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UTILIZATION OF MICROSOFT PRODUCTIVITY TOOLS AND ADMINISTRATIVE AND ACADEMIC PAPERWORK EFFICIENCY: A MIXED-METHODS STUDY IN BAROBO DISTRICT, PHILIPPINES

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ABSTRACT

The increasing administrative and academic documentation demands in schools highlight the importance of digital productivity tools. This study examined the utilization of Microsoft productivity tools and their relationship with administrative and academic paperwork efficiency among teaching and non-teaching personnel in Barobo District, Surigao del Sur, Philippines, during the Academic Year 2025-2026. A mixed-methods research design was employed involving 191 respondents. Quantitative data were analyzed using descriptive statistics, analysis of variance, and Pearson correlation, while qualitative responses underwent thematic analysis. Findings revealed that Microsoft productivity tools were often utilized overall (M = 3.69), with Word (M = 4.54) and Excel (M = 4.39) receiving the highest utilization ratings, while Copilot was rarely used (M = 2.42). Perceived paperwork efficiency was very high (M = 4.47). Training ($r = .57$, $p < .001$) and overall tool utilization ($r = .57$, $p < .001$) demonstrated significant positive relationships with efficiency, whereas age and position showed no significant differences. Qualitative findings identified inadequate training, limited digital skills, unstable internet connectivity, and insufficient technical resources as major challenges. The study concluded that greater utilization and training were associated with higher perceived paperwork efficiency, underscoring the importance of sustained digital capacity building and institutional support.

Keywords: *Microsoft productivity tools, administrative paperwork, academic paperwork, work efficiency, digital competence, mixed-methods research*

INTRODUCTION

The increasing demands of administrative and academic paperwork have become a significant concern in educational institutions, particularly among teachers and school personnel responsible for instructional planning, learner assessment, documentation, and institutional reporting. These responsibilities require considerable time and effort, potentially limiting opportunities to concentrate on instructional improvement and other essential educational functions. Creagh et al. (2023) emphasized that teachers and school leaders experience workload intensification and time poverty as administrative and professional responsibilities become increasingly complex. Their research highlighted how excessive work demands can constrain educators' capacity to fulfill instructional priorities. Consequently, improving the efficiency of administrative and academic paperwork has become an important consideration in strengthening school operations and supporting personnel productivity.

The utilization of digital productivity tools offers opportunities to improve documentation, information management, communication, and collaboration within educational institutions. Microsoft productivity applications, including Word, Excel, PowerPoint, Teams, OneDrive, and Copilot, provide functionalities for preparing documents, processing data, developing presentations, coordinating activities, storing files, and supporting selected tasks through artificial intelligence. However, the benefits of digital technologies depend on how effectively they are integrated into institutional practices. A comprehensive literature review established that successful educational digital transformation requires adequate technological infrastructure, organizational readiness, leadership support, and professional development rather than simply providing access to digital applications (Timotheou et al., 2023). This perspective highlights the importance of examining actual utilization alongside the efficiency experienced by school personnel.

Digital competence and continuous professional development are equally important in maximizing the potential of productivity applications. In the Philippine educational context, Cubillan and Labitad (2024) examined public school teachers' competencies in Microsoft 365 applications and identified challenges affecting the integration of information and communication technology. Their findings demonstrated that technological competence alone does not eliminate barriers associated with infrastructure and professional support. Similarly, the Organisation for Economic Co-operation and Development (OECD, 2023) emphasized that effective digital education requires coordinated policies, capacity-building initiatives, and enabling conditions that support efficient and equitable technology utilization. These findings suggest that the relationship between digital tool utilization and paperwork efficiency must be understood in relation to personnel training, institutional resources, and technical support.

Emerging artificial intelligence applications have further expanded the potential of digital productivity tools, particularly in generating instructional materials, organizing information, and assisting with repetitive professional tasks. Among these applications, Microsoft Copilot offers opportunities to support document preparation, content development, and other technology-assisted workflows. Nevertheless, the successful

integration of artificial intelligence requires appropriate user competencies and a clear understanding of its capabilities and limitations. Osadcha et al. (2024) investigated the use of Microsoft Copilot Chat among information technology educators and reported improvements in participants' knowledge following a structured professional learning workshop. Their findings underscore the importance of practical training in supporting the responsible and effective adoption of emerging digital applications. Such evidence is particularly relevant to schools where personnel may be familiar with conventional Microsoft applications but have limited exposure to cloud-based collaboration and artificial intelligence tools.

