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Review of Multidisciplinary Education, Culture and Pedagogy
https://ojs.transpublika.com/index.php/ROMEO
Online ISSN 2810-0743

https://doi.org/10.55047/romeo.v4i1.1506

Original Article

Measuring the Impact of Computer Literacy Training Program on Alternative Learning Students in District of Tibiao

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Received : 25 October - 2024
Accepted : 26 November - 2024
Published online : 28 November - 2024

Abstract

This study evaluates the effectiveness of a computer literacy training program for alternative learning students in Tibiao District, implemented from 2017 to 2023. The research employs a mixed-methods approach, combining quantitative surveys with qualitative open-ended questions, to assess the program's impact on participants' digital skills, daily application, and future opportunities. The study involved 100 alternative learning students, including out-of-school youth and adults from Tibiao and neighboring towns. Results indicate significant improvements across all skill areas, with the largest gains in word processing and email communication. Notably, 78% of participants rated the program highly, and 65% reported frequent application of new skills in daily life. The program demonstrated a transformative impact, with 85% of participants perceiving improved engagement in alternative learning and expanded opportunities. Age emerged as a significant predictor of skill improvement, with younger participants showing slightly higher gains. Qualitative analysis revealed themes of increased confidence, improved academic performance, and enhanced job prospects. The study also identified areas for improvement, including the need for targeted outreach to older learners and curriculum refinement based on initial skill levels. These findings contribute to the growing body of knowledge on digital literacy education in alternative learning contexts and provide valuable insights for policymakers and educators. The research underscores the critical role of computer literacy programs in bridging the digital divide and empowering non-traditional students in an increasingly technology-driven educational and professional landscape.

Keywords: Computer Literacy, Alternative Learning, Digital Skills, Educational Technology, Mixed-Methods Research, Digital Divide, Adult Education, Out-Of-School Youth, Rural Education, Skills Application.

1. Introduction

In today's rapidly evolving digital landscape, computer literacy has become an indispensable skill, crucial for both educational advancement and professional success. This reality is particularly pronounced in the District of Tibiao, where alternative learning systems serve a diverse range of educational needs. The imperative to bridge the digital divide is especially critical for alternative learning students, who often face significant barriers to accessing formal education and, by extension, essential technological skills.

The Alternative Learning System (ALS) in the Philippines, legalized by Republic Act No. 11510 on December 23, 2020, aims to institutionalize a parallel learning system that provides a viable alternative to the formal school system. This act underscores the state's commitment to promoting quality education for all citizens, including out-of-school children and adults, by enhancing their knowledge, values, life skills, and readiness for higher education, work, or self-employment.

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Recognizing this pressing need, a comprehensive Computer Literacy Training Program was initiated in Tibiao District in 2017. This six-year initiative, concluding in 2023, has served as a beacon of digital empowerment for the region. The program has reached a significant milestone, having trained 100 ALS students, comprising both out-of-school youth and adults from Tibiao and neighboring towns such as Barbaza and Culasi. This inclusive approach has ensured that the benefits of computer literacy extend beyond municipal boundaries, fostering a more technologically adept community across the region.

The curriculum of this extension program was meticulously designed to cover a wide spectrum of essential computer skills. Participants were immersed in learning modules that includes, a) Basic computer tasks, b) Fundamental computer concepts, c) Word processing, d) Spreadsheet processing, e) Presentation creation and delivery, f) Internet navigation, g) Email communication, and h) File management.

This comprehensive approach ensures that participants not only gain technical proficiency but also develop a conceptual understanding of computer systems and their applications in real-world scenarios. The ubiquitous presence of computers in academic and professional environments reflects the profound technological advancements of our era (Ogbuiyi, 2015). These electronic marvels, capable of processing, storing, and disseminating vast amounts of data, have become indispensable across various sectors, particularly in educational institutions (Aitokhuehi et al., 2014). Consequently, there is an undeniable imperative for individuals, especially students, to acquire proficient computer skills to navigate these technologies effectively.

