. Educ. Technol.* **2022**, *53*, 1885–1914. [CrossRef]

7. Pitan, O.S.; Muller, C. Students' self-perceived employability (SPE): Main effects and interactions of gender and field of study. *High Educ. Ski. Work Learn.* **2020**, *10*, 355–368. [CrossRef]
8. Petruzziello, G.; Mariani, M.G.; Guglielmi, D.; van der Heijden, B.I.J.M.; de Jong, J.P.; Chiesa, R. The role of teaching staff in fostering perceived employability of university students. *Stud. High. Educ.* **2023**, *48*, 20–36. [CrossRef]
9. Kertechian, K.S.; Ismail, H.N.; Karkoulian, S. How employable do students perceive themselves to be in the future? Evidence from the Middle East. *Ind. High. Educ.* **2022**, *12*, 095042222211197. [CrossRef]
10. Ferrari, A. *Digital Competence in Practice: An Analysis of Frameworks*; JRC-IPTS: Seville, Spain, 2013. [CrossRef]
11. Van Laar, E.; van Deursen, A.J.A.M.; van Dijk, J.A.G.M.; de Haan, J. Determinants of 21st-Century Skills and 21st-Century Digital Skills for Workers: A Systematic Literature Review. *SAGE Open* **2020**, *10*, 215824401990017. [CrossRef]
12. Almaiah, M.A.; Alyoussef, I.Y. Analysis of the Effect of Course Design, Course Content Support, Course Assessment and Instructor Characteristics on the Actual Use of E-Learning System. *IEEE Access.* **2019**, *7*, 171907–171922. [CrossRef]
13. Van Laar, E.; van Deursen, A.J.A.M.; van Dijk, J.A.G.M.; de Haan, J. The relation between 21st-century skills and digital skills: A systematic literature review. *Comput. Hum. Behav.* **2017**, *72*, 577–588. [CrossRef]
14. Fonseca, P.; Picoto, W.N. The competencies needed for digital transformation. *Online J. Appl. Knowl. Manag.* **2020**, *8*, 53–70. [CrossRef]
15. Rahmat, A.M.; Mohd, I.H.; Omar, M.K.; Kamalludeen, R.; Zulhafiz, W.M.; Zahari, W.; Azmy, N.; Adnan, A.H.M. Integrating Socio-Digital Skills in the Industry 4.0 era for graduates' employability: An employers' perspective. *J. Posit. Sch. Psychol.* **2022**, *6*, 8493–8507.
16. Behle, H. Students' and graduates' employability. A framework to classify and measure employability gain. *Policy Rev. High. Educ.* **2020**, *4*, 105–130. [CrossRef]
17. Rothwell, A.; Herbert, I.; Rothwell, F. Self-perceived employability: Construction and initial validation of a scale for university students. *J. Vocat. Behav.* **2008**, *73*, 1–12. [CrossRef]
18. McGunagle, D.; Zizka, L. Employability skills for 21st-century STEM students: The employers' perspective. *High. Educ. Ski. Work Learn.* **2020**, *10*, 591–606. [CrossRef]
19. Novakova, L. The impact of technology development on the future of the labour market in the Slovak Republic. *Technol. Soc.* **2020**, *62*, 101256. [CrossRef]
20. Cham, K.; Edwards, M.L.; Kruesi, L.; Celeste, T.; Hennessey, T. Digital preferences and perceptions of students in health professional courses at a leading Australian university: A baseline for improving digital skills and competencies in health graduates. *Australas. J. Educ. Technol.* **2021**, *38*, 69–86. [CrossRef]
21. Ilin, V. The role of user preferences in engagement with online learning. *E-Learn. Digit. Media* **2022**, *19*, 189–208. [CrossRef]
22. Cavanaugh, C. Distance Education Quality. In *The Design and Management of Effective Distance Learning Programs*; IGI Global: Hershey, PA, USA, 2002; pp. 171–189. [CrossRef]
23. Southard, S.; Mooney, M. A Comparative Analysis of Distance Education Quality Assurance Standards. *Q. Rev. Distance Educ.* **2015**, *16*, 55–68.
24. Vlachopoulos, D. Assuring quality in e-learning course design: The roadmap. *Int. Rev. Res. Open Distance Learn.* **2016**, *17*, 183–205. [CrossRef]
25. Cheng, Y.M. Students' satisfaction and continuance intention of the cloud-based e-learning system: Roles of interactivity and course quality factors. *Educ. Train.* **2020**, *62*, 1037–1059. [CrossRef]
26. Guillén-Gámez, F.D.; Mayorga-Fernández, M.J.; Álvarez-García, F.J. A Study on the Actual Use of Digital Competence in the Practicum of Education Degree. *Technol. Knowl. Learn.* **2020**, *25*, 667–684. [CrossRef]
27. James, M.; Yun, D. Exploring student satisfaction and future employment intentions: A case study examination: Is there a link between satisfaction and getting a job?". *High. Educ. Ski. Work Learn.* **2018**, *8*, 117–133. [CrossRef]
28. Al Khateeb, A.A.M. Measuring Digital Competence and ICT Literacy: An Exploratory Study of In-Service English Language Teachers in the Context of Saudi Arabia. *Int. Educ. Stud.* **2017**, *10*, 38. [CrossRef]
29. Hoyle, R.H. The Structural Equation Modeling Approach. Basic Concepts and Fundamental Issues. In *Structural Equation Modeling: Concepts, Issues, and Applications*; SAGE Publications, Inc.: Thousand Oaks, CA, USA, 1995; pp. 1–15.
30. Hair, J.F.; Hult, G.T.M.; Ringle, C.M.; Sarstedt, M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd ed.; SAGE Publications, Inc.: Thousand Oaks, CA, USA, 2016.
31. Henseler, J.; Ringle, C.M.; Sinkovics, R.R. The use of partial least squares path modeling in international marketing. *Adv. Int. Mark.* **2009**, *20*, 277–319. [CrossRef]
32. Fornell, C.; Larcker, D.F. Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *J. Mark. Res.* **1981**, *18*, 382–388. [CrossRef]
33. Hair, J.F.; Howard, M.C.; Nitzl, C. Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *J. Bus. Res.* **2020**, *109*, 101–110. [CrossRef]
34. Hair, J.F.; Sarstedt, M.; Ringle, C.M. Rethinking some of the rethinking of partial least squares. *Eur. J. Mark.* **2019**, *53*, 566–584. [CrossRef]
35. Hair, J.F.; Risher, J.J.; Sarstedt, M.; Ringle, C.M. When to use and how to report the results of PLS-SEM. *Eur. Bus. Rev.* **2019**, *31*, 2–24. [CrossRef]
36. Geisser, S. A Predictive Approach to the Random Effect Model. *Biometrika* **1974**, *61*, 101–107. [CrossRef]
37. Stone, M. Cross-Validation and Multinomial Prediction. *Biometrika* **1974**, *61*, 509–515. [CrossRef]

38. Guitert, M.; Romeu, T.; Colas, J.F. Basic digital competences for unemployed citizens: Conceptual framework and training model. *Cogent. Educ.* **2020**, *7*, 1748469. [CrossRef]
39. Bhatti, M.; Alyahya, M.; Alshiha, A.A.; Qureshi, M.G.; Juhari, A.S.; Aldossary, M. Exploring business graduates employability skills and teaching/learning techniques. *Innov. Educ. Teach. Int.* **2022**, 1–11. [CrossRef]