

Guided Hands-On Experience: A Strategy in Improving Pupils' Computer Literacy

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Abstract: This study explored the effectiveness of a Guided Hands-on Experience as an intervention strategy to improve the computer literacy of Grade V pupils at Diatagon Barangay Central Elementary School. The intervention focused on teaching basic skills in Microsoft Word and Microsoft PowerPoint through structured tutorial sessions. Using a pre-assessment and post-assessment design, the study measured the pupils' competency levels before and after the intervention. Results showed a substantial improvement in computer literacy, with mean scores increasing from 1.14 to 4.66 for Microsoft Word and from 1.3 to 4.5 for Microsoft PowerPoint. These findings indicate that hands-on, guided learning significantly enhances pupils' ability to use digital productivity tools, promoting both technical proficiency and learner autonomy. The study concludes that early, practical ICT interventions can effectively address digital skill gaps among elementary learners, particularly in under-resourced educational settings. It recommends integrating similar approaches into the curriculum and expanding their implementation to ensure a wider impact.

Keywords: Computer Literacy, Hands-On Learning, Microsoft Word, Microsoft Powerpoint, ICT Skills, Elementary Education

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I. INTRODUCTION

Many pupils, particularly those who grow up without access to computers, struggle to comprehend the system required for computer literacy. [1] defined computer literacy as a mandatory skill for success in school, the job force, and everyday life. The situation leads to teacher and students to enroll ICT seminars and courses to increase their ability in using technology. A lot of pupils from remote areas are less fortunate to use technology in teaching and learning, the reason why they lack ICT skills. [2] study findings revealed that teachers perceived that the ICT facilities were inadequate in schools, which presented a challenge in the integration of technology during the implementation of the new curriculum. Most of the teachers answered that they received only basic computer literacy training.

In the study of [3], they found out that students needed to enhance the extent of their computer literacy in the basic ICT skills. Likewise, [4] found out that the use of Information and Communication Technology is significant in placing pupils in an active position and enhancing the effectiveness and efficiency of the tutorial support. Furthermore, pupils who do not learn age-appropriate computer skills can fall behind in their classes and struggle to maintain their grades [5]. According to the new research, governments and university managements globally have heavily invested in adopting of Information Technology in their educational system [6].

Many research study has investigated the effectiveness of teaching computer literacy and basic ICT skills. However, few studies have examined the effectiveness of Hands-on tutorial in teaching Microsoft word and PowerPoint Presentation in elementary pupils. In Diatagon Barangay Central Elementary School it has been found out that there is a great number of pupils having difficulties in learning basic ICT skills taken from the least learned competencies report of the teachers. Accordingly, this is due to the lack of hands-on experience of pupils and lack of computer units provided by schools. This study aims to equip pupils with the basic ICT skills through Guided Hands-on Experience: A Strategy in Improving Pupils Computer Literacy. In the study of [7], findings revealed that guided hands-on experiences may improve learning compared to unguided activities.

The researcher's motivation to pursue this study, is to equip the learners with the basic computer skills they might use in making school reports, school documents and requirements. The researchers believe that by conducting this intervention, this can be helpful for; the pupils that can gain knowledge in operating basic ICT skills, for the teachers that can be use this study in improving the students' basic ICT skills, for the future researchers who can use this study through the data analysis of this intervention and for the community to encourage them to learn and master basic ICT skills.

II. ACTION RESEARCH QUESTION

This study aims to improve the level of computer literacy of the identified Grade-V pupils in Diatagon Barangay Central Elementary School, School Year 2023-2024 through tutorial sessions using Guided Hands-on Activity Experience.

Specifically, it will seek answer to the following questions:

- What is the pupils' level of computer literacy before the Intervention?
- What is the pupils' level of computer literacy after the intervention?

III. ACTION RESEARCH METHODS

A. Participants and/or other Sources of Data and Information

Diatagon Barangay Central Elementary School was chosen as research local of this action research. The Participants of this study involved 5 pupils who are selected by their adviser, taken from the results of the reported least mastered competencies in the computer subject. It was taken from the Grade V- Earth enrolled S.Y. 2023-2024 by using purposive sampling design. The rubric was made up of 2 parts. Part 1 of it contained about the concepts in creating documents in Microsoft word and part 2 contained concept in creating PowerPoint presentation.