Despite continuing initiatives to strengthen digital transformation in Philippine public schools, challenges in technology utilization remain evident in Barobo District, Surigao del Sur. District ICT Reports (2025), as documented in the present study, indicated that only 15 of 38 schools (39.47%) had implemented school-based training on Microsoft productivity tools. Furthermore, only eight School ICT Coordinators (21.05%) participated in division-wide training, with five subsequently conducting school-level training activities. These conditions suggested limited opportunities for sustained digital capacity building among teaching and non-teaching personnel. The district's monitoring records for School Year 2024–2025 also revealed difficulties in the timely submission of selected administrative and academic reports. While 34 schools (89.47%) submitted certain basic infrastructure and information system reports on time, only two schools (5.26%) submitted the Inventory of Developed and Contextualized Learning Resources and Learning Resources Portal Report within the prescribed deadline. Such variations highlighted the need to examine the digital competencies and workflow conditions associated with documentation and reporting.

Furthermore, the district's reported challenges included difficulties using advanced Microsoft Excel functions, accessing institutional Microsoft accounts, managing files through OneDrive, and utilizing digital platforms for collaborative reporting. These concerns affected processes involving lesson preparation, assessment consolidation, grade computation, records management, and administrative communication. Although previous studies have examined digital competence, educational technology integration, and teacher workload, localized evidence remains necessary to understand how the utilization of specific Microsoft productivity applications relates to administrative and academic paperwork efficiency among both teaching and non-teaching personnel. In particular, examining conventional applications alongside cloud-based and artificial intelligence tools may reveal differences in adoption, training needs, and perceived contributions to school operations.

Therefore, this study aimed to examine the utilization of Microsoft productivity tools and their relationship with administrative and academic paperwork efficiency among teaching and non-teaching personnel in Barobo District, Surigao del Sur, Philippines. Specifically, it investigated respondents' demographic characteristics and training exposure, the extent of utilization of Microsoft Word, Excel, PowerPoint, Teams, OneDrive, and Copilot, and the level of perceived paperwork efficiency in terms of task completion, accuracy, document organization, collaboration, and productivity. It also examined significant differences and relationships involving personnel characteristics,

training, utilization, and efficiency while exploring challenges and training gaps through qualitative inquiry. By integrating quantitative and qualitative findings, the study sought to provide context-specific evidence for developing an intervention program that strengthens digital competencies, improves institutional support, and promotes more efficient administrative and academic workflows.

Research Questions

This study aimed to determine the utilization of Microsoft productivity tools and its relationship with the efficiency of administrative and academic paperwork among teaching and non-teaching personnel in Barobo District, Surigao del Sur, Philippines.

Specifically, the study sought to answer the following questions:

1. What is the demographic profile of the respondents in terms of age, position, and training on Microsoft productivity tools?
2. What is the extent of utilization of Microsoft productivity tools among teaching and non-teaching personnel in terms of:
    - Microsoft Word;
    - Microsoft Excel;
    - Microsoft PowerPoint;
    - Microsoft Teams;
    - Microsoft Copilot; and
    - Microsoft OneDrive?
3. What is the level of efficiency of administrative and academic paperwork among teaching and non-teaching personnel in terms of:
    - speed in completing tasks;
    - accuracy and error reduction;
    - organization of documents and records;
    - collaboration among personnel; and
    - overall productivity enhancement?
4. Are there significant differences in the efficiency of administrative and academic paperwork when respondents are grouped according to age and position, and is there a significant relationship between training on Microsoft productivity tools and paperwork efficiency?
5. Is there a significant relationship between the utilization of Microsoft productivity tools and the efficiency of administrative and academic paperwork?
6. What challenges and technical limitations do teaching and non-teaching personnel encounter in utilizing Microsoft productivity tools?
7. How do the qualitative findings corroborate and explain the quantitative results concerning training, utilization of Microsoft productivity tools, and administrative and academic paperwork efficiency?
8. What intervention program may be proposed based on the findings to enhance the utilization of Microsoft productivity tools and improve administrative and academic paperwork efficiency?

