

Original Article

Impact of a Short Online Digital Skills Training Program on the Employability Readiness of Unemployed Graduates in Cebu City, Philippines

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Abstract

The increasing demand for digital competencies in the current labor market has intensified concerns regarding the employability of unemployed graduates, particularly in developing economies. This study examined the impact of a short online digital skills training program on the employability readiness of unemployed graduates in Cebu City, Philippines. A quasi-experimental one-group pre-test and post-test design was employed to assess changes in participants' employability readiness following a structured, self-paced online training intervention. The program focused on productivity software, digital communication platforms, and online job-search strategies. Employability readiness was measured using a validated researcher-developed questionnaire that assessed digital literacy, job application preparedness, digital communication skills, and job-search confidence. The instrument demonstrated satisfactory internal consistency, with an overall Cronbach's alpha coefficient of 0.88. Results indicated a statistically significant improvement in participants' employability readiness after completing the intervention ($t = 9.87$, $p < 0.001$). Improvements were observed across all measured dimensions, with the greatest increase found in job-search confidence. While the findings suggest that participation in the online training program was associated with improved employability readiness, the absence of a control group limits causal interpretation. Nevertheless, the study highlights the potential of short-duration online digital skills training as a practical and scalable strategy for supporting

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workforce preparedness among unemployed graduates in developing-country contexts. Future studies employing more rigorous experimental designs are recommended to further validate these findings.

Keywords: educational technology, digital skills training, employability readiness, online learning intervention, unemployed graduates

1. Introduction

The rapid advancement of digital technologies has significantly transformed labor market demands, reshaping the competencies required for employment across virtually all industries. Organizations increasingly rely on cloud computing, digital collaboration platforms, artificial intelligence (AI)-supported applications, data management systems, and virtual communication technologies to improve productivity and organizational performance. Consequently, employers now seek graduates who possess not only discipline-specific knowledge but also practical digital competencies that enable them to adapt effectively to technology-driven workplaces (OECD, 2023; UNESCO, 2024; World Economic Forum, 2025; Caroline et al., 2024).

This digital transformation presents significant challenges for higher education institutions and graduates, particularly in developing countries where educational systems often struggle to keep pace with rapidly evolving technological requirements. Although universities continue to produce increasing numbers of graduates each year, many experience difficulty securing employment because their competencies do not fully align with employers' expectations. This mismatch is particularly evident in digital literacy, online communication, digital collaboration, information management, and technology-enabled workplace skills, all of which have become essential components of graduate employability (International Labour Organization, 2024; OECD, 2023; WEF, 2025).

Graduate unemployment and underemployment remain persistent socioeconomic concerns in the Philippines despite the continued expansion of higher education. As industries increasingly adopt hybrid and remote work arrangements, employers expect applicants to demonstrate competence in productivity software, virtual collaboration platforms, digital communication tools, online recruitment systems, and professional networking platforms. Graduates who possess limited digital competencies may therefore encounter greater difficulty competing in an increasingly technology-oriented labor market. Recent evidence suggests that digital skills have become among the strongest predictors of employment opportunities, career adaptability, and long-term workforce participation (ILO, 2024; UNESCO, 2024).

Educational technology has emerged as an effective approach for addressing these challenges by providing flexible, accessible, and scalable learning opportunities that support workforce development. Online learning environments enable individuals to acquire practical competencies regardless of geographical location or scheduling constraints while promoting self-directed and lifelong learning. Recent studies have demonstrated that well-designed online learning interventions can significantly improve digital competence, self-efficacy, career readiness, and workplace preparedness when instructional activities emphasize authentic, employment-related tasks and practical applications (OECD, 2023; UNESCO, 2024).

Short-duration digital upskilling programs have received increasing attention as practical interventions for improving employability among unemployed graduates. Compared with traditional classroom-based training, online programs provide greater flexibility, lower implementation costs, and wider accessibility, making them particularly suitable for individuals seeking to enhance workforce readiness while actively searching for employment. Recent workforce development initiatives have shown that structured digital skills training can strengthen participants' confidence in using workplace technologies, improve job-search strategies, and increase preparedness for technology-intensive occupations (ILO, 2024; WEF, 2025; World Bank, 2023).