B. Data Gathering Methods

The researchers sought for approval of their study from their adviser. Thereafter, the researchers sent a letter request to the principal and the parents of the selected participants in Diatagon Barangay Central Elementary School. Upon approval, the researchers personally visited the study areas where the intervention program was conducted, the Guided Hands-on Activity Program had 8 hours all-in-all during the intervention.

IV. RESULTS AND DISCUSSION

Figure 1 presents the comparison between the pre-assessment and post-assessment results of pupils following the implementation of the Guided Hands-on Experience in using Microsoft Word. The data reveal a significant improvement in pupils' performance. Initially, the mean percentage score in the pre-assessment was 1.14, indicating that the pupils had very limited knowledge and skills in using Microsoft Word. This low score implies that most of the learners were unfamiliar with basic functions such as typing, formatting, and saving documents. After the intervention, the post-assessment results show a mean score of 4.66, which reflects a substantial increase in their competency. This score falls within the "Extremely Literate" category, demonstrating that the pupils acquired essential skills in using Microsoft Word and can now navigate the program with minimal or no assistance from teachers.

The improvement in scores underscores the effectiveness of hands-on, guided learning strategies in teaching digital

literacy, especially in foundational ICT skills. These findings are consistent with recent studies highlighting the positive impact of experiential learning. According to [8], learners who are directly engaged in practical tasks retain knowledge more effectively and develop greater confidence in applying new skills. Similarly, [9] found that guided digital exposure promotes autonomy in young learners, as it allows them to explore and manipulate tools in a controlled yet independent learning environment.

Moreover, the result supports [10] assertion that hands-on education gives learners both freedom and responsibility to learn through direct experience rather than passive instruction. The pupils' ability to demonstrate mastery in document creation post-intervention validates the value of integrating applied, interactive methods in digital education, particularly for early learners.

These outcomes suggest that integrating structured hands-on experiences in teaching productivity tools like Microsoft Word can bridge digital skill gaps among pupils. As supported by findings from [11], early interventions in digital literacy not only build technical proficiency but also enhance critical thinking and task management skills, which are essential for academic success in technology-integrated classrooms.

Figure 2 illustrates the pre-assessment and post-assessment results of the pupils following the implementation of the Guided Hands-on Experience in using Microsoft PowerPoint. The pre-assessment results indicate a mean score of 1.3, suggesting that the pupils had little to no prior knowledge of creating presentations or navigating the PowerPoint application. This result reflects a lack of digital literacy in key skills such as inserting slides, adding content, and applying basic transitions and designs.

After the implementation of the guided hands-on intervention, there was a notable improvement, as reflected in the post-assessment mean score of 4.5. This score falls under the "Extremely Literate" category, indicating that the pupils developed a strong understanding of the fundamental features of PowerPoint. They were able to create and design presentations independently, applying the skills learned during the intervention.

This substantial improvement reinforces the effectiveness of experiential learning in building digital competencies. Guided, hands-on approaches help young learners engage with abstract concepts through concrete application, resulting in deeper understanding and skill retention. As noted by [12], students who participate in active learning tasks involving technology demonstrate higher engagement and confidence in digital tool usage. Furthermore, the structured guidance provided during the intervention ensured that the pupils did not just explore the application randomly but followed a focused learning pathway, leading to better outcomes.

These results are in line with [13] perspective that hands-on learning fosters critical thinking by immersing learners in comprehensive, real-world experiences. More recent evidence from [14] also supports this view, highlighting that pupils exposed to task-based digital training show significant

improvements in both technical execution and creative expression in multimedia presentations.

Thus, the outcome of the post-assessment underscores the potential of guided practical learning to transform pupils

from digitally illiterate to technologically competent. It also implies that early interventions in digital presentation tools like Microsoft PowerPoint are essential in preparing learners for future academic tasks that require visual communication and presentation skills.