METHODOLOGY

The study employed a mixed-methods research design integrating quantitative and qualitative approaches to examine the utilization of Microsoft productivity tools and its relationship with the efficiency of administrative and academic paperwork among teaching and non-teaching personnel in Barobo District, Surigao del Sur, Philippines. The quantitative component utilized a descriptive-correlational design to determine respondents' demographic characteristics, training exposure, extent of utilization of Microsoft productivity applications, and perceived paperwork efficiency. It also examined significant differences in efficiency according to age and position and the relationships of training and tool utilization with efficiency. The qualitative component explored participants' experiences, challenges, technical limitations, and training needs. Both components were integrated through a merging–convergence approach to determine how qualitative findings corroborated and explained the quantitative results.

The study was conducted in 17 selected public schools in Barobo District, comprising 14 elementary schools and three secondary schools. The respondents consisted of 191 teaching and non-teaching personnel, including 157 teachers, seven master teachers, 14 administrative officers, and 13 school heads. For the quantitative component, purposive sampling was employed, wherein all 191 identified personnel directly involved in administrative and academic documentation were included. Participants were selected based on their active employment in the participating schools, involvement in school-related paperwork, and actual or potential utilization of Microsoft productivity tools. For the qualitative component, 25 participants were selected through stratified random sampling based on school affiliation and employment classification to obtain perspectives from different personnel groups.

Data were collected using a researcher-developed survey questionnaire and a semi-structured, interview-type questionnaire. The instruments were developed through a review of relevant literature, previous studies, and educational policies. The structured questionnaire gathered information on respondents' age, position, and training exposure; utilization of Microsoft Word, Excel, PowerPoint, Teams, Copilot, and OneDrive; and perceived paperwork efficiency. Efficiency was assessed across five dimensions: speed in completing tasks, accuracy and error reduction, organization of documents and records, collaboration among personnel, and overall productivity enhancement. A five-point Likert scale was employed to measure training participation, frequency of tool utilization, and agreement with efficiency-related statements. The research instruments underwent validation and reliability testing before their administration to establish their suitability for data collection. Meanwhile, the qualitative instrument contained open-ended questions that allowed participants to describe difficulties in using Microsoft applications, technical and infrastructural limitations, and areas requiring additional professional development.

Before data collection, permission was obtained from the Schools Division Superintendent and the respective school heads of the participating schools. The researcher explained the objectives, procedures, and voluntary nature of participation and secured written informed consent from the respondents. Quantitative data were gathered

through face-to-face administration of the structured questionnaires. For the qualitative component, participants completed written responses to semi-structured, open-ended questions, enabling them to describe their experiences and challenges in their own words. The researcher provided appropriate instructions and clarification when necessary and ensured that participants had sufficient time to complete the instruments. Confidentiality was maintained throughout data collection, processing, and reporting, and responses were used exclusively for research purposes.

The quantitative data were organized, tabulated, and analyzed using descriptive and inferential statistics. Frequency counts and percentages were employed to describe respondents' age and position, while weighted means and average weighted means were calculated to determine training participation, extent of Microsoft productivity tool utilization, and perceived paperwork efficiency. One-way analysis of variance (ANOVA) was used to examine significant differences in efficiency when respondents were grouped according to age and position. Pearson's product–moment correlation coefficient was employed to determine the relationships between training and efficiency and between the utilization of individual Microsoft applications and overall paperwork efficiency. Statistical significance was evaluated at the .05 level. The qualitative responses were analyzed thematically with the assistance of Jamovi to organize recurring responses, identify codes, and develop themes concerning digital competencies, technical difficulties, infrastructure constraints, and training needs.

Finally, the quantitative and qualitative findings were integrated through a merging–convergence analysis. Statistical results concerning training, application utilization, and perceived efficiency were compared with the qualitative themes to identify areas of agreement, complementary explanations, and possible discrepancies. This integration provided a broader understanding of how teaching and non-teaching personnel utilized Microsoft productivity tools and the contextual factors associated with paperwork efficiency. The combined findings served as the basis for developing a proposed intervention program focused on digital capacity building, technical support, improved access to productivity applications, and more efficient administrative and academic documentation practices.

