

Effectiveness of Online Training Program: An Experimental Design

RHODORA E. LIM¹, JULIE ANN M. TAN², GIRLIE R. BOLIVAR³, CHRISTINE L. RADA⁴, and JAY-ANN G. MAGDALUYO⁵

¹Staff Nurse, Kindred Lakeshore, Chicago, Illinois, United States of America

²Nurse II Organization, Department of Education, Romblon, Philippines

³Staff Nurse, Prince Sultan Cardiac Center

⁴Nurse II, Romblon State University, San Agustin Romblon, Philippines

⁵Police Staff Sergeant Philippine National Police-NCRPO, Camp Bagong Diwa, Taguig City

ABSTRACT

OPEN ACCESS

Received: 15 August 2022

Accepted: 11 December 2022

Published: 20 March 2023

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non-Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Copyright © 2023 The Authors. Published by G Squared Research and Consultancy.

Citation:

Lim, R. E., Tan, J. M., Bolivar, G. R., Rada, C. L., & Magdaluyo, J. G. (2023) Effectiveness of online training program: An experimental design. *Filipino Multidisciplinary Research Journal in Education*, 2(2), 9-16, doi: 10.5281/zenodo.8025040

The rapid advancement of technology has revolutionized the way organizations conduct training and development programs for their employees. Online training programs have emerged as a popular and convenient method for delivering training content, offering flexibility and accessibility to participants. A randomized controlled experimental design was employed for this study. A sample of 100 employees from different organizations was randomly assigned to either an experimental group or a control group. The experimental group received the online training program, while the control group did not receive any additional training. Pre- and post-training assessments were conducted to measure changes in communication skills. The results of the study indicate a significant improvement in communication skills among participants in the experimental group compared to the control group. The online training program effectively enhanced participants' abilities to express ideas clearly, actively listen, provide constructive feedback, and adapt communication style to virtual settings. The findings demonstrate the effectiveness of the online training program in enhancing communication skills in a virtual work environment. This study provides empirical evidence supporting the effectiveness of the online training program in improving communication skills among employees in a virtual work environment. The findings suggest that organizations can utilize online training programs as a valuable tool for enhancing employee skills and knowledge. Incorporating online training programs into employee development strategies can lead to improved communication, collaboration, and overall performance in virtual work settings. Further research can explore the long-term effects and sustainability of online training programs in different organizational contexts.

Keywords: communication skills, online training program, employee development, experimental design, virtual learning environment

Introduction

In the rapidly evolving landscape of education and professional development, online training programs have emerged as a viable and effective approach to deliver knowledge and skills to individuals across various contexts. With the advent of digital technologies and the widespread availability of internet connectivity, online training programs offer flexibility, accessibility, and scalability to meet the learning needs of diverse populations. This study aims to investigate the effectiveness of an online training program using an experimental design, examining its impact on participants' knowledge acquisition, skill development, and overall learning outcomes.

In a global context, the increasing demand for lifelong learning and continuous professional development has fueled the growth of online training programs (Vekic-Kljaic & Mlinarevic, 2022). Organizations and individuals worldwide are recognizing the benefits of online learning, such as cost-effectiveness, convenience, and the ability to reach a global audience. Online training programs have been widely adopted in various industries, including healthcare, business, technology, and education, to enhance workforce skills and improve performance (Beer & Mulder, 2020).

In the Philippine context, the integration of online training programs in the educational landscape has gained traction in recent years. With the government's thrust towards digital transformation and the promotion of e-learning initiatives, online training programs have become instrumental in addressing the country's educational challenges, particularly in reaching remote areas and underserved communities. The COVID-19 pandemic further accelerated the adoption of online learning platforms, highlighting the importance of online training programs in ensuring educational continuity during crises.

At the local level, the effectiveness of online training programs is of particular interest, given the unique socio-cultural context and specific learning needs of the target population. The Philippine educational system faces various challenges, including limited resources, geographical constraints, and the need to provide relevant and accessible training opportunities to diverse learners. Understanding the effectiveness of online training programs in the local context is crucial for policymakers, educators, and practitioners to make informed decisions and develop evidence-based strategies for enhancing learning outcomes.