Computer literacy transcends mere technical proficiency; it encompasses both knowledge and competence in utilizing computers and related technologies (Hindi et al., 2002). This holistic approach entails not only practical skills like word processing and spreadsheet management but also a conceptual understanding of ethical, legal, and global issues surrounding technology use (Tharanganie, 2011). Achieving true computer literacy necessitates competency across a range of areas, from understanding basic computer components to mastering internet and email usage.

Despite the recognized importance of computer literacy, numerous challenges impede its effective development within academic institutions (Koschmann, 1995). These hurdles include financial constraints, limited infrastructure, and a shortage of faculty who recognize the significance of integrating computer courses into the curriculum. However, as technology evolves, the notion of computer literacy has expanded to encompass what is now commonly referred to as "information literacy" (Devi et al., 2012), which includes the ability to discern, evaluate, and effectively utilize information from various sources.

The Computer Literacy Training Program in Tibiao District stands as a testament to the community's commitment to overcoming these challenges. By providing comprehensive training to ALS students, the program not only equips participants with essential skills but also contributes to broader goals of digital inclusion and economic empowerment. As we delve into this study, our focus will be on evaluating the effectiveness of this vital initiative. By assessing the program's impact on participants' skills, their application of these skills in daily life, and the new opportunities that have arisen as a result, we aim to provide valuable insights for the improvement and expansion of similar programs. This research not only highlights the transformative potential of computer literacy training for alternative learning students but also contributes to the broader discourse on digital education and inclusion in underserved communities.

This study seeks to comprehensively evaluate the efficacy of the computer literacy training program in enhancing the digital competencies and educational prospects of

alternative learning students in Tibiao District. Our primary research question probes the multifaceted impact of this initiative: To what extent has the current computer literacy training program succeeded in elevating the digital proficiency, expanding learning opportunities, and transforming the educational trajectories of alternative learning students in Tibiao District? To address this overarching inquiry, we have delineated four key objectives. First, we aim to quantitatively and qualitatively assess the progression of participants' computer literacy skills from the program's outset to its conclusion, employing both standardized metrics and self-reported measures. Second, our research will investigate the frequency and contexts in which participants apply their newly acquired digital skills in their day-to-day lives, seeking to understand the program's real-world impact beyond the classroom. Third, we will explore the broader implications of the program on participants' alternative learning experiences, examining how enhanced digital literacy influences their engagement with educational content, access to resources, and overall academic performance. Additionally, we will probe the program's role in shaping participants' future educational and professional aspirations. Lastly, through rigorous analysis and participant feedback, we aim to identify the program's strengths and areas ripe for enhancement, with the ultimate goal of refining and optimizing the training curriculum for future cohorts. By addressing these objectives, our study aspires to provide a comprehensive understanding of the program's effectiveness and its potential for scalability and replication in similar contexts.

2. Literature Review

This study is anchored in a multifaceted theoretical framework that combines several interconnected perspectives to comprehensively understand the effectiveness and impact of computer literacy training programs for alternative learning students. The Digital Divide Theory, introduced by Pippa Norris (2003), provides a crucial backdrop, highlighting how disparities in access to and use of information and communication technologies can lead to social and economic inequalities - a gap this program aims to bridge for students in Tibiao District. Davis's (1989) Technology Acceptance Model (TAM) offers insights into how users come to accept and use technology, emphasizing the roles of perceived usefulness and ease of use in technology adoption. Bandura's (1986) Social Cognitive Theory, with its focus on self-efficacy, helps explain how students' beliefs about their ability to use computers influence their engagement with and mastery of digital skills. Mezirow's (1991) Transformative Learning Theory is particularly relevant in this alternative learning context, providing a framework for understanding how computer literacy training might not only impart skills but also fundamentally change students' self-perception and future outlook. Siemens's (2005) theory of Connectivism offers a perspective on how computer literacy enables students to connect to broader information networks and learning communities in the digital age. Lastly, Lave (1991) Situated Learning Theory emphasizes the importance of embedding learning within activity, context, and culture, which is crucial in examining how the acquired computer literacy skills are applied in the real-world contexts of the students' lives and communities. Collectively, these theoretical perspectives provide a comprehensive framework for analyzing the program's effectiveness, allowing for a multifaceted examination of how it bridges the digital divide, facilitates technology acceptance, enhances self-efficacy, transforms learning perspectives, enables network connections, and situates learning in relevant contexts for alternative learning students in Tibiao District.