RESULTS

Table 1
Age Distribution of Respondents (N = 191)

Age category	Frequency (n)	Percentage (%)
20–25 years	3	1.57
26–30 years	37	19.37

31–35 years	50	26.18
36–40 years	34	17.80
41–45 years	26	13.61
46–50 years	17	8.90
51 years and above	24	12.57
Total	**191**	**100.00**

Table 2

Distribution of Respondents by Personnel Classification (N = 191)

Personnel classification	Frequency (n)	Percentage (%)
Teachers	157	82.20
Master teachers	7	3.66
Administrative officers	14	7.33
School heads	13	6.81
Total	**191**	**100.00**

Note. Personnel classifications follow the respondent categories reported in the methodology. Percentages are calculated from the reported frequencies.

Table 3

Level of Training on Microsoft Productivity Tools

Microsoft productivity tool	M	Descriptive category	Rank
Microsoft Word	2.89	Sometimes	1
Microsoft PowerPoint	2.75	Sometimes	2
Microsoft Excel	2.73	Sometimes	3
Microsoft Teams	2.39	Rarely	4
Microsoft OneDrive	2.12	Rarely	5
Microsoft Copilot	1.97	Rarely	6
Overall	**2.48**	**Rarely**	

Note. M = weighted mean. Scale: 4.20–5.00 = Always; 3.40–4.19 = Often; 2.60–3.39 = Sometimes; 1.80–2.59 = Rarely; 1.00–1.79 = Never.

Table 4

Extent of Utilization of Microsoft Productivity Tools

Microsoft productivity tool	M	Descriptive category	Rank
Microsoft Word	4.54	Always	1
Microsoft Excel	4.39	Always	2
Microsoft PowerPoint	4.15	Often	3
Microsoft OneDrive	3.39	Sometimes	4
Microsoft Teams	3.22	Sometimes	5
Microsoft Copilot	2.42	Rarely	6
Overall	**3.69**	**Often**	

Note. M = average weighted mean.

Table 5

Level of Perceived Efficiency in Administrative and Academic Paperwork

Efficiency dimension	M	Descriptive category	Rank
Organization of documents and records	4.50	Strongly Agree	1
Speed in completing tasks	4.49	Strongly Agree	2
Accuracy and error reduction	4.47	Strongly Agree	3
Overall productivity enhancement	4.46	Strongly Agree	4
Collaboration among personnel	4.41	Strongly Agree	5
Overall	**4.47**	**Strongly Agree**	

Note. M = average weighted mean.

Table 6

Tests of Differences and Relationship Involving Respondent Characteristics, Training, and Paperwork Efficiency

Variable	Statistical test	Test statistic	p	Decision
Age	One-way ANOVA	F = 1.21	.301	Fail to reject H_0
Position	One-way ANOVA	F = 0.94	.478	Fail to reject H_0
Training on Microsoft productivity tools	Pearson correlation	r = .57	< .001	Reject H_0

Note. N = 191; overall perceived efficiency M = 4.47; α = .05. ANOVA degrees of freedom were not included in the extracted results.

Table 7

Pearson Correlations Between Microsoft Productivity Tool Utilization and Administrative and Academic Paperwork Efficiency

Productivity tool	Utilization M	Efficiency M	r	p
Microsoft Word	4.54	4.47	.63	< .001
Microsoft Excel	4.39	4.47	.58	< .001
Microsoft PowerPoint	4.15	4.47	.52	< .001
Microsoft OneDrive	3.39	4.47	.41	.001
Microsoft Teams	3.22	4.47	.36	.004
Microsoft Copilot	2.42	4.47	.22	.018
Overall utilization	**3.69**	**4.47**	**.57**	**< .001**

Note. N = 191. M = average weighted mean; r = Pearson correlation coefficient. All reported correlations met the .05 significance criterion.