Despite the growing availability of online learning resources and digital training initiatives, access to learning opportunities alone does not necessarily guarantee improved employability outcomes. Many learners require structured guidance, coherent instructional pathways, and opportunities for deliberate practice, and timely feedback to develop competencies that align with contemporary workplace expectations. Moreover, empirical evidence examining the effectiveness of short online digital skills interventions remains limited, particularly in developing-country contexts such as the Philippines, where disparities in digital preparedness and employment opportunities continue to exist (UNESCO, 2024; World Bank, 2023).

Furthermore, while previous related studies have extensively examined digital literacy and online learning, relatively few have investigated whether participation in short, structured online digital skills training programs is associated with measurable improvements in employability readiness among unemployed graduates. Existing research has primarily focused on university students, employees, or general digital competence rather than unemployed graduates preparing to enter an increasingly digital labor market. Addressing this gap is important because workforce development initiatives require empirical evidence to determine whether short-term educational interventions can effectively strengthen competencies that employers increasingly value.

Guided by Human Capital Theory (Becker, 1993), which posits that investments in education and skills development enhance individuals' productivity and employability, and supported by the Technology Acceptance Model (Davis, 1989), which explains how perceived usefulness and ease of use influence technology adoption, this study examined the association between participation in a short online

digital skills training program and employability readiness among unemployed graduates in Cebu City, Philippines. Specifically, the study investigated whether participation in a structured online learning intervention was associated with improvements in digital literacy, job application preparedness, digital communication skills, and job-search confidence.

This study contribute to the growing body of literature on educational technology, digital workforce development, and graduate employability by providing empirical evidence from a developing-country context. The study also offers practical insights for higher education institutions, workforce development agencies, and policymakers seeking scalable and cost-effective strategies to strengthen graduates' digital competencies and improve their readiness for an increasingly technology-driven labor market.

2. Methodology

2.1 Research Design

This study employed a quasi-experimental one-group pre-test and post-test design to examine the association between participation in a short online digital skills training program and employability readiness among unemployed graduates in Cebu City, Philippines. This research design is commonly used in educational intervention studies when random assignment of participants is not feasible due to practical and ethical considerations. Participants completed an employability readiness assessment before the intervention (pre-test) and again immediately after completing the online training program (post-test). The differences between the two assessments were used to determine whether employability readiness improved following participation in the training program. Although the design permits examination of changes over time, the absence of a control group limits the ability to attribute observed improvements solely to the intervention. Consequently, findings should be interpreted as indicating an association between participation in the training program and changes in employability readiness rather than definitive causal effects.

2.2 Research Setting

The study was conducted among unemployed graduates residing in Cebu City, Philippines, one of the country's major urban centers characterized by a highly competitive labor market and increasing demand for digitally competent employees. Although participants were geographically located within Cebu City, the intervention was implemented entirely through an online learning environment. Self-paced learning modules were delivered electronically, allowing participants to complete the training at their own convenience using internet-enabled devices. The online delivery format reflected current workplace practices in which digital collaboration, virtual communication, and remote work have become increasingly common. The training

utilized widely adopted digital platforms and productivity applications, including Google Workspace, Microsoft Office 365, Zoom, Slack, LinkedIn, and JobStreet, thereby exposing participants to technologies commonly encountered during recruitment and employment processes.

2.3 Participants and Sampling Procedure

The study employed purposive sampling to recruit unemployed college graduates who met the established inclusion criteria. Eligible participants were individuals who had completed a bachelor's degree from a recognized higher education institution, were unemployed during the period of data collection, resided in Cebu City, had regular access to an internet-enabled computer or mobile device, and voluntarily agreed to participate in the study by providing informed consent. Based on the inclusion criteria, a final sample of 50 unemployed graduates ($N = 50$) participated in both the pre-test and post-test assessments. This sample size satisfied the minimum requirement for conducting paired-sample statistical analyses in small-scale educational intervention research. Participants were recruited through referrals and online social media advertisements. No participant withdrew from the study after enrollment.