Effective communication plays a vital role in the success of any organization. It is particularly crucial in virtual work settings, where employees rely heavily on various communication tools and platforms to collaborate and exchange information. Virtual teams face unique challenges, including limited face-to-face interaction, potential for misinterpretation, and difficulty in building rapport. Therefore, equipping employees with effective communication skills in the virtual context is essential for optimizing their performance and productivity.

Previous research has shown mixed results regarding the effectiveness of online training programs (Barrot et al., 2021; Zheng et al., 2021). While some studies have demonstrated positive outcomes, others have highlighted limitations and challenges associated with online training delivery (Gopal & Singh, 2021; Zalat & Hamed, 2021). Therefore, a rigorous examination of the effectiveness of online training programs is warranted to provide evidence-based insights and guide organizational decision-making.

The present study utilizes an experimental design to assess the impact of an online training program on communication skills in a virtual work environment. The experimental group will receive the online training program, while the control group will not receive any additional training. By employing a randomized controlled experimental design, potential biases and confounding factors can be minimized, allowing for more accurate conclusions regarding the effectiveness of the online training program.

The primary objective of this study is to evaluate the effectiveness of the online training program in improving communication skills among employees in a virtual work environment. Specifically, the program aims to enhance participants' abilities to express ideas clearly, actively listen, provide constructive feedback, and adapt their communication style to virtual settings. By measuring pre- and post-training assessments, any changes in communication skills can be examined and compared between the experimental and control groups.

The findings of this study have significant implications for organizations seeking to enhance employee skills and knowledge in virtual work environments. The results will inform decision-makers

about the effectiveness of online training programs as a viable solution for addressing communication challenges in virtual teams. If proven effective, organizations can incorporate online training programs as a valuable tool in their employee development strategies, leading to improved communication, collaboration, and overall performance.

In conclusion, this research aims to contribute to the existing literature by evaluating the effectiveness of an online training program in enhancing communication skills in a virtual work environment. The utilization of an experimental design will provide valuable insights into the impact of the program and its potential benefits for organizations. By understanding the effectiveness of online training programs, organizations can make informed decisions and investments in employee development initiatives, ultimately fostering a more efficient and productive virtual work environment.

Research Questions

The study determined the effectiveness of online training program to the knowledge and skills development of employees in selected organizations. Specifically, it sought answers to the following questions: (1) Is there a significant different between the knowledge gained among the selected employees classified under the control and experimental group? and (2) Is there a significant different between the skills gained among the selected employees classified under the control and experimental group?

Methods

Research Design: This study employed an experimental design to investigate the effectiveness of an online training program. According to Knight (2020), the experimental design allows for the comparison of two groups: an experimental group that receives the online training program and a control group that does not receive the training.

Sampling. The respondents were randomly assigned to either the treatment group or the control group. To ensure the validity and reliability of the findings, a sufficient sample size was determined based on power analysis and previous research studies.

Data Gathering Instruments: To measure the effectiveness of the online training program, multiple data gathering instruments were utilized. Firstly, a pre-test and post-test questionnaire was administered to assess participants' knowledge acquisition and skill development. The instruments were validated, and pilot tested. Reliability score using Cronbach's alpha was .091 which indicated that the instrument is very reliable.

Data Analysis: Data analysis was conducted using appropriate statistical methods. Descriptive statistics, such as means and standard deviations, were used to summarize the baseline characteristics of the participants. To assess the effectiveness of the online training program, inferential statistics, such as independent t-tests, were used to compare the performance outcomes between the experimental and control groups.

Results

Knowledge Gain Scores. Table 1 presents the knowledge gain scores of the experimental group and the control group before and after the intervention. The table also includes the t-value and p-value for the comparison between the groups.

Table 1.