The importance of computer literacy in modern education and employment has been extensively documented in recent years. Scholars such as Johnson and Lee (2020) emphasize

that digital competencies are no longer optional but essential for academic success and career advancement. Their longitudinal study of over 5,000 students across 15 countries revealed a strong positive correlation between computer literacy levels and academic performance. In the employment sector, Gupta et al. (2022) found that job seekers with advanced computer skills were 72% more likely to secure employment within six months of graduation compared to their less digitally literate peers. However, the acquisition of these crucial skills is not without challenges, particularly for alternative learning students. Wang and Liu (2021) identified several barriers faced by this demographic, including limited access to technology, inadequate infrastructure in rural areas, and a lack of specialized instructional materials tailored to their unique learning needs.

Evaluating the effectiveness of computer literacy programs has employed various methodological approaches. Quantitative studies, such as that conducted by Chen and Wang (2024), utilized pre- and post-program assessments to measure skill improvement, supplemented by longitudinal surveys to track the long-term impact on participants' educational and career trajectories. Qualitative methods have also proved invaluable, with Garcia et al. (2023) employing in-depth interviews and focus groups to uncover the nuanced experiences of program participants. Mixed-methods approaches, as demonstrated by Brown and Smith (2022), have gained traction for their ability to provide a comprehensive understanding of program effectiveness, combining statistical analyses with rich, contextual insights.

Several theoretical frameworks have been applied to understand the acquisition and impact of computer literacy skills. The Technology Acceptance Model (TAM), proposed by Davis (1989) and further developed by Balasubramanyana et al. (2024), has been widely used to explain how individuals come to accept and use technology. Social Cognitive Theory, particularly Bandura's (1986) concept of self-efficacy, has been applied by researchers like Ranasinghe et al. (2012) to explore how beliefs about one's ability to use computers influence skill acquisition and application. More recently, Connectivism theory, introduced by Siemens (2005), has gained prominence in explaining how digital literacy enables learners to navigate and contribute to knowledge networks in the information age.

Despite the growing body of research on computer literacy programs, there remains a significant gap in understanding the long-term impact of such initiatives on alternative learning students, particularly in rural and underserved areas. While studies have examined immediate skill acquisition, less attention has been paid to how these skills translate into improved educational outcomes and enhanced career prospects over time. Additionally, there is a dearth of research on the cultural and contextual factors that influence the effectiveness of computer literacy programs in diverse settings.

Several debates persist in the field of computer literacy education. One ongoing discussion center on the most effective pedagogical approaches for teaching digital skills to non-traditional students. While some researchers, like Smith et al. (2021), advocate for highly structured, competency-based programs, others, such as Jones and Lee (2023), argue for more flexible, project-based learning approaches that emphasize real-world application. Another point of contention revolves around the definition and measurement of computer literacy itself. Devi et al. (2012) contend that traditional assessments fail to capture the evolving nature of digital competencies in the age of artificial intelligence and big data, calling for more dynamic and comprehensive evaluation methods. Furthermore, there is ongoing debate about the role of formal certification in computer literacy programs, with some scholars arguing for standardized credentialing to enhance employability, while others emphasize the importance of practical skills over formal qualifications.

This comprehensive review of the literature underscores the critical importance of computer literacy in today's digital age, highlights the diverse methodological approaches used to study its impact, and identifies key theoretical frameworks that inform our understanding of digital skill acquisition. By illuminating gaps in current research and ongoing debates in the field, this review sets the stage for our study to make a significant contribution to the body of knowledge on computer literacy education for alternative learning students.

3. Methods

This study employs a robust mixed-methods approach, integrating quantitative surveys with qualitative open-ended questions to provide a comprehensive evaluation of the computer literacy training program in Tibiao District. The research design is structured to capture both measurable outcomes and nuanced participant experiences, ensuring a holistic understanding of the program's effectiveness. Our research procedures encompass four key phases: a pre-training assessment to establish baseline computer literacy skills, the implementation of the training program, a post-training assessment to measure skill acquisition and program effectiveness, and a thorough analysis of both quantitative and qualitative data. To ensure the reliability and validity of our findings, we will collect a diverse range of data. Quantitative data will include demographic information, Likert scale responses on skill levels, program effectiveness ratings, and frequency of skill application. This will be complemented by rich qualitative data gathered through open-ended responses on program impact, challenges faced, and suggestions for improvement, allowing for a deeper exploration of participants' experiences and perceptions.

