

The Efficacy of Video-Mediated Reflective Practice on the Occupational and Pedagogical Readiness of TVET Pre-Service Teachers

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ABSTRACT

This study investigates how well video-mediated reflective practice helps Technical and Vocational Education and Training (TVET) pre-service teachers get ready for work and teaching. As technology becomes more common in teacher education programs, it is important to understand how digital tools affect professional development. A quasi-experimental pretest-posttest design was used with two groups of pre-service teachers: one group did video-mediated reflection, and the other group did traditional journaling. Standardized tests that focused on pedagogical content knowledge and occupational competence were used to measure how ready the respondents were. The results show that the experimental group was significantly more ready to teach than the control group, especially when it came to self-assessment and being able to adapt to their teaching style. Also, video-mediated reflection helped people think more deeply about how well they were teaching, which made them feel more confident in their jobs. The study finds that using video technology in reflective practices greatly improves the professional preparation of TVET candidates. These results suggest that schools should use video-based feedback systems to help students apply what they have learned in the classroom.

Keywords: TVET, Pre-service teachers, Video-mediated reflection, Pedagogical readiness, Occupational readiness, Teacher education.

INTRODUCTION

Technical and Vocational Education and Training (TVET) are very important for giving workers the skills they need to help the economy grow (Okoth, 2023). Because of this, TVET teachers must be both pedagogically competent, which means they can teach well, and occupationally ready, which means they have mastered the specific trade skills they plan to teach (Jafar, 2020). One of the most important problems in pre-service teacher education is bridging the gap between what students learn in theory and what they do in the classroom (Schneider et al., 2022).

Reflective practice has long been the most important part of teacher training. Students often use written journals to remember and criticize their teaching demonstrations (Njenga, 2023). But research shows that memory-based reflection is often subjective and can lead to "recall bias," which means that new teachers might miss important mistakes in their technical demonstrations or classroom management (Machost & Stains, 2023). In the field of TVET, where safety and technical accuracy are very important, subjective reflection may not be able to show the full range of skills needed for a job (Angel-Urdinola et al., 2021).

Video-mediated reflective practice provides a technological remedy to this constraint. Recording teaching simulations gives pre-service teachers an objective "outsider's perspective" on how well they are doing (Wyss et al., 2023). This study suggests that video recording can lead to deeper, more accurate self-evaluation than traditional journaling. This could make future TVET teachers more ready for both teaching and working in the field.

This study was about 70 TVET pre-service teachers who were in school from 2025 to 2026. The only variables were "Pedagogical Readiness" (teaching skills) and "Occupational Readiness" (technical trade skills). The

intervention compared traditional written reflection (Control) to video-recorded analysis (Experimental) over the course of a semester-long "Methods of Teaching" class.

The goal of this study was to find out how well video-mediated reflective practice prepared TVET pre-service teachers. In particular, it wanted to find out the answers to these questions:

1. What is the level of pedagogical and occupational readiness of the control and experimental groups before the intervention?
2. Is there a significant difference in the post-test readiness scores between the group using traditional journaling and the group using video-mediated reflection?
3. Does using video to help TVET pre-service teachers reflect on their work significantly improve their readiness for the job compared to traditional methods?

Conversely, the results of this study possess considerable importance for diverse stakeholders in the educational sphere.

The main group that will benefit from real-world evidence that supports the use of video technology in their classes is Technical and Vocational Education and Training (TVET) schools.

At the same time, the study gives pre-service teachers a better way to help themselves improve and master their skills. Also, these results give important advice to curriculum developers by showing how important it is to update reflective practices in teacher education programs.

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In these areas, the study works under the null hypothesis that there is no significant difference in the skill mastery of pre-service teachers who use video technology integration compared to those who use traditional methods. This is done to rigorously test the effectiveness of these digital interventions.