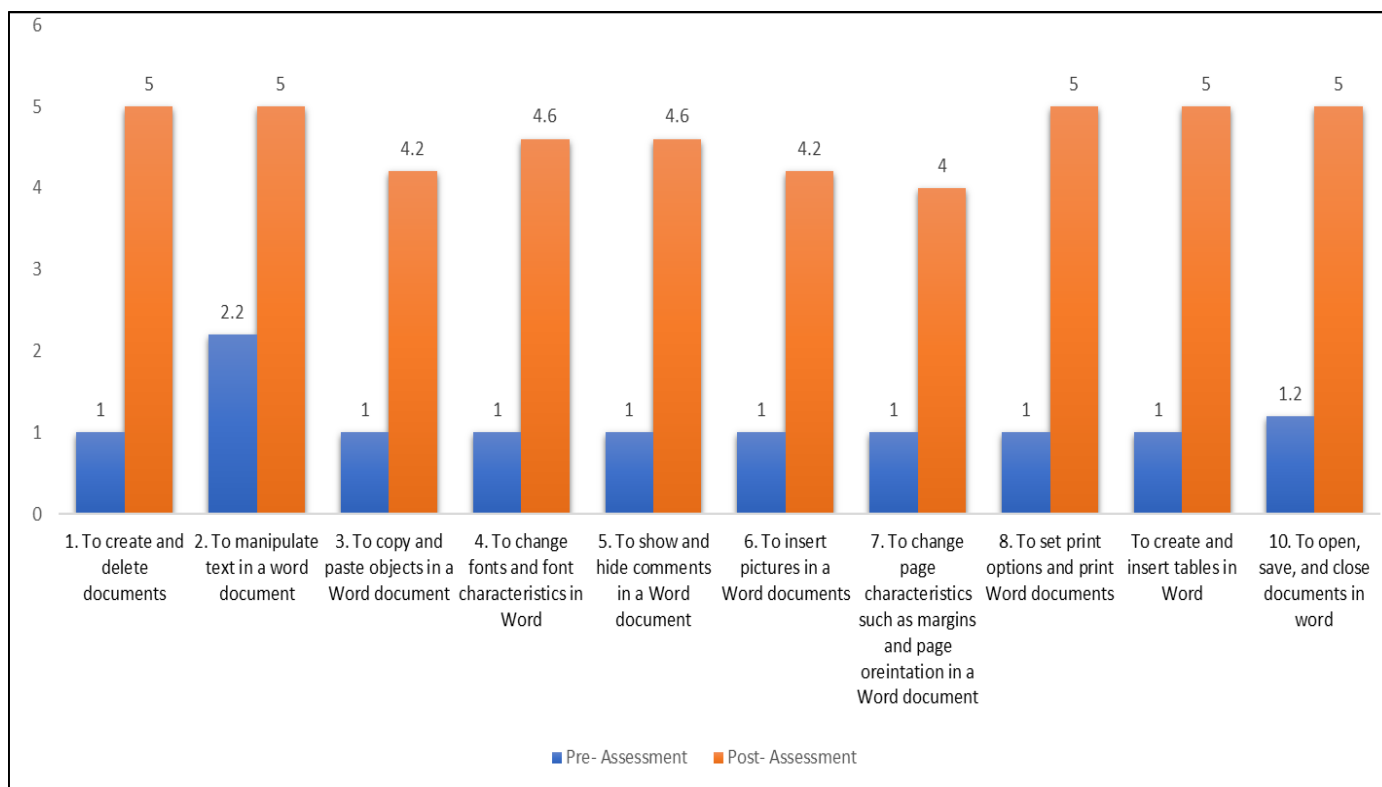


Fig 1 Graphical Representation of the Data Gathered from the Pre-Assessment and Post-Assessment on the Use of Microsoft Word