2.4 Research Instrument

The primary data collection instrument was a researcher-developed Employability Readiness Questionnaire designed to assess four dimensions of employability readiness: digital literacy, job application preparedness, digital communication skills, and job-search confidence. The instrument consisted of items rated on a five-point Likert scale (Likert, 1932), ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Representative items included statements such as "I can confidently use productivity software for workplace tasks," "I know how to prepare an online job application," "I can effectively communicate using digital collaboration platforms," and "I am confident in searching and applying for jobs through online recruitment websites." Prior to data collection, the questionnaire underwent content validation by expert validators in educational technology and workforce development to ensure its relevance, clarity, and appropriateness for measuring the intended constructs. The instrument demonstrated satisfactory internal consistency, with an overall Cronbach's alpha coefficient of 0.88.

2.5 Data Collection Procedure

The study followed a structured procedure. First, participants completed a pre-test survey to assess baseline employability readiness. Second, they underwent a short online digital skills training program delivered through self-paced modules covering

productivity tools such as Google Workspace and Microsoft Office 365, digital communication such as Slack and Zoom, and online job-search skills such as LinkedIn and Job street. These specific tools were selected based on their popularity in the current digital labor market. After completion, participants answered the post-test survey using the same instrument. Data collection was conducted within a 1–2 week intervention period.

2.6 Ethical Considerations

Ethical approval was obtained prior to data collection. Participation was voluntary, and informed consent was secured from all respondents. Participants were assured of confidentiality, and all collected data were anonymized and used solely for academic purposes. The study adhered to ethical principles of respect, beneficence, and data privacy.

2.7 Data Analysis

Data were analyzed using descriptive statistics (mean and standard deviation) to summarize employability readiness levels. A paired-sample t-test was used to determine whether there was a significant difference between pre-test and post-test scores. The level of significance was set at $p < 0.05$.

3. Results

3.1 Descriptive Statistics of Employability Readiness

Table 1. Descriptive statistics of employability readiness.

Variable	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD
Digital Literacy	2.85	0.62	4.10	0.55
Job Application Preparedness	2.78	0.58	4.05	0.60
Digital Communication Skills	2.92	0.65	4.15	0.50
Job-Search Confidence	2.70	0.70	4.20	0.52
Overall Employability Readiness	2.81	0.64	4.13	0.53

Table 1 presents the descriptive statistics for employability readiness before and after participation in the online digital skills training program. Prior to the intervention, participants demonstrated moderate levels of employability readiness across all four dimensions, with the lowest mean scores observed in job-search confidence ($M = 2.70$, $SD = 0.70$) and job application preparedness ($M = 2.78$, $SD = 0.58$). Following completion of the training program, mean scores increased across all dimensions, indicating higher levels of employability readiness. The largest improvement was observed in job-search confidence, suggesting that participants reported greater confidence in navigating online employment processes after completing the training.

These descriptive findings indicate positive changes in self-reported employability readiness following participation in the intervention.

3.2 Paired Sample t-test Results

Table 2. Paired-sample t-test results for overall employability readiness.

Variable	Mean Difference	t-value	df	p-value	Interpretation
Employability Readiness (Overall)	1.32	9.87	49	< 0.001	Significant

The paired-sample t-test revealed a statistically significant difference between the pre-test and post-test scores for overall employability readiness, $t(49) = 9.87$, $p < .001$. These findings indicate that participants reported significantly higher employability readiness after completing the online digital skills training program than before the intervention. While the observed improvement is consistent with the intended objectives of the training, the one-group pre-test and post-test design does not permit definitive conclusions regarding causality because no comparison or control group was included. Consequently, the results should be interpreted as evidence of a significant association between participation in the training program and improved employability readiness.

The increase in post-test scores across all measured dimensions suggests that participants perceived improvements in digital literacy, job application preparedness, digital communication skills, and job-search confidence following the intervention. These findings support the potential value of short-duration online digital skills training as a strategy for enhancing employability-related competencies among unemployed graduates. However, additional studies employing more rigorous experimental designs are recommended to further validate these findings and establish causal relationships.

