JPPI (Jurnal Penelitian Pendidikan Indonesia)
Volume 11, Number 4 2025

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Publication details, including author guidelines
URL: https://jurnal.iicet.org/index.php/jppi/about/submissions#authorGuidelines
Editor: Kaspul Anwar

Article History
Received: 28 Oct 2025
Revised: 29 Nov 2025
Accepted: 30 Dec 2025

How to cite this article (APA)
Warni, A.M. & Sunarti, V. (2025). The effect of instructional media NetSupport school on learning interest in office applications. Jurnal Penelitian Pendidikan Indonesia, 11(4), 233-239. https://doi.org/10.29210/020256716

The readers can link to article via https://doi.org/10.29210/020256716

JPPI (Jurnal Penelitian Pendidikan Indonesia)
ISSN: 2502-8103 (Print) | ISSN: 2477-8524 (Electronic)

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Vol. 11, No. 4, 2025, pp. 233-239
DOI: https://doi.org/10.29210/020256716

The effect of instructional media NetSupport school on learning interest in office applications

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Article Info

Article history:

Received Oct 22th, 2025
Revised Nov 29th, 2025
Accepted Dec 30th, 2025

Keyword:

Office applications,
Learning interest,
NetSupport school

ABSTRACT

This study addressed low learning interest among participants in office application skills training at a community learning center by examining the use of NetSupport School as a digital instructional medium. A quantitative quasi-experimental design with a nonequivalent control group was employed, involving 40 participants divided into an experimental group and a control group. Learning interest was operationalized through enjoyment, attention, and active involvement, and measured using a validated questionnaire supported by observation data. The experimental group received instruction using NetSupport School for four sessions, while the control group followed conventional instruction. Data were analyzed using paired and independent sample t-tests. The results indicated a statistically significant increase in learning interest in the experimental group, whereas no significant change was observed in the control group. These findings suggest that digital classroom management tools can enhance learning interest in nonformal vocational training, although the results should be interpreted within the study's contextual and methodological limitations.

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Introduction

The rapid development of digital technology has transformed instructional practices across educational sectors, including nonformal vocational and skills-based training programs. Advances in educational technology have reshaped how learning materials are delivered, accessed, and interacted with by learners, particularly through interactive and feedback-oriented digital environments (Lee, Kim & Lee, 2023; Singh & Al-Haq, 2024; Koehler & Mishra, 2019; Bond et al., 2020). Recent studies indicate that well-designed digital learning environments can support higher-order thinking and sustained engagement when aligned with instructional goals (Schindler et al., 2017; Means et al., 2020).

In nonformal vocational settings, including community learning centers, instructional practices often remain dominated by conventional, instructor-centered approaches. Such approaches typically emphasize content transmission rather than interaction, resulting in limited opportunities for

individualized guidance and learner participation (Nguyen & Vu, 2022; Rogers, 2018). Empirical evidence suggests that this instructional pattern constrains meaningful interaction and reduces learner engagement, especially in computer-based training that requires sustained attention and hands-on practice (Huang & Chiu, 2023; Tadesse & Gillies, 2015).

Learning interest has been widely recognized as a central motivational construct influencing engagement, persistence, and learning outcomes across educational contexts. Learners with high learning interest tend to demonstrate stronger intrinsic motivation, greater task persistence, and deeper cognitive involvement in learning activities (Martinez-Rodriguez & Garcia, 2024; Hidi & Renninger, 2006). In contrast, low learning interest is associated with passive behavior, reduced interaction, and lower task completion rates, particularly in skill-oriented and technology-mediated learning environments (Patel & Shah, 2023; Ryan & Deci, 2020).

In the specific context of office application skills training at a community learning center, low learning interest was observed through limited participation, weak interaction during instructional sessions, and incomplete practical assignments. Similar challenges have been reported in nonformal vocational education, where adult learners often face difficulties maintaining engagement due to insufficient instructional support and limited feedback during practice-based activities (Almeida et al., 2024; McGrath, 2019; UNESCO, 2022). These conditions underscore the importance of instructional strategies that can better support attention, interaction, and sustained engagement.