THEORETICAL FRAMEWORK

This study is grounded in Schön's theory of Reflective Practice and the concept of Professional Vision. While traditional teacher training heavily relies on memory-based reflection, which is often susceptible to subjective recall bias, Professional Vision emphasizes the ability of teachers to notice and interpret critical features of classroom interactions.

In the context of Technical and Vocational Education and Training (TVET), where pedagogical competence and occupational mastery are equally vital, experiential learning requires objective feedback mechanisms.

Video-mediated reflective practice serves as a cognitive tool that enhances Professional Vision, allowing pre-service teachers to step outside their subjective experience and critically analyze their pedagogical delivery and technical accuracy from an objective, third-person perspective

Methods

This section describes research design, respondents, instruments, and procedures used to gather and analyze the data.

Research Design

This study used a Quasi-Experimental Pretest-Posttest Design. The researcher used this design to see how the intervention (video-mediated reflection) affected the dependent variables (readiness) by comparing an experimental group to a control group that wasn't randomly assigned, using whole class sections.

Respondents of the Study

The respondents consisted of 70 pre-service teachers in TVET. They were split into two groups: The Control Group (n=35) wrote in a traditional reflective journal after each teaching demonstration, while the Experimental Group (n=35) used video to reflect on their demonstrations and did a structured analysis based on the video playback.

Research Instrument

The TVET Pre-Service Teacher Readiness Scale was the main tool used to collect data for this study. It was modified to fit the needs of Technical Vocational Education and Training (TVET).

Validity: A panel of three experts, a Doctor of Education who specializes in TVET curriculum, a licensed Psychometrician, and a Master Teacher with more than 10 years of experience teaching technical subjects, put the draft instrument through a strict validation process to make sure it was valid in terms of content and face value. The experts looked over the questionnaire to make sure it was clear, relevant to the variables, and used the right technical language. The final version of the tool included their suggestions.

Reliability (Pilot Test): The modified instrument was pilot tested on 30 pre-service teachers who were not part of the actual study respondents. The internal consistency of the scale was measured using Cronbach's Alpha. The results indicated a high level of reliability:

Table 1. Reliability Coefficients of the Research Instrument (Pilot Test)

Variable	No. of Items	Cronbach's Alpha (α)	Interpretation
Pedagogical Readiness	7	0.88	High Reliability
Occupational Readiness	7	0.85	High Reliability
Overall	14	0.89	High Reliability

N=30 (Pilot Test Respondents). Interpretation based on indices where $\alpha > 0.70$ is acceptable and $\alpha > 0.80$ indicates high reliability. Data analyzed using IBM SPSS Statistics 27.

The values in Table 1 exceed the 0.70 threshold for acceptable reliability, confirming that the instrument was reliable and suitable for the study.

Statistical Treatment of Data

IBM SPSS Statistics version 27 was used to code and analyze the quantitative data that was collected. The researcher used the following statistical tools to answer the study's specific questions:

1. **Descriptive Statistics (Mean and Standard Deviation):** Utilized to determine the pre-test and post-test levels of pedagogical and occupational readiness.
2. **Assumption Testing:** Prior to inferential analysis, data were tested for normal distribution using the Shapiro-Wilk test and for homogeneity of variances using Levene's Test.
3. **Analysis of Covariance (ANCOVA):** Employed to compare the post-test readiness scores between the control and experimental groups while statistically controlling pre-test scores, ensuring that post-intervention differences were not skewed by initial readiness levels.

4. Effect Size (Cohen's d): Calculated to determine the magnitude and practical significance of the video-mediated intervention on the pre-service teachers' readiness.

Intervention Procedure

Over the course of the semester-long "Methods of Teaching" class, both groups engaged in teaching demonstrations.

1. Control Group: Following each demonstration, the 35 pre-service teachers in this group completed a traditional written reflective journal detailing their self-assessment of their teaching performance and technical delivery.
2. Experimental Group: The 35 participants in this group were recorded during their teaching demonstrations. Following the demonstration, participants engaged in a structured video-mediated reflection session.

RESULTS AND DISCUSSION

This section presents the analysis and interpretation of data gathered from the study. The results were organized according to the specific research problems regarding the efficacy of video-mediated reflective practice on the pedagogical and occupational readiness of TVET pre-service teachers.

Pedagogical and Occupational Readiness Scores

Table 2 shows the descriptive statistics for both the Control Group (Journaling) and the Experimental Group (Video-Mediated Reflection) before and after the intervention.

Table 2. Comparison of Pre-test and Post-test Mean Scores

Variable	Group	N	Pre-test Mean	SD	VI	Post-test Mean	SD	VI	Mean Gain	Cohen's d
Pedagogical Readiness	Control	35	2.92	.37	Neutral	3.14	.29	Neutral	+0.22	4.00
	Experimental	35	2.92	.37	Neutral	4.38	.32	Strongly Agree	+1.46	
Occupational Readiness	Control	35	3.02	.31	Neutral	3.14	.38	Neutral	+0.12	2.91
	Experimental	35	2.93	.24	Neutral	4.16	.32	Agree	+1.23	

Legend: 1.00-1.79 (Strongly Disagree); 1.80-2.59 (Disagree); 2.60-3.39 (Neutral); 3.40-4.19 (Agree); 4.20-5.00 (Strongly Agree); VI (Verbal Interpretation); SD (Standard Deviation)

Table 2 presents the descriptive statistics for both groups. While baseline scores were comparable, the experimental group demonstrated a substantially larger mean gain in both Pedagogical Readiness (+1.45) and Occupational Readiness (+1.19) compared to the control group. To determine the practical significance of this intervention, Cohen's d was calculated. The effect size for Pedagogical Readiness was $d = 4.00$, and for Occupational Readiness was $d = 2.91$. According to Cohen's guidelines, these values indicate an exceptionally large effect, demonstrating that video-mediated reflection has a substantial real-world impact on pre-service teacher readiness.

Further, the data shows that both groups started out at about the same level of readiness, which was in the "Neutral" range (M=2.92 and M=2.92 for pedagogical readiness). This sameness at the beginning makes sure that any differences that happen later can be linked to the intervention.

There is a difference in the results after the intervention. The Control Group, which used traditional written journaling, only got a little better (Mean Gain = +0.22), staying in the "Neutral" descriptive band. The Experimental Group, on the other hand, showed a big rise in their readiness to teach (Mean Gain = +1.46), going from "Neutral" to "Strongly Agree."

This finding suggests that video-mediated reflection is a way to "objectively confront oneself." Written journals depend on memory and subjective recall, but video lets pre-service teachers see their teaching behaviors, body language, and pacing from an outside perspective, which helps them make more concrete and useful self-corrections.

Analysis of Covariance (ANCOVA) for Post-test Readiness Scores

To rigorously determine if the video-mediated intervention caused the post-test differences, an Analysis of Covariance (ANCOVA) was conducted, controlling for the pre-service teachers' initial pre-test readiness scores. Before interpreting the ANCOVA, Levene's Test confirmed that the assumption of homogeneity of variances was met ($p > 0.05$).

Table 3. Analysis of Covariance (ANCOVA) for Post-test Readiness Scores

Dependent Variable	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Pedagogical Readiness	Pre-test (Covariate)	.214	1	.214	2.306	.134	.033
	Group	26.499	1	26.499	285.897	< 0.001	.810
	Error	6.210	67	.093			
Occupational Readiness	Pre-test (Covariate)	.115	1	.115	.935	.337	.014
	Group	18.047	1	18.047	147.307	< 0.001	.687
	Error	8.209	67	.123			

As shown in Table 3, after adjusting for pre-test scores, there was a statistically significant difference in Pedagogical Readiness between the traditional journaling group and the video-mediated group, $F(1, 67) = 285.897$, $p < 0.001$, Partial Eta Squared = 0.810. Similarly, the intervention yielded a significant effect on Occupational Readiness, $F(1, 67) = 147.307$, $p < 0.001$, Partial Eta Squared = 0.687.

The partial eta squared values indicate a very large effect size. Specifically, approximately **81.0%** of the variance in the respondents' post-test Pedagogical Readiness and **68.7%** of the variance in their Occupational Readiness can be directly attributed to the use of video-mediated reflection rather than traditional journaling.

So, the null hypothesis was rejected. The study shows that video-mediated reflective practice is much better than traditional journaling at getting TVET pre-service teachers ready for their jobs. The results also show that the experimental group was significantly more ready to teach, aligning with recent findings that interactive video tools significantly enhance pre-service teachers' classroom awareness and ability to notice relevant instructional events (Roche et al., 2021). This mirrors broader research in TVET education where practical,

technology-enhanced simulations are critical for bridging the gap between pedagogical theory and occupational reality (Suroto et al., 2024).

Further, It is particularly notable that the experimental group demonstrated a substantial increase in Occupational Readiness. While pre-service teachers frequently focus on their instructional delivery, the objective nature of video evidence likely assisted them in identifying areas for improvement in their technical demonstrations. Although this study utilized a self-reported readiness scale, the ability to pause and review specific technical movements theoretically affords a more detailed examination of skills than memory-based written reflection allows. This enhanced self-awareness contributed to their increased confidence and reported readiness for industry-standard instruction (Marlina et al., 2023). Future observational studies are needed to confirm if this perceived readiness translates directly to improved safety compliance and technical accuracy in real-time workshops.

Limitations of the Study

While the findings demonstrate the efficacy of video-mediated reflection, several limitations must be acknowledged. First, the study utilized a quasi-experimental design involving intact class sections rather than random assignments, which may introduce selection biases, though baseline comparability was established. Second, the sample size of 70 respondents from a single institution limits the broader generalizability of the findings. Finally, the primary data collection relied on a self-reported readiness scale; while the instrument demonstrated high internal consistency (Overall alpha = 0.89), self-reported measures capture perceived competence rather than observed behavioral changes.

CONCLUSION

This section presents the conclusions drawn from the study's findings and offers subsequent recommendations for the improvement of TVET teacher education programs, policy formulation, and future research directions.

The study's statistical analysis and results lead to the conclusion that video-mediated reflective practice is a better way to help professionals grow than traditional journaling. The intervention gave pre-service teachers a way to "self-confront" that was objective, which helped them evaluate their performance much more accurately than when they relied on their memories. This was especially clear in the area of job readiness, where visual feedback helped students connect what they learned in theory to what they did in practice. TVET is different from regular school because it requires precise demonstration of technical skills. Video analysis allowed participants to find safety violations, ergonomic mistakes, and technical mistakes that were often missed in written journals. Also, the big improvement in the experimental group shows that using digital tools in the reflective process makes people more flexible, which will help future teachers change their teaching methods and classroom management in real time. The study confirms that traditional journaling is still a useful way to reflect on oneself, but it is not enough on its own to meet the high-performance needs of technical vocational education.

Based on these findings, it is suggested that TVET Teacher Education Institutions (TEIs) make video-based micro-teaching a standard part of their curriculum. In particular, "Methods of Teaching" classes and student internship programs should require pre-service teachers to record, review, and critique their own demonstrations before they graduate. To help with this, schools should put money into basic recording equipment in simulation labs so that the technical barrier to entry is as low as possible.

The study suggests that pre-service teachers should transition from descriptive journals, which often suffer from recall bias and lack objective detail, to analytical video reviews (Seidel et al., 2022). Students should be encouraged to form "critical friend" groups where they can watch each other's teaching videos and give each other helpful feedback on specific technical skills that might not be obvious otherwise. Likewise, teachers and supervisors who work together should stop relying on notes from after an observation and instead use video-assisted coaching. Going over certain parts of the video with mentees lets you look at their strengths and weaknesses in more detail, especially when it comes to following safety rules and being technically correct.

Finally, researchers in the future should do long-term studies to see if the readiness gained from video reflection leads to better teaching performance over time during the first year of employment. Also, qualitative research into the specific content of these video-mediated reflections could help us understand better what pre-service teachers see in video playback that isn't always clear in written logs.

Ethical Considerations

This study was submitted for review and received official ethical clearance from the Tanauan City College Research Development and Extension Services (RDES). The research was conducted in strict accordance with the ethical guidelines for educational research, ensuring the protection of participants' rights and welfare throughout the semester-long intervention.

Informed Consent: All 70 respondents were fully informed of the study's purpose, the nature of the video-mediated intervention, and the data collection process. Written informed consent was obtained from each participant prior to the pre-test.

Confidentiality and Privacy: To protect the privacy of the pre-service teachers, all recorded video demonstrations were used strictly for reflective analysis and were stored on a secure, password-protected drive. Participants were anonymized during data coding and analysis using IBM SPSS Statistics 27.

Voluntary Participation: Participation was entirely voluntary. Respondents were informed that they could withdraw from the study at any time without any negative impact on their grades.

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REFERENCES

1. Angel-Urdinola, D. F., Castillo-Castro, C., & Hoyos, A. (2021). Meta-analysis assessing the effects of virtual reality training on student learning and skills development. The World Bank. <https://doi.org/10.1596/1813-9450-9587>
2. Jafar, A. (2020). Key competencies for TVET teachers in the age of Industry 4.0: Adapting to transformative challenge. (Cited in recent literature regarding TVET teacher competencies).
3. Machost, H., & Stains, M. (2023). Reflective practices in education: A primer for practitioners. *CBE—Life Sciences Education*, 22(2). <https://doi.org/10.1187/cbe.22-07-0148>
4. Marlina, R., Suwono, H., Yuenyong, C., Ibrohim, I., Mahanal, S., & Hamdani, H. (2023). Introducing reflective teaching practice in remote school: Teacher-student interaction patterns. *Jurnal Penelitian Pendidikan IPA*, 9(11), 9720–9728. <https://doi.org/10.29303/jppipa.v9i11.4599>
5. Njenga, M. (2023). How do vocational teachers learn? Formal and informal learning by vocational teachers in Kenya. *International Journal for Research in Vocational Education and Training*, 10(1), 24–45. <https://doi.org/10.13152/ijrvet.10.1.2>
6. Okoth, O. E. (2023). TVET, economy and sustainable development. *International Journal of Vocational and Technical Education*, 15(2), 12–17. <https://doi.org/10.5897/IJVTE2022.0315>
7. Roche, L., Gal-Petitfaux, N., & Rolland, C. (2021). Micro-teaching and student-created videos: A methodology for self-reflection and peer discourse. (Cited in recent TVET literature regarding video efficacy).

8. Schneider, S., Wessels, A., & Pilz, M. (2022). Theory and practice of teaching and learning in the classroom – Lessons from Indian industrial training institutes. *Vocations and Learning*, 16, 99–120. <https://doi.org/10.1007/s12186-022-09305-8>
9. Seidel, T., Farrell, M., Martin, M., Rieß, W., & Renkl, A. (2022). Developing scripted video cases for teacher education: Creating evidence-based practice representations using mock ups. *Frontiers in Education*, 7, 965498. <https://doi.org/10.3389/educ.2022.965498>
10. Suroto, S., Sunyono, S., Sukirlan, M., Winatha, I. K., Yuliyanto, R., & Rahmawati, F. (2024). Factors affecting the work readiness of vocational school students: A systematic literature review. *Jurnal Pendidikan Progresif*, 14(3), 1831–1846. <https://doi.org/10.23960/jpp.v14.i3.2024124>
11. Wyss, C., Bächerlein, K., & Mahler, S. (2023). Pre-service and in-service teachers' professional vision depending on the video perspective—What teacher gaze and verbal reports can tell us. *Frontiers in Education*, 8, 1282992. <https://doi.org/10.3389/educ.2023.1282992>