4. Discussion

The findings of this study indicate that participation in a short online digital skills training program was associated with significant improvements in the employability readiness of unemployed graduates in Cebu City, Philippines. Participants demonstrated higher post-test scores across all measured dimensions, including digital literacy, job application preparedness, digital communication skills, and job-search confidence. These findings suggest that structured online learning interventions can contribute to developing competencies that are increasingly valued in today's digitally transformed labor market. However, because the study employed a quasi-experimental one-group pre-test and post-test design without a control group, the findings should be interpreted as evidence of an association rather than definitive proof of causality.

One of the most notable findings was the substantial improvement in participants' digital literacy following the intervention. This finding supports recent evidence that structured online learning environments can effectively strengthen learners' digital competencies when training focuses on practical workplace applications rather than theoretical knowledge alone. UNESCO (2024) emphasized that digital literacy has become a foundational competency for lifelong learning and workforce participation, while the OECD (2023) reported that employees with stronger digital skills demonstrate greater adaptability and productivity in technology-driven workplaces. Similarly, Díaz-Burgos et al. (2024) concluded that well-designed online learning interventions significantly improve learners' digital competence, self-directed learning, and confidence in applying digital technologies. The present findings are also consistent with the systematic review of Caroline et al. (2024), which concluded that digital literacy is a critical determinant of employability and innovative work behavior across diverse organizational contexts.

The intervention also resulted in marked improvements in job application preparedness. Participants reported greater confidence in preparing online applications, creating digital résumés, and navigating electronic recruitment platforms after completing the training program. This finding is consistent with recent workforce development research indicating that digital job-search competencies have become essential employability skills as organizations increasingly rely on online recruitment systems and applicant tracking technologies (International Labour Organization [ILO], 2024; World Economic Forum [WEF], 2025). Graduates who possess these competencies are generally better positioned to participate successfully in increasingly digital recruitment processes. The findings therefore suggest that structured online training programs may reduce barriers that unemployed graduates commonly encounter during job-search activities.

Digital communication skills likewise improved following participation in the intervention. Participants became more confident in using workplace collaboration platforms and virtual communication tools, including applications commonly used in remote and hybrid work environments. This finding aligns with recent studies highlighting that communication through digital platforms has become a core competency in modern organizations. According to the OECD (2023), effective digital communication facilitates teamwork, organizational collaboration, and knowledge sharing across geographically dispersed workforces. Likewise, UNESCO (2024) emphasized that communication and collaboration represent essential dimensions of digital competence that should be integrated into workforce preparation programs. These findings indicate that exposure to authentic workplace technologies during training may help graduates transition more effectively into digitally connected workplaces.

Among all measured dimensions, job-search confidence demonstrated the greatest improvement following the intervention. This finding suggests that participants not only acquired technical knowledge but also developed greater confidence in applying digital tools throughout the employment process. Confidence

has consistently been recognized as an important predictor of job-search behavior because individuals with stronger self-efficacy are generally more persistent, proactive, and resilient when seeking employment opportunities. Bandura's (1997) theory of self-efficacy proposes that mastery experiences strengthen individuals' beliefs in their capabilities, thereby increasing motivation to perform future tasks successfully. Recent research similarly indicates that digital self-efficacy contributes positively to career adaptability, employment readiness, and active job-search behaviors among graduates (ILO, 2024; WEF, 2025). Consequently, the substantial increase in job-search confidence observed in this study represents an important outcome beyond the acquisition of technical skills alone.

The statistically significant improvement in overall employability readiness further suggests that short-duration online digital skills training may contribute meaningfully to workforce preparation. Although the intervention lasted only one to two weeks, participants reported improvements across all measured employability dimensions. These findings are consistent with recent studies demonstrating that focused, competency-based online learning programs can produce measurable improvements in learners' workforce readiness within relatively short instructional periods (Bond et al., 2024; UNESCO, 2024). Nevertheless, because employability is influenced by numerous personal, educational, and labor-market factors, the observed improvements should not be interpreted as guarantees of future employment outcomes. Rather, the findings suggest that structured digital skills training represents one important component of broader employability development.