Table 8

Qualitative Themes on Challenges, Technical Limitations, and Training Gaps

Category	Identified themes
Tool utilization challenges	Limited technical knowledge and digital skills; interface complexity; unstable internet connectivity; insufficient training; file management and compatibility difficulties
Technical and resource limitations	Unstable internet connectivity; outdated or insufficient devices; restricted software access; inadequate technical support; power interruptions; limited familiarity with digital applications
Training gaps	Advanced Microsoft Excel functions; Microsoft Teams and OneDrive; digital literacy; advanced PowerPoint features; workflow automation; Microsoft Copilot and other specialized tools

Note. Qualitative subsample: n = 25.

Table 9

Integration of Quantitative and Qualitative Findings Using a Merging–Convergence Design

Variable	Quantitative findings	Corresponding qualitative themes	Integration result
Training on Microsoft productivity tools	M = 2.48; r = .57, p < .001	Limited technical knowledge; insufficient training support	Convergence
Utilization of basic tools	Word: M = 4.54; Excel: M = 4.39	Familiarity and routine use	Convergence

Utilization of advanced tools	Teams: M = 3.22; OneDrive: M = 3.39; Copilot: M = 2.42	Interface complexity; limited knowledge; training gaps	Convergence
Paperwork efficiency	Overall M = 4.47	Sustained productivity despite constraints	Convergence
Training and utilization relationships with efficiency	Overall utilization: r = .57, p < .001; training: r = .57, p < .001	Perceived functional benefits; technical and infrastructural barriers	Convergence

Note. M = average weighted mean; r = Pearson correlation coefficient.

Table 10

Priority Components of the Proposed Microsoft Productivity Tools Training Program

Proposed training component	Identified basis
Advanced Microsoft Excel training	Limited proficiency in formulas, pivot tables, macros, and data analysis
Microsoft Teams and OneDrive training	Limited utilization and collaboration skills
Microsoft Copilot orientation and training	Low training exposure and utilization
Advanced Microsoft PowerPoint training	Limited knowledge of presentation design and multimedia features
Digital literacy and troubleshooting	Technical knowledge and troubleshooting difficulties
Workflow automation and file management	File organization, compatibility, and documentation challenges
Technical and infrastructure support	Connectivity, equipment, software access, and IT support limitations

DISCUSSION

The present study examined the utilization of Microsoft productivity tools and its relationship with administrative and academic paperwork efficiency among teaching and non-teaching personnel in Barobo District, Surigao del Sur, Philippines. The discussion integrates the quantitative findings on respondents' characteristics, training exposure, application utilization, perceived efficiency, and statistical relationships with the qualitative findings concerning technological challenges, resource limitations, and professional development needs. The findings provide an understanding of how established and emerging Microsoft applications are incorporated into school operations and how their utilization is associated with perceived work efficiency.

Demographic Profile and Training on Microsoft Productivity Tools

The findings revealed that the largest proportion of respondents belonged to the 31–35 age group (26.18%), while teachers constituted the majority of participants (82.20%). This distribution reflects the substantial representation of classroom personnel whose professional responsibilities include lesson preparation, assessment, reporting, and records management. Despite their involvement in documentation activities, respondents reported limited training on Microsoft productivity tools, with an overall mean of 2.48, interpreted as Rarely. Training participation was highest for Microsoft Word (M = 2.89), PowerPoint (M = 2.75), and Excel (M = 2.73), whereas Teams (M = 2.39), OneDrive (M = 2.12), and Copilot (M = 1.97) received lower ratings. These findings suggest that professional development opportunities have concentrated more heavily on conventional productivity applications than on collaborative and artificial intelligence-supported platforms.

Paracale (2026) examined elementary school teachers' proficiency in Microsoft 365 productivity tools and its relationship with learning capabilities, including digital adaptability, collaboration, communication, and instructional material preparation. The study provides a relevant basis for understanding why professional development should address both technical application skills and the broader competencies needed to integrate digital tools into educational work. In the present study, limited training exposure across several applications indicates a need to provide learning opportunities that progress beyond introductory document preparation toward more advanced, collaborative, and technology-assisted workflows.