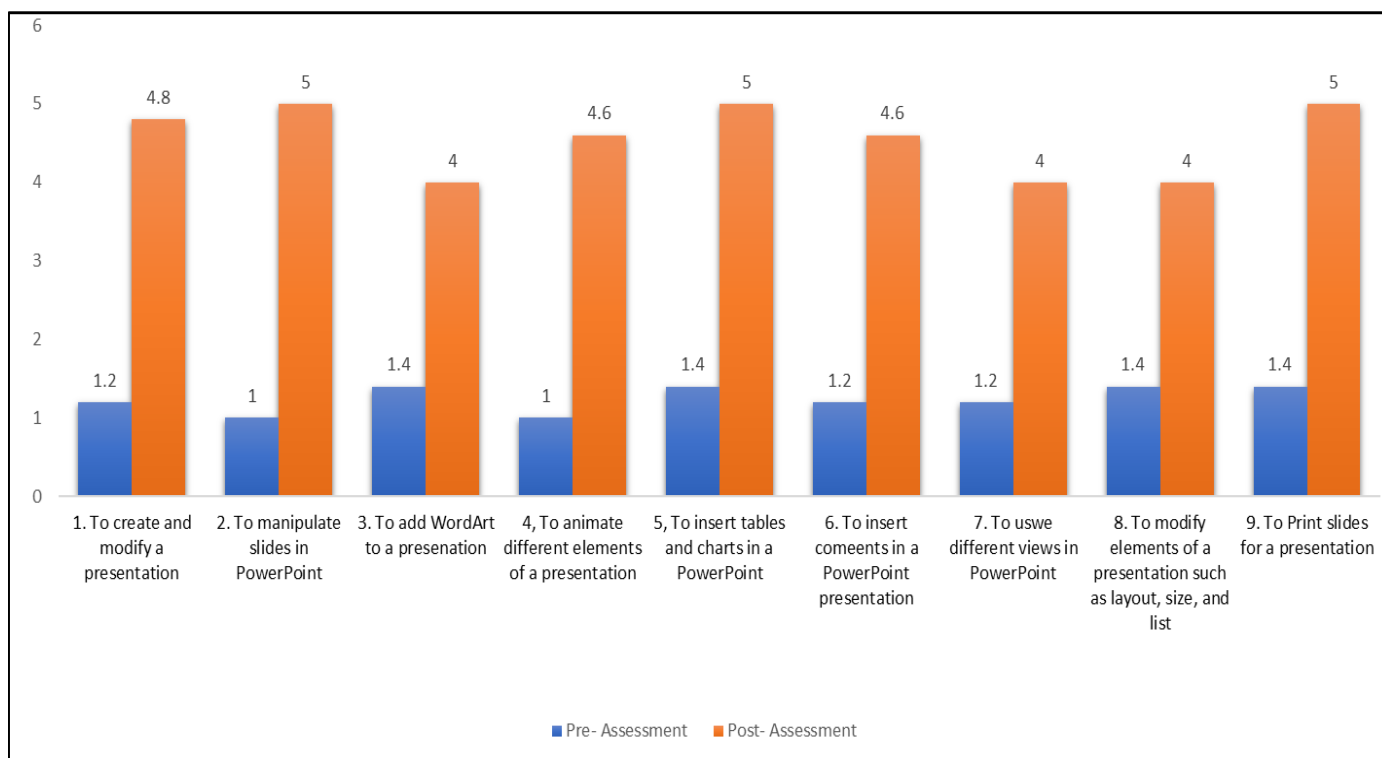


Fig 2 Graphical Representation of the Data Gathered from the Pre-Assessment and Post-Assessment on the Use of PowerPoint.

V. CONCLUSION AND RECOMMENDATION

The findings of this study clearly demonstrate that the Guided Hands-on Experience is an effective strategy for enhancing pupils' computer literacy, particularly in using Microsoft Word and PowerPoint. The significant increase in post-assessment scores—from 1.14 to 4.66 in Microsoft Word and from 1.3 to 4.5 in PowerPoint—indicates that the pupils, who were initially digitally illiterate, became extremely literate in both applications after participating in the intervention. This improvement affirms that guided, experiential learning facilitates not only the acquisition of basic ICT skills but also builds pupils' confidence and independence in performing digital tasks. In light of these findings, it is recommended that schools, especially those in underserved or remote areas, incorporate structured, hands-on ICT modules into their curriculum to address skill gaps effectively. Teachers should also be trained in implementing such interactive strategies to maximize learning outcomes, while school administrators must ensure the provision of adequate computer equipment and learning resources to support these efforts. Furthermore, the program should be replicated in other contexts and expanded to other grade levels to assess its broader applicability. Finally, policymakers and education stakeholders are encouraged to support initiatives that promote early digital literacy, and the community should be actively involved in fostering an environment that values and strengthens ICT competencies among young learners.

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REFERENCES

- [1]. M. Muslimin and R. Indrawati, "Digitalization and Education Equity in Remote Areas: Challenges and Strategic Solutions," *J. Educ. Hum. Soc. Sci. JEHSS*, vol. 7, no. 2, pp. 376–383, Nov. 2024, doi: 10.34007/jehss.v7i2.2356.
- [2]. J. Murithi and J. E. Yoo, "Teachers' use of ICT in implementing the competency-based curriculum in Kenyan public primary schools," *Innov. Educ.*, vol. 3, no. 1, p. 5, Dec. 2021, doi: 10.1186/s42862-021-00012-0.
- [3]. A. M. Cadiz-Gabejan and M. J. C. Takenaka, "Students' Computer Literacy and Academic Performance," *J. World Englishes Educ. Pract.*, vol. 3, no. 6, pp. 29–42, Jun. 2021, doi: 10.32996/jweep.2021.3.6.4.
- [4]. M. Ying, "Improving the Effectiveness of Teaching and Training Through Information and Communications Technology," *Int. J. Educ. Humanit.*, vol. 12, no. 1, pp. 240–243, Jan. 2024, doi: 10.54097/9v1hth45.
- [5]. H. Ma, M. Zhao, H. Wang, X. Wan, T. W. Cavanaugh, and J. Liu, "Promoting pupils' computational thinking skills and self-efficacy: a problem-solving instructional approach," *Educ. Technol. Res. Dev.*, vol. 69, no. 3, pp. 1599–1616, Jun. 2021, doi: 10.1007/s11423-021-10016-5.
- [6]. International Research Academy of Science and Art, Belgrade, Serbia, D. Vesić, D. Laković, Ministry of Interior of the Republic of Serbia, Belgrade, Serbia, S. Lj. Vesić, and PUC "Belgrade Waterworks and Sewerage", Belgrade, Serbia, "Use of Information Technologies in Higher Education From The Aspect of Management," *Int. J. Cogn. Res. Sci. Eng. Educ.*, vol. 11, no. 1, pp. 143–151, Apr. 2023, doi: 10.23947/2334-8496-2023-11-1-143-151.
- [7]. R. D. Catena and K. J. Carbonneau, "Guided Hands-On Activities Can Improve Student Learning in a Lecture-Based Qualitative Biomechanics Course," *Anat. Sci. Educ.*, vol. 12, no. 5, pp. 485–493, Sep. 2019, doi: 10.1002/ase.1832.
- [8]. X. Shi, "Effective Strategies and Teaching Methods for Developing Practical English Skills," *Educ. Rev. USA*, vol. 8, no. 4, pp. 531–535, May 2024, doi: 10.26855/er.2024.04.006.
- [9]. D. H. Sharma and A. Chachra, "Effective Learners' Engagement for Learning," *J. Eng. Educ. Transform.*, vol. 33, no. 0, p. 150, Jan. 2020, doi: 10.16920/jeet/2020/v33i0/150084.
- [10]. L. Lin, "Hands on Education in Integrated Curriculum," in 2016 Spring ASEE Middle Atlantic Section Conference Proceedings, George Washington University, Washington, DC: ASEE Conferences, Apr. 2016, p. 49981. doi: 10.18260/1-2-1153-49981.
- [11]. D. Chaerani, J. E. Harianto, L. Baehaqi, D. Frantius, and R. Mulvia, "Digital Literacy in the 21st Century Classroom: Bridging the Gap Between Technology Integration and Student Engagement," *Glob. Int. J. Innov. Res.*, vol. 2, no. 9, pp. 2104–2116, Sep. 2024, doi: 10.59613/global.v2i9.303.
- [12]. I. Mosquera Gende, "Digital tools and active leaning in an online university: Improving the academic performance of future teachers," *J. Technol. Sci. Educ.*, vol. 13, no. 3, p. 632, Jun. 2023, doi: 10.3926/jotse.2084.
- [13]. B. Cooper, C. Przechocki, and V. D. Chauhan, "Fostering Critical Thinking and Practical Skills Development Through Hands-on Projects in Mechatronics, Robotics, and Machine Learning: A Focus on Two Case Studies," in Volume 7: Engineering Education, Portland, Oregon, USA: American Society of Mechanical Engineers, Nov. 2024, p. V007T09A051. doi: 10.1115/IMECE2024-143017.
- [14]. L. Judijanto, M. Khoiri, M. Arsyad, J. W. Sitopu, and E. Sitepu, "Pengaruh Teknologi Pembelajaran terhadap Perkembangan Kognitif dan Kreativitas Siswa di Era Digital," *J. Psikol. Dan Konseling West Sci.*, vol. 2, no. 04, pp. 293–300, Dec. 2024, doi: 10.58812/jpkws.v2i04.1816.