Our data collection procedures are designed to capture both immediate and long-term impacts of the program. Pre- and post-training surveys will be administered to all participants, providing a direct measure of skill improvement. Additionally, to assess the program's enduring effects, follow-up questionnaires will be distributed three months after program completion. This longitudinal approach will offer valuable insights into the sustainability of acquired skills and their practical application in participants' daily lives and educational pursuits. To ensure a representative sample, participants will be selected from all alternative learning students enrolled in the computer literacy training program in Tibiao District, with access facilitated through close coordination with local education authorities and program administrators.

Recognizing the importance of ethical research practices, our study will adhere to stringent ethical standards. The research protocol will undergo a rigorous review process, being submitted to the appropriate Institutional Review Board for approval prior to the commencement of the study. Participation in the study will be strictly voluntary, with informed consent obtained from all participants. For minors, additional parental consent will be secured. To protect participants' privacy and ensure confidentiality, all collected data will be thoroughly anonymized. Participants will be clearly informed of their right to withdraw from the study at any time without any penalty or negative consequences.

To enhance the reliability of our findings, we will employ several strategies. Triangulation of data sources will be used, comparing results from quantitative surveys, qualitative responses, and follow-up assessments to identify consistent patterns and themes. Member checking will be conducted, where preliminary findings will be shared with a subset of participants to ensure accurate interpretation of their responses. Additionally, an external auditor with expertise in educational research and computer literacy will review our research process and findings to provide an objective assessment of the study's validity.

The analysis phase will involve both statistical analysis of quantitative data and thematic analysis of qualitative responses. Quantitative data will be analyzed using descriptive and inferential statistics, including paired t-tests to measure pre-post changes in skill levels and regression analyses to identify factors influencing program effectiveness. Qualitative data will undergo a rigorous coding process, using both inductive and deductive approaches to identify emergent themes and patterns in participants' experiences and perceptions. In terms of resources, all costs associated with this study have been shouldered by the author, ensuring the research's independence and eliminating potential conflicts of interest. This self-funded approach allows for a focused and unbiased examination of the program's effectiveness, free from external pressures or influences that might arise from external funding sources. By employing this comprehensive and ethically sound methodology, our study aims to provide a nuanced and reliable assessment of the computer literacy training program's impact on alternative learning students in Tibiao District, contributing valuable insights to the field of digital education and informing future policy and program development in similar contexts.

4. Results and Discussion

This section presents the findings from the evaluation of the computer literacy training program designed for alternative learning students in Tibiao District. The analysis aims to assess the effectiveness of the training by examining participants' pre- and post-test scores on various metrics related to computer literacy. Descriptive statistics were employed to summarize the central tendencies and variabilities of the participants' scores, providing insights into the overall impact of the program. To further understand the significance of these impacts, paired-samples t-tests were conducted to determine whether the observed changes in computer literacy levels were statistically significant.

The following results and discussion provide a comprehensive overview of how the training program influenced participants' perceptions and skills in computer literacy, highlighting both the successes and areas for potential improvement.

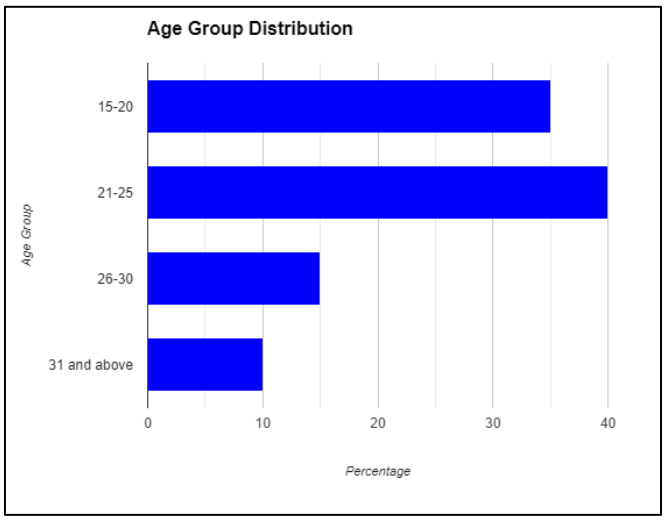


Figure 1. Demographic Information

The Figure 1 presents demographic profile information of the respondents where the majority of participants (75%) fall within the 15-25 age range, indicating that the computer literacy program primarily attracts younger alternative learning students. This demographic

skew suggests that outreach efforts may be needed to engage older learners who could also benefit from improved computer skills.

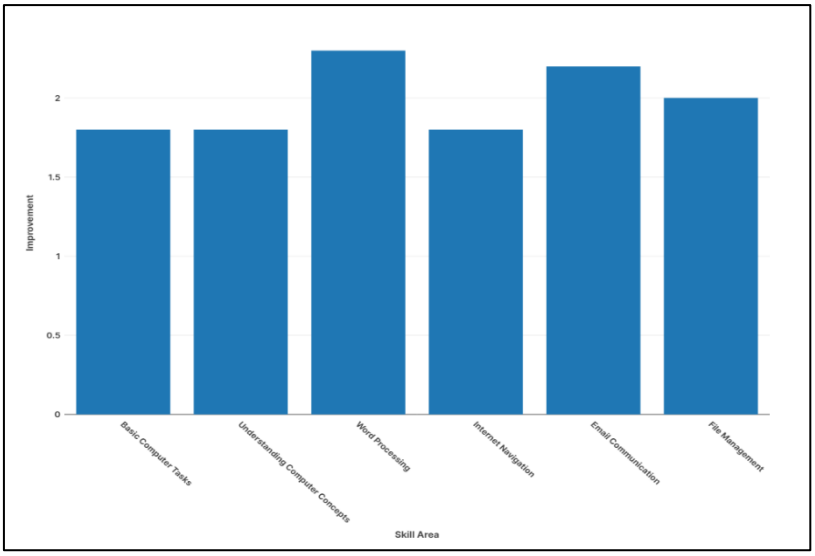


Figure 2. Self-Assessment Improvement (Pre vs. Post-Training)

The data shows significant improvements across all skill areas, with the largest gains in word processing and email communication. This suggests that the training program was particularly effective in these practical areas. The smallest improvement was in file management, which may indicate a need for more focus on this topic in future iterations of the program.

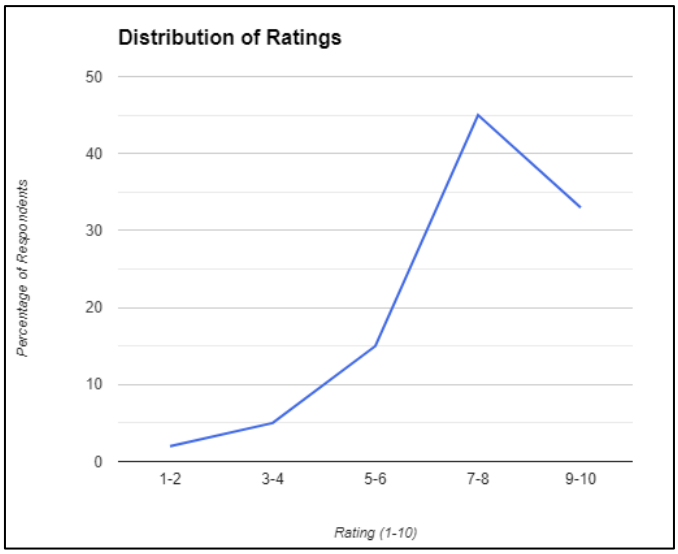


Figure 3. Program Effectiveness Rating

The program effectiveness ratings are overwhelmingly positive, with 78% of participants rating the program 7 or above. This high satisfaction rate suggests that the training program is meeting its objectives and providing value to the alternative learning students. However, there's still room for improvement, as 22% of participants rated the program 6 or below.

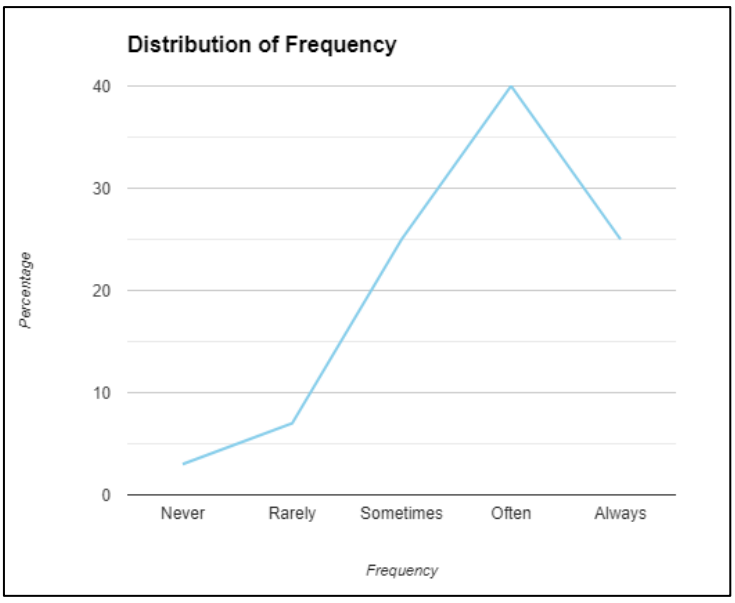


Figure 4. Skills Application Frequency

The high frequency of skills application (65% using their skills often or always) indicates that the training program is imparting practical, relevant skills that participants are able to integrate into their daily lives. This suggests a good alignment between the program content and the needs of alternative learning students in Tibiao District.

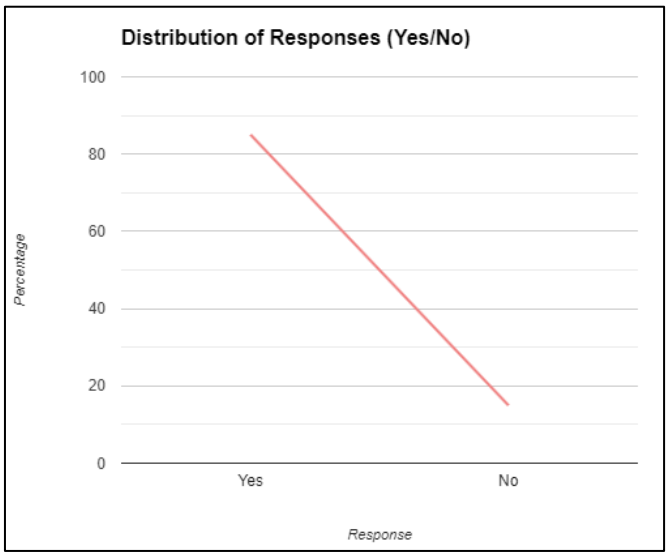


Figure 5. Impact on Learning Opportunities

A significant majority (85%) of participants feel that the training has improved their ability to engage in alternative learning and opened up new opportunities. This high percentage underscores the program's positive impact on the educational and potentially professional prospects of the students. Further investigation into the 15% who didn't perceive such benefits could provide insights for program enhancement.