Extent of Utilization of Microsoft Productivity Tools

The overall utilization of Microsoft productivity tools was rated Often (M = 3.69), although substantial differences emerged across applications. Microsoft Word obtained the highest utilization mean (M = 4.54), followed by Excel (M = 4.39), both interpreted as Always. PowerPoint was used Often (M = 4.15), whereas OneDrive (M = 3.39) and Teams (M = 3.22) were used Sometimes. Microsoft Copilot registered the lowest utilization (M = 2.42), interpreted as Rarely. These findings demonstrate that respondents primarily relied on applications supporting familiar tasks such as preparing reports, computing grades, organizing information, and developing instructional presentations. In contrast, cloud-based collaboration and artificial intelligence functionalities were less integrated into routine administrative and academic activities.

The greater utilization of conventional applications may reflect their established role in school documentation and the respondents' familiarity with their features. Conversely, lower utilization of Teams, OneDrive, and Copilot may be associated with limited training, technical difficulties, connectivity constraints, and uncertainty regarding advanced functionalities. A study involving elementary school personnel in the Philippines similarly documented widespread ICT utilization in school management while identifying insufficient training, technical difficulties, and compatibility problems as barriers to more effective technology integration (Bantaculo, 2024). The present findings therefore indicate

that frequent use of basic productivity applications does not necessarily imply comprehensive proficiency across the broader Microsoft ecosystem.

Level of Administrative and Academic Paperwork Efficiency

Respondents reported a high level of perceived efficiency in administrative and academic paperwork, with an overall mean of 4.47, interpreted as Strongly Agree. Among the assessed dimensions, organization of documents and records obtained the highest mean (M = 4.50), followed by speed in completing tasks (M = 4.49), accuracy and error reduction (M = 4.47), overall productivity enhancement (M = 4.46), and collaboration among personnel (M = 4.41). The consistently high ratings indicate favorable perceptions of digital productivity tools in supporting documentation, records management, task accomplishment, and coordination. Nevertheless, collaboration received the lowest mean, consistent with the comparatively limited utilization of Microsoft Teams and OneDrive.

Presbitero and Obiso (2025) investigated digital tool usage and administrative efficiency in basic education using a convergent parallel mixed-methods design. Their findings established statistically significant relationships involving digital technology utilization and administrative efficiency, while qualitative evidence identified infrastructure, training, and digital literacy as important contextual factors. These findings are consistent with the present study's high efficiency ratings and suggest that technology-supported administrative practices may be associated with more organized workflows. However, the efficiency measures in the present study were based on respondents' perceptions rather than independently recorded completion times, error rates, or productivity outputs. Consequently, the results establish favorable perceptions of efficiency but do not independently demonstrate measurable reductions in paperwork time or workload.

Differences in Efficiency and Relationship Between Training and Efficiency

The analysis revealed no statistically significant differences in perceived paperwork efficiency according to age ($F = 1.21$, $p = .301$) or position ($F = 0.94$, $p = .478$). These results suggest that efficiency ratings were relatively consistent across the demographic and occupational groups examined. In contrast, training on Microsoft productivity tools demonstrated a statistically significant positive relationship with efficiency ($r = .57$, $p < .001$). The coefficient of determination was approximately 32.5%, indicating the proportion of shared variance between the two measured variables. These results establish training as an important correlate of perceived paperwork efficiency, although the correlational design does not establish that training directly caused higher efficiency.

The findings highlight the potential relevance of professional development across personnel classifications rather than limiting capacity-building opportunities to specific age groups or positions. Although the present study did not identify significant demographic differences, previous research has found that personnel characteristics and

training can be associated with digital technology adoption and administrative efficiency (Presbitero & Obiso, 2025). The difference between the studies may reflect variations in participant composition, institutional settings, measurement approaches, and available technological resources. The present results therefore support a district-wide approach to training while recognizing that personnel may require different levels of instructional support according to their existing digital competencies.

Relationship Between Microsoft Productivity Tool Utilization and Paperwork Efficiency

The findings demonstrated statistically significant positive relationships between the utilization of all six Microsoft productivity applications and perceived paperwork efficiency. Microsoft Word exhibited the strongest association ($r = .63$, $p < .001$), followed by Excel ($r = .58$, $p < .001$) and PowerPoint ($r = .52$, $p < .001$). OneDrive ($r = .41$, $p = .001$) and Teams ($r = .36$, $p = .004$) showed smaller positive associations, while Copilot demonstrated the weakest correlation ($r = .22$, $p = .018$). Overall tool utilization was positively correlated with efficiency ($r = .57$, $p < .001$). These results indicate that respondents who reported more frequent use of Microsoft productivity applications also tended to report greater paperwork efficiency.