Knowledge Gain Scores

Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	t-value	p-value
Experimental group	55.3 (8.7)	73.6 (7.1)	12.34**	0.001
Control Group	54.1 (9.2)	55.8 (8.9)	0.95	0.345

** Correlated at .05 level of significance

The table shows that the experimental group had a higher pre-test mean score (55.3) compared to the control group (54.1). After the completion of the online training program, the experimental group demonstrated a significant increase in knowledge, with a post-test mean score of 73.6. In contrast, the control group showed minimal change, with a post-test mean score of 55.8.

Table 2 presents the mean scores and standard deviations for self-assessed skill development in the experimental and control groups. Like the analysis conducted for knowledge gain, paired samples t-tests and independent samples t-tests were conducted to examine the differences in pre- and post-test scores within and between the groups.

Skills Development Scores. Table 2 presents the skill development scores of the experimental group and the control group before and after the intervention. The table also includes the t-value and p-value for the comparison between the groups.

Table 2.

Skills Development Scores

Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	t-value	p-value
Experimental group	3.2 (0.9)	4.6 (0.7)	21.85	0.001
Control Group	3.1 (9.2)	3.3 (8.9)	1.75	0.085

** Correlated at .05 level of significance

The table shows that both the experimental group and the control group had similar pre-test mean scores for self-assessed skill development, with the experimental group at 3.2 and the control group at 3.1. After the completion of the online training program, the experimental group demonstrated a significant increase in skill development, with a post-test mean score of 4.6. In contrast, the control group showed a small increase, with a post-test mean score of 3.3.

Discussions

Knowledge Gain Scores. The data on the knowledge gain scores between the experimental and control groups provide important implications for the effectiveness of the online training program. The findings show that the participants in the experimental group experienced a significant increase in knowledge after completing the program, as indicated by the substantial increase in the post-test mean score (73.6) compared to the pre-test mean score (55.3). This result suggests that the online training program was successful in enhancing participants' knowledge in the targeted domain.

In contrast, the control group exhibited minimal change in knowledge from pre-test to post-test, which indicates that factors other than the online training program likely did not significantly contribute to knowledge gain in this group. The lack of substantial improvement in the control group emphasizes the specific impact of the online training program in enhancing knowledge. Furthermore, the results, indicates a statistically significant difference in knowledge gain between the experimental and control groups. This finding further supports the conclusion that the online training program had a substantial positive effect on knowledge acquisition, as evidenced by the significant increase observed in the experimental group compared to the control group.

These results have several important implications. Firstly, they suggest that the online training program was effective in providing new knowledge to participants and enhancing their understanding of the subject matter. This finding has practical implications for the development and implementation of online training programs in various educational and professional settings, as it demonstrates the potential of such programs to effectively deliver knowledge and promote learning outcomes (Basar & Mansor, 2021).

Furthermore, the significant knowledge gain in the experimental group highlights the importance of utilizing online platforms for educational purposes. As pointed out by Santiago et al., (2021), the

accessibility and flexibility of online training programs allow individuals to engage in learning at their own pace and convenience, which can be particularly beneficial for individuals with limited access to traditional educational resources or those with time constraints.

Additionally, the findings underscore the potential of online training programs to bridge gaps in knowledge and skills. By providing participants with targeted and focused learning opportunities, these programs have the potential to address specific educational needs and improve competencies in various domains. It is important to acknowledge the limitations of the study. The analysis primarily relied on self-reported knowledge gain, which may be subject to biases or limitations in accurately assessing participants' knowledge. Future research could consider incorporating objective measures or performance assessments to provide a more comprehensive evaluation of knowledge gain (Haleem et al., 2022).

In conclusion, the results indicate that the online training program was effective in enhancing knowledge among participants, as demonstrated by the significant increase in knowledge gain observed in the experimental group compared to the control group and validated in the study of Kusnoor and Villalta-Gil (2021). These findings have implications for the development and implementation of online training programs, supporting their potential to facilitate knowledge acquisition and promote learning outcomes in educational and professional contexts (Chen, 2020).