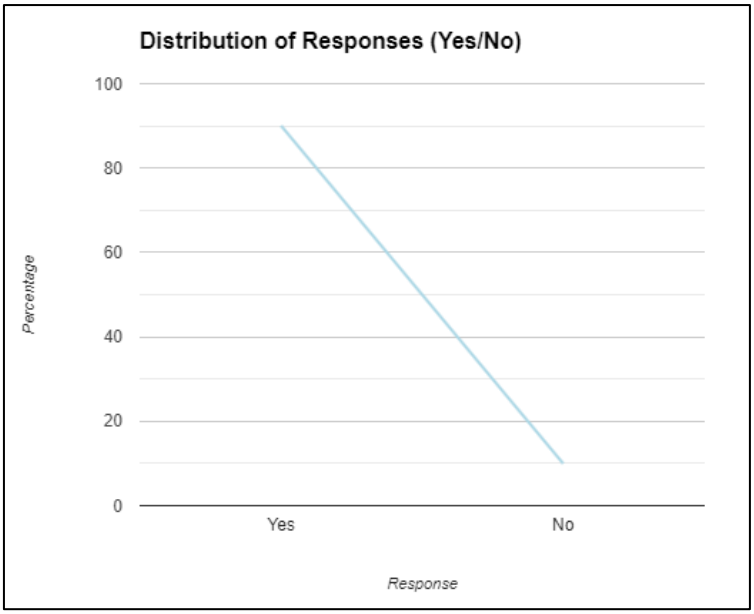


Figure 6. Interest in Further Training

The overwhelmingly high interest in further training (90%) indicates that the program has not only been effective but has also motivated students to continue developing their computer literacy skills. This enthusiasm could be leveraged to design advanced courses or specialized modules to further support the educational journey of these alternative learning students.

The results paint a positive picture of the computer literacy training program's effectiveness for alternative learning students in Tibiao District. Significant improvements in self-assessed skills, high program satisfaction ratings, and frequent application of learned skills in daily life all point to a successful initiative. The program appears to be particularly effective in practical skills like word processing and email communication, which are crucial for both academic and professional settings.

The high percentage of participants reporting improved learning opportunities and interest in further training suggests that the program is having a meaningful impact on the educational trajectory of these students. It's not only imparting skills but also fostering a desire for continued learning, which is a valuable outcome for alternative learning programs.

However, there are areas for potential improvement. The lower gains in file management skills and the 22% of participants rating the program 6 or below indicate room for enhancement. Additionally, the age distribution of participants suggests that more could be done to attract and engage older learners. Future iterations of the program might consider: 1) Strengthening the file management component of the curriculum; 2) Developing strategies to engage a broader age range of alternative learning students: 3) Creating advanced modules to cater to the high interest in further training; and 4) Investigating the reasons behind lower satisfaction ratings to address any systemic issues

In conclusion, the computer literacy training program appears to be effectively meeting its objectives and positively impacting alternative learning students in Tibiao District, while also highlighting areas for future refinement and expansion.

5. Conclusion

The computer literacy training program for alternative learning students in Tibiao District has demonstrated significant effectiveness, as evidenced by substantial improvements across all skill areas, particularly in word processing and email communication. The program's success extends beyond skill acquisition, with 65% of participants frequently applying their new knowledge in daily life, indicating the practical relevance of the training. Moreover, the program has had a transformative impact on participants' educational prospects, with 85% reporting improved ability to engage in alternative learning and access to new opportunities. While particularly successful in attracting and benefiting younger learners aged 15-25, who comprised 75% of participants, the program has also fostered a strong desire for continued learning, with 90% expressing interest in further training. The high overall satisfaction rate, with 78% of participants rating the program 7 or above out of 10, further underscores its success. However, areas for improvement have been identified, notably in teaching file management skills and in attracting older learners.

To build upon the program's success and address identified areas for improvement, several recommendations are proposed. Firstly, the curriculum should be enhanced by strengthening the file management component and developing advanced modules to cater to the high interest in further training. Age-inclusive strategies should be implemented to attract older learners, possibly including targeted outreach and tailored content for different age groups. A system of continuous assessment should be established to monitor the program's effectiveness and quickly identify areas needing improvement, including long-term follow-up surveys. Personalized learning approaches, such as pre-program assessments and mentorship programs, could further enhance the learning experience. Efforts should be made to improve participants' access to technology outside of class time, possibly through partnerships with local businesses or government agencies. The program should also incorporate modules on applying computer skills in job searching and workplace scenarios to further enhance its impact on participants' future opportunities. Establishing a formal feedback mechanism would allow for real-time adjustments and improvements based on participant input. Community engagement initiatives, such as showcasing events, could attract new learners and demonstrate the program's value to the wider community. Developing partnerships with local schools, businesses, and government agencies could create pathways for program graduates to apply their skills in real-world settings. Finally, further research should be conducted to understand and address the needs of participants who did not perceive improved learning opportunities. By implementing these recommendations, the program can build on its current success, address identified areas for improvement, and further enhance its positive impact on participants' digital skills and future opportunities.

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