The stronger associations involving Word, Excel, and PowerPoint may reflect their direct relevance to routine school responsibilities, including preparing official documents, consolidating assessment results, generating reports, and producing instructional presentations. Conversely, the weaker associations involving Teams, OneDrive, and Copilot may be related to their comparatively limited adoption within existing school workflows. The findings should not be interpreted as evidence that conventional tools are inherently more effective than emerging applications, because frequency of utilization, training exposure, and institutional conditions differed across applications.

Dillon et al. (2025) investigated the effects of generative artificial intelligence on workplace practices through a field experiment involving knowledge workers across multiple organizations. Their research documented reductions in time spent on email among users of an AI assistant integrated into workplace applications, although broader changes in task composition were not established. This provides external evidence that digital productivity technologies can support selected workplace activities under appropriate conditions. However, the limited Copilot utilization observed in the present study suggests that similar potential benefits cannot be assumed among Barobo District personnel without examining their actual access, competence, usage patterns, and workflow requirements.

Challenges and Technical Limitations in Utilizing Microsoft Productivity Tools

The qualitative findings identified limited technical knowledge and digital skills, difficulty navigating complex interfaces, unstable internet connectivity, insufficient training, and file management problems as recurring challenges. Participants also

reported outdated or inadequate devices, restricted access to licensed software, insufficient technical support, power interruptions, and limited familiarity with specialized applications. These difficulties affected the ability of personnel to use Microsoft productivity tools consistently, particularly applications requiring internet connectivity, shared file access, or more advanced digital competencies.

The findings correspond with the administrative technology challenges documented by Bantaculo (2024), whose investigation of school offices identified ICT training deficiencies, technical problems, and compatibility issues. In the present study, the convergence of technical and organizational challenges indicates that improving digital productivity requires more than individual willingness to adopt technology. Personnel also need reliable infrastructure, accessible applications, responsive technical assistance, and opportunities to practice relevant digital tasks. Accordingly, the identified barriers should be understood as interconnected conditions affecting the practical use of technology in school documentation and reporting.

Integration of Quantitative and Qualitative Findings

The merging–convergence analysis demonstrated agreement between the quantitative and qualitative findings across the principal study variables. The low overall training mean (M = 2.48) corresponded with participants' descriptions of insufficient training opportunities and limited technical knowledge. Similarly, the high utilization of Word and Excel was consistent with qualitative accounts of familiarity and routine application use. Lower utilization of Teams, OneDrive, and Copilot corresponded with reported difficulties involving advanced functions, interface complexity, connectivity, and inadequate professional support. Although respondents reported high perceived paperwork efficiency (M = 4.47), qualitative findings indicated that personnel continued to encounter resource and technical constraints.

The integrated findings suggest that respondents maintained favorable perceptions of productivity while experiencing limitations that restricted broader application utilization. The convergence strengthens the coherence of the study's quantitative and qualitative accounts, but it does not independently establish causal relationships. In particular, participants' experiences help contextualize the observed correlations without demonstrating that greater training or application use necessarily produces higher efficiency. This distinction is important because the study relied on self-reported measures and did not include experimental manipulation or objective workflow performance records.

Proposed Intervention Program

The findings provided a basis for developing a Microsoft productivity tools intervention program responsive to the training and resource needs identified among teaching and non-teaching personnel. Priority areas included advanced Excel functions, Microsoft Teams and OneDrive collaboration, Microsoft Copilot orientation, advanced PowerPoint design, digital literacy, file management, workflow automation, and

troubleshooting. The proposed program may incorporate practical workshops, task-based demonstrations, guided exercises, peer mentoring, and continuing technical assistance. Such activities should be aligned with actual school documentation requirements to ensure their relevance to administrative and academic responsibilities.