The findings also provide empirical support for Human Capital Theory (Becker, 1993), which proposes that investments in education and skills development enhance individuals' productivity and employability. Participation in the online training program may therefore be viewed as an investment in human capital that strengthened competencies valued by employers in digitally transformed workplaces. Likewise, the findings support the Technology Acceptance Model (Davis, 1989), which argues that perceived usefulness and perceived ease of use influence technology adoption. As participants became more familiar with productivity software, digital communication platforms, and online recruitment systems, they likely developed more positive perceptions regarding the usefulness of these technologies, thereby increasing their confidence in applying them during employment-related activities.

From an educational technology perspective, the findings highlight the potential of short-duration online learning programs as accessible and scalable workforce development interventions. Compared with conventional face-to-face training, online learning provides greater flexibility, broader accessibility, and lower implementation costs while allowing learners to progress at their own pace. These characteristics are particularly beneficial for unemployed graduates who may experience financial, geographical, or scheduling constraints. Recent international reports similarly advocate expanding digital upskilling initiatives to improve workforce resilience and support economic development in increasingly technology-oriented societies (ILO, 2024; OECD, 2023; UNESCO, 2024; WEF, 2025).

Despite these encouraging findings, several considerations warrant attention. The absence of a comparison group limits the ability to attribute improvements exclusively to the intervention. Participants may also have engaged in independent learning activities or gained additional experience through ongoing job-search efforts during the intervention period. Furthermore, the study measured employability readiness immediately after the training and did not examine whether these improvements were sustained over time or translated into actual employment outcomes. Future research employing randomized controlled trials, longitudinal follow-up studies, and objective employment indicators would provide stronger evidence regarding the long-term effectiveness of online digital skills training.

Overall, the findings contribute to the growing body of literature demonstrating that structured online digital skills training can strengthen graduates' readiness for employment in an increasingly digital economy. As digital transformation continues to reshape labor market requirements worldwide, higher education institutions, workforce development agencies, and policymakers should consider integrating practical digital skills training into graduate employability initiatives. This recommendation is consistent with the OECD Digital Economy Outlook 2024, which emphasizes that strengthening digital competencies is essential for improving workforce resilience, enhancing labor market adaptability, and supporting sustainable participation in increasingly digital economies (Organisation for Economic Co-operation and Development, 2024). Similarly, the World Employment and Social Outlook 2024 highlights that continuous skills development and digital upskilling are critical for improving employability and responding to evolving workforce demands (International Labour Organization, 2024). Collectively, these findings suggest that structured online digital skills interventions can complement academic qualifications by equipping graduates with the technological competencies, confidence, and adaptability necessary to compete successfully in contemporary labor markets.

5. Conclusion

This study examined the association between participation in a short online digital skills training program and the employability readiness of unemployed graduates in Cebu City, Philippines. The findings indicated significant improvements in participants' employability readiness following the intervention, particularly in the areas of digital literacy, job application preparedness, digital communication skills, and job-search confidence. These results suggest that short-duration, structured online digital skills training may contribute to enhancing competencies that are increasingly important in today's technology-driven labor market. The study also demonstrates the potential of educational technology as an accessible and scalable approach to supporting workforce preparedness among unemployed graduates.

By providing practical training in digital productivity tools, online communication, and job-search strategies, such interventions may help improve graduates' confidence and readiness to engage in contemporary employment

processes. However, because the study utilized a quasi-experimental one-group pre-test and post-test design without a control group, the findings should be interpreted as indicating an association rather than definitive evidence of a causal effect. Despite these limitations, the study contributes to the growing body of literature on educational technology and employability by providing empirical evidence from a developing-country context. The findings highlight the importance of integrating digital skills training into higher education curricula, workforce development initiatives, and employment support programs to better prepare graduates for the evolving demands of the digital economy. Future research should employ more rigorous experimental or longitudinal research designs, larger and more diverse participant samples, and objective measures of employment outcomes to further evaluate the effectiveness and long-term impact of online digital skills training programs. Such investigations would provide stronger evidence to guide educational institutions, policymakers, and workforce development organizations in designing effective interventions that support graduate employability in an increasingly digital labor market..

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Conflict of Interest Statement

The author declares no conflict of interest.

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