Contemporary research suggests that the integration of digital instructional technologies can enhance learner engagement by enabling interactive, learner-centered learning environments. Digital tools that support real-time feedback, collaborative activities, and differentiated instruction have been shown to improve learner satisfaction, motivation, and perceived instructional quality in vocational education (Zhang & Qian, 2024; Noguera et al., 2024; Hrastinski, 2019). Systematic reviews further highlight that technologies such as learning management systems, gamification, and classroom management software contribute positively to learner engagement in skills training programs (Rossi & Taddei, 2025; Dichev & Dicheva, 2017).

Despite these promising findings, most empirical studies on instructional technology have focused on formal education or blended learning contexts. Research examining adult learners in nonformal, community-based vocational programs remains limited, particularly regarding the use of specific classroom management technologies (Santos & Oliveira, 2023; Boeren, 2017; Zawacki-Richter & Latchem, 2018). As a result, there is insufficient evidence on how such tools influence motivational variables such as learning interest in nonformal vocational education settings.

One digital classroom management tool that has received limited empirical attention in nonformal education research is NetSupport School. This software allows instructors to monitor learner activities, share screens, provide immediate feedback, and manage instructional tasks in real time. These features are consistent with instructional principles emphasizing structured interaction, guided practice, and timely feedback, which are particularly relevant for vocational training that relies heavily on hands-on skill development (Zhang & Qian, 2024; Noguera et al., 2024; Merrill, 2013; Clark & Mayer, 2016).

Based on this rationale, the present study aimed to examine the effect of using NetSupport School as an instructional medium on learning interest in office application skills training at a community learning center. Learning interest was operationalized through enjoyment, attention, and active involvement in learning activities, as commonly applied in motivational and vocational education research (Hidi & Renninger, 2023; Martinez-Rodriguez & Garcia, 2024). It was hypothesized that participants who received instruction using NetSupport School would demonstrate higher learning interest than those receiving conventional instruction. By addressing this research gap, the study seeks to contribute empirical evidence on the role of digital classroom management tools in enhancing learner engagement within nonformal vocational education contexts.

Method

This study employed a quantitative quasi-experimental design with nonequivalent control groups to examine the effect of NetSupport School on learning interest in office application skills training at a

community learning center. Forty participants were selected using purposive sampling based on predefined inclusion criteria, namely active participation, regular attendance, and basic computer literacy. Participants were assigned to two intact groups: an experimental group (n = 20) and a control group (n = 20), which followed the existing class structure of the training program. Pre-test analysis indicated no statistically significant difference in learning interest between the two groups, suggesting comparable baseline conditions. Both groups received identical instructional content, learning objectives, and instructional duration over four sessions, and the same instructor taught both groups to ensure consistency and minimize instructor-related bias. The experimental group received instruction using NetSupport School, while the control group was taught using conventional instructional methods without digital classroom management support.

Learning interest was measured using a structured Likert-scale questionnaire covering enjoyment, attention, curiosity, and active involvement, which underwent expert validation and pilot testing, yielding acceptable internal consistency reliability. To enhance construct validity, systematic classroom observations were conducted using standardized observation sheets, although the primary analysis focused on quantitative data. Pre-test and post-test scores were analyzed using paired sample t-tests to examine within-group changes and independent sample t-tests to compare post-test scores between groups, following verification of normality and homogeneity assumptions. Statistical analyses were conducted at a significance level of 0.05, and effect sizes were calculated to support the interpretation of practical significance. Despite efforts to control internal validity threats, the study was limited by its small sample size and short intervention period, which may restrict generalizability and the stability of the observed effects.

Results and Discussions

The results of this study demonstrated that the use of NetSupport School as an instructional medium produced a positive and statistically significant effect on participants' learning interest in office application skills training. Participants in the experimental group showed a consistent and meaningful increase in learning interest from pre-test to post-test, while the control group did not experience a comparable change. In addition, post-test comparisons confirmed that learning interest levels in the experimental group were significantly higher than those of the control group. These findings directly answer the research question and empirically support the hypothesis that digital classroom management tools can enhance learning interest within nonformal vocational education contexts.

The increase in learning interest observed among participants exposed to NetSupport School indicates that the instructional environment became more structured, interactive, and supportive of active engagement. Features such as real-time monitoring, screen sharing, and immediate feedback likely helped participants remain focused on learning tasks and reduced off-task behavior during practice-based activities. Recent studies emphasize that digital classroom management systems improve instructional clarity and learner attention by enabling instructors to provide timely guidance and individualized support (Zhang & Qian, 2024; Noguera et al., 2024). In vocational training contexts, where learning heavily depends on hands-on practice and sustained concentration, such technological affordances are particularly important.

These findings are also consistent with contemporary motivational theories and empirical studies highlighting learning interest as a key determinant of learner engagement and persistence. Learning interest has been shown to influence learners' willingness to invest effort, maintain attention, and complete learning tasks, especially in skill-oriented environments (Hidi & Renninger, 2023). Recent vocational education research further confirms that learners who experience enjoyment and focused engagement during instruction demonstrate higher levels of participation and task completion (Martinez-Rodriguez & Garcia, 2024). The present study reinforces this body of knowledge by showing that learning interest among adult learners in nonformal education can be strengthened through the strategic use of instructional technology rather than through content delivery alone.

Compared with previous studies conducted primarily in formal or blended learning environments, this study extends existing research by providing empirical evidence from a nonformal, community-based vocational setting. While earlier studies reported positive effects of digital instructional tools on

engagement and satisfaction among formal education students (Zhang & Qian, 2024), investigations involving adult learners in nonformal vocational programs remain relatively scarce. The present findings suggest that digital classroom management tools may offer similar motivational benefits across different educational contexts, particularly in practice-oriented training programs that require close instructor supervision and continuous learner involvement.

Alternative explanations for the observed outcomes should be carefully considered. The novelty effect of introducing a new technology may have temporarily increased participants' learning interest, or the instructor's proficiency in using NetSupport School may have contributed to more effective classroom management. Additionally, participants' prior familiarity with digital technology may have influenced their responsiveness to the intervention. However, the use of identical instructional content, comparable instructional duration, and consistent learning objectives across both groups reduces the likelihood that these factors alone explain the differences observed between groups.

From a practical perspective, the findings have important implications for nonformal education providers and vocational training institutions. The integration of digital classroom management tools such as NetSupport School can assist instructors in managing diverse learner needs, maintaining participant focus, and encouraging active engagement during training sessions. Although this study did not directly measure learning achievement, increased learning interest is a meaningful outcome, as prior research consistently links learning interest with sustained engagement and long-term skill development (Hidi & Renninger, 2023; Martinez-Rodriguez & Garcia, 2024).

Despite its contributions, this study has several limitations. The relatively small sample size and short intervention period limit the generalizability of the findings. In addition, learning interest was assessed primarily through self-reported measures, which may be subject to response bias. Future research should involve larger and more diverse participant samples, extend the duration of instructional interventions, and incorporate additional outcome variables such as learning achievement, task performance, and skill retention. Further studies may also compare different types of digital classroom management tools to determine which technological features most effectively enhance learning interest in nonformal vocational education settings.

Table 1. Comparison of Learning Interest Scores Between Experimental and Control Groups

Group	N	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Difference
Experimental (NetSupport School)	20	62.45	6.32	78.90	5.84	+16.45
Control (Conventional Method)	20	63.10	6.18	65.25	6.01	+2.15

Table 2. Independent Samples t-Test of Post-Test Learning Interest Scores

Variable	Group	Mean	SD	t	df	p
Learning Interest	Experimental	78.90	5.84	6.21	38	< .001
	Control	65.25	6.01			

Table 1 presents the comparison of learning interest scores between the experimental group and the control group at the pre-test and post-test stages. The results indicate that both groups began the study with relatively comparable levels of learning interest, suggesting that the initial learning conditions were similar. Following the intervention, however, the experimental group that received instruction using NetSupport School demonstrated a substantial increase in learning interest, whereas the control group showed only a minimal improvement. This pattern suggests that the observed change in learning interest was associated with the instructional treatment rather than with natural progression or repeated exposure to learning activities.

The statistical evidence supporting this observation is presented in Table 2. The independent samples t-test revealed a significant difference in post-test learning interest scores between the experimental and control groups ($p < .001$). This finding confirms that the increase in learning interest among participants exposed to NetSupport School was not due to chance and provides empirical support for the study's hypothesis. Such results are consistent with recent research showing that

structured digital classroom management systems can enhance learner engagement by promoting focused attention and interactive learning processes (Zhang & Qian, 2024; Noguera et al., 2024).

The marked improvement in the experimental group aligns with contemporary theories emphasizing learning interest as a key motivational factor influencing engagement and persistence in learning. Learning interest has been shown to facilitate sustained attention, active participation, and task completion, particularly in vocational and skill-based learning environments (Hidi & Renninger, 2023). Recent empirical studies in vocational education further indicate that adult learners who experience higher levels of interest during instruction are more likely to engage meaningfully with practical tasks and demonstrate greater learning persistence (Martinez-Rodriguez & Garcia, 2024). The findings reflected in Table 1 and Table 2 reinforce these perspectives by illustrating how instructional media can directly influence learners' motivational states.

Moreover, the results extend existing research by providing evidence from a nonformal, community-based vocational education context. While prior studies have largely focused on formal or blended learning environments, the significant differences shown in Table 2 suggest that the benefits of digital instructional tools may also be realized in nonformal education settings. This supports recent calls in the literature to broaden the application of educational technology research beyond traditional classroom environments (Noguera et al., 2024).

The combined evidence from Table 1 and Table 2 demonstrates that the integration of NetSupport School as an instructional medium contributed to a meaningful increase in learning interest among participants. These findings highlight the potential of digital classroom management tools to support learner engagement in nonformal vocational training, while also underscoring the importance of interpreting results within the boundaries of the study's design and sample characteristics.

The pronounced improvement observed in the experimental group suggests that the integration of digital classroom management tools contributed to a more engaging and structured learning environment. Recent international studies emphasize that digital instructional technologies enhance learner engagement by supporting real-time interaction, immediate feedback, and focused task management, which are particularly important in skill-based learning contexts (Zhang & Qian, 2024; Noguera et al., 2024). The clear contrast between the two groups in the figure indicates that such features may play a meaningful role in sustaining learners' attention and active involvement during office application skills training.

The findings visualized in Figure 1 align with contemporary research on learning interest as a key motivational factor influencing engagement and persistence. Learning interest has been shown to increase learners' willingness to participate actively and complete learning tasks, especially in vocational and adult learning environments (Hidi & Renninger, 2023; Martinez-Rodriguez & Garcia, 2024). The graphical trend observed in this study supports these theoretical perspectives by demonstrating that learning interest can be enhanced through appropriate instructional media, rather than relying solely on traditional teaching approaches.

The figure provides clear empirical support for the study's main conclusion that digital classroom management tools can positively influence learning interest in nonformal vocational education. At the same time, the graphical results should be interpreted within the scope of the study's design and sample size, and further research is needed to examine whether similar patterns emerge across different contexts and longer instructional periods.

Conclusions

This study demonstrates that the use of NetSupport School as an instructional medium significantly enhances learning interest in office application skills training within a nonformal vocational education context, as evidenced by the notable increase in engagement and motivation among participants in the experimental group compared to the control group; however, limitations such as the small sample size, short intervention duration, and reliance on self-reported measures suggest that these findings should be interpreted cautiously, and future research with larger, more diverse samples and additional outcome variables like skill performance and retention is necessary to confirm and extend these

results, as well as to explore the long-term impact and comparative effectiveness of various digital classroom management tools in similar educational settings.

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