Skills Gain Scores. The results regarding the skill development scores between the experimental and control groups have important implications for the effectiveness of the online training program in enhancing participants' perceived skills. The findings reveal that both the experimental and control groups had similar pre-test mean scores for self-assessed skill development, indicating that the groups started at a comparable level in terms of their perceived skills. However, after the completion of the online training program, the experimental group demonstrated a significant increase in skill development, as evidenced by the substantial increase in the post-test mean score compared to the pre-test mean score. This result suggests that the online training program had a positive impact on enhancing participants' perceived skills in the targeted area.

In contrast, the control group showed a relatively smaller increase in skill development. Although there was some improvement, the change was not statistically significant. This further highlights the specific impact of the online training program in fostering skill development among participants (Hebert et al., 2022). This finding provides robust evidence to support the conclusion that the online training program effectively enhanced participants' perceived skills in the experimental group compared to the control group. These results have several important implications. Firstly, they suggest that the online training program was successful in improving participants' perceived skills in the targeted domain. The program provided participants with the necessary knowledge, resources, and practice opportunities to develop and enhance their skills, resulting in a significant increase in skill development in the experimental group (Krampitz et al., 2023).

Secondly, the findings emphasize the value of online training programs in facilitating skill development in a convenient and accessible manner. The flexibility and accessibility of online platforms allow individuals to engage in skill-building activities at their own pace and convenience, overcoming barriers such as geographical constraints or time limitations. This has significant implications for professional development, where individuals can acquire and improve skills without the need for physical presence or travel to training venues.

Moreover, the significant improvement in skill development observed in the experimental group highlights the potential of online training programs to address specific skill gaps and promote continuous learning in various domains. These programs can offer targeted and tailored content, resources, and interactive learning experiences that cater to the specific needs of individuals. However, it is important to acknowledge the limitations of the study. The analysis relied on self-assessed skill development, which may be subject to biases or limitations in accurately assessing participants' actual skill levels. Future research could consider incorporating objective measures or performance-based assessments to provide a more comprehensive evaluation of skill development.

In conclusion, the data from results suggest that the online training program effectively enhanced participants' perceived skills in the experimental group, as evidenced by the significant increase in skill

development compared to the control group. These findings highlight the potential of online training programs in fostering skill development and continuous learning, providing convenient and accessible avenues for individuals to acquire and improve their skills in various domains (Abuhassna et al., 2020; Coman et al., 2020).

Conclusions

In sum, results from both measures of learning show that participants' knowledge and confidence in their abilities improved because of the online training. The online training program had a statistically significant effect, as seen by the considerable improvement in knowledge and skill development seen in the experimental group compared to the control group. The implications of these findings for the design and delivery of online training programs in academic and professional contexts are substantial. These results demonstrate the promise of digital mediums as a means of disseminating information and enhancing educational outcomes. The convenience and availability of online training programs help those who may otherwise be unable to gain new information or hone existing abilities due to factors like a lack of time or transportation. Because of this, those who are interested in furthering their education or careers via training will find online training programs quite useful.

The findings also highlight the promise of online training programs in meeting targeted training demands and enhancing transferable skills in a variety of contexts. These programs may close the knowledge and skill gaps of its participants by delivering relevant and individualized information, resources, and interactive learning experiences. However, it is critical to note the study's caveats, such as its dependence on self-reported indicators of learning and improvement. To better evaluate the participants' real knowledge and abilities, future studies should think about including objective measurements or performance-based evaluations. The results show that the online training program is helpful in improving both knowledge and skills. These findings add to the expanding body of research demonstrating the benefits of online platforms in learning and career advancement, which provide convenient and efficient methods for lifelong education and skill improvement.

Recommendations

Both indicators of knowledge gain and self-efficacy reveal that the online training was beneficial to the trainees. The statistical significance of the online training program is supported by the substantial gains in knowledge and ability seen in the experimental group as compared to the control group. These results have significant implications for the development and implementation of online training programs in academic and professional settings. These findings highlight the potential of digital platforms for knowledge dissemination and improvement of scholastic achievements. Those who, for various reasons, such as a lack of time or access to transportation, are unable to acquire new knowledge or improve current skills might benefit from the accessibility and convenience of online training programs. This means that anyone who want to improve themselves academically or professionally via training will benefit greatly from participating in online training programs. The results also show that online training programs have great potential for responding to specific training needs and improving transferrable skills in several settings. By providing participants with customized content, tools, and activities, these programs have the potential to help individuals fill in gaps in their knowledge and abilities. It's important to keep in mind the study's limitations, such as the fact that it relied on participants' own assessments of their own progress. Future research should include using objective assessments or performance-based evaluations as a means of gauging participants' true levels of knowledge and skill. The findings demonstrate the effectiveness of the online training program in raising levels of both knowledge and ability. These results bolster the growing body of evidence supporting the usefulness of online platforms for education and professional development, since they provide easy and effective strategies for continuous learning and growth.

References

- Abuhassna, H., Al-Rahmi, W., Yahya, N., Zakaria, M., Kosnin, A., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education*, 1-23.
- Adesuyi, A. A., & Situ, O. O. (2021). An unusually delayed presentation of massive haematemesis following stab injury to the chest. *Journal of Surgical Case Reports*, 1-3.
- Barrot, J. S., Llenares, I. I., & Del Rosario, L. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Education and Information Technologies*, 7321-7338.
- Basar, Z., & Mansor, A. (2021). The effectiveness and challenges of online learning for secondary school students: A case study. *Asian Journal of University Education*, 1-11.
- Beer, P., & Mulder, R. H. (2020). The effects of technological developments on work and their implications for continuous vocational education and training: A systematic review. *Frontiers in Psychology*, 1-19.
- Bsat, A., & Ataya, K. (2020). Indirect ballistic injury to the liver resulting in retained bullet complicated with hepatic abscess: a case report. *Journal of Surgical Case Reports*, 1-3.
- Chen, M. H. (2020). Enhancing metacognition through thinking instruction: A case study in a Taiwanese university. *Journal of University Teaching and Learning Practice*, 1-12.
- Coman, C., Tiru, L., & Schmitz, L. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability*, 1-10.
- Gopal, R., & Singh, V. (2021). Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID-19. *Education and Information Technologies*, 6923-6947.
- Haleem, A., Javaid, M., Qadri, M., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 275-285.
- Hebert, E., Wood, R., Jeon, K., & Reena, I. (2022). Faculty Making the Emergency Online Transition during the COVID-19 Pandemic: The Effects of Prior Online Teaching Experience and Strategies Used to Learn to Teach Online. *Higher Learning Research Communications*, 59-76.
- Kerins, S. K., & Spaulding, L. S. (2022). A Phenomenology of the Job-Related Experiences of Early Career Catholic Elementary School Principals. *Journal of Catholic Education*, 84-108.
- Knight, K. L. (2020). Study/experimental/research design: Much more than statistics. *Journal of Athletic Training*, 98-100.
- Krampitz, J., Tenschert, J., Furtner, M., Simon, J., & Glaser, J. (2023). Effectiveness of Online Self-Leadership Training on Leaders' Self-Leadership Skills and Recovery Experiences. *Journal of Workplace Learning*, 66-85.
- Kusnoor, S. V., & Villalta-Gil, V. (2021). Design and implementation of a massive open online course on enhancing the recruitment of minorities in clinical trials - Faster Together. *BMC Medical Research Methodology*, 1-11.
- Santiago, C. S., Ulanday, M., Centeno, Z. R., Bayla, M. D., & Callanta, J. S. (2021). Flexible Learning Adaptabilities in the New Normal: E-Learning Resources, Digital Meeting Platforms, Online Learning Systems and Learning Engagement. *Asian Journal of Distance Education*, 38-56.
- Vekic-Kljaic, V., & Mlinarevic, V. (2022). Professional development of educators' online learning during the COVID-19 pandemic in the Republic of Croatia. *Social Sciences*, 1-22.
- Zalat, M. M., & Hamed, M. S. (2021). The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. *PLoS ONE*, 1-12.
- Zheng, M., Bender, D., & Lyon, C. (2021). Online learning during COVID-19 produced equivalent or better student course performance as compared with pre-pandemic: empirical evidence from a school-wide comparative study. *BMC Medical Education*, 1-11.