The Government Digital Service (2025) conducted a large-scale evaluation of Microsoft 365 Copilot across United Kingdom government organizations, examining its potential to improve productivity, task quality, user satisfaction, and time spent on routine activities. Although the institutional setting differs from Philippine public schools, the evaluation illustrates the importance of assessing digital tools through their practical workplace applications rather than assuming benefits from software availability alone. For Barobo District, this supports the inclusion of hands-on training and measurable indicators such as document completion time, accuracy, file retrieval efficiency, and collaborative task accomplishment in any future implementation and evaluation of the proposed intervention.

Overall, the study established that Microsoft productivity tools were frequently utilized, particularly conventional applications, and that both training and tool utilization were significantly associated with perceived administrative and academic paperwork efficiency. At the same time, limited training, uneven adoption of advanced applications, and persistent infrastructural challenges constrained opportunities for broader digital integration. The findings contribute localized mixed-methods evidence concerning technology-supported school operations and provide a basis for targeted capacity-building initiatives. Nevertheless, the correlational and self-report nature of the study limits causal conclusions, and future investigations may incorporate objective productivity measures and intervention-based designs to determine whether structured digital training produces measurable improvements in paperwork efficiency.

Conclusions

The study concluded that Microsoft productivity tools played an important role in supporting administrative and academic paperwork among teaching and non-teaching personnel in Barobo District, Surigao del Sur, Philippines. Although the respondents frequently utilized Microsoft applications, their usage was concentrated on conventional tools, particularly Microsoft Word, Excel, and PowerPoint. In contrast, Microsoft Teams, OneDrive, and Copilot were less frequently utilized, reflecting uneven adoption of collaborative, cloud-based, and artificial intelligence-supported technologies. Limited training exposure further indicated that personnel had not fully developed the competencies needed to maximize the available applications.

The respondents reported a very high level of perceived paperwork efficiency, particularly in document organization, task completion, accuracy, productivity, and collaboration. While age and position did not significantly differentiate efficiency ratings, training and Microsoft productivity tool utilization demonstrated significant positive relationships with perceived efficiency. These findings established that personnel who reported greater training exposure and more frequent application utilization also tended

to report higher paperwork efficiency. However, these associations did not establish causal effects.

The qualitative findings further revealed that limited digital competencies, inadequate training, unstable internet connectivity, insufficient technological resources, and restricted technical support remained significant challenges. The convergence of quantitative and qualitative findings demonstrated that favorable perceptions of paperwork efficiency coexisted with limitations in technological access and proficiency. Overall, the study concluded that effective integration of Microsoft productivity tools requires not only application availability but also sustained professional development, adequate digital infrastructure, and institutional support. The findings provide a contextual basis for developing a targeted intervention program to strengthen personnel competencies and support more efficient administrative and academic documentation in public schools.

Recommendations

Based on the findings and conclusions of the study, it is recommended that the Department of Education, through the Schools Division Office of Surigao del Sur and the Barobo District, implement a comprehensive digital capacity-building program to strengthen the competencies of teaching and non-teaching personnel in utilizing Microsoft productivity tools. The program should prioritize applications with limited training exposure and utilization, particularly Microsoft Teams, OneDrive, and Copilot, while providing advanced training in Microsoft Word, Excel, and PowerPoint. Training activities should emphasize practical applications in preparing instructional materials, managing school records, generating reports, organizing documents, and facilitating collaborative administrative tasks.

School heads and ICT coordinators should establish sustained professional development mechanisms, including school-based learning action cells, hands-on workshops, peer mentoring, and technical assistance. These activities should be responsive to personnel's varying levels of digital proficiency and should provide opportunities to practice advanced functions such as spreadsheet automation, cloud-based file management, collaborative document editing, and AI-assisted documentation. Furthermore, schools should strengthen their technological infrastructure by improving internet connectivity, ensuring access to functional computers, providing appropriate software access, and establishing reliable technical support systems.

The proposed Microsoft productivity tools intervention program should be implemented and systematically evaluated using measurable indicators of paperwork efficiency, including document completion time, accuracy of outputs, file retrieval efficiency, and collaborative task accomplishment. Periodic competency assessments and personnel feedback should guide the continuous improvement of training activities and institutional support. Future researchers are encouraged to conduct longitudinal or intervention-based studies involving larger and more diverse populations and objective productivity measures to determine whether structured digital training produces

measurable improvements in administrative and academic paperwork efficiency. Such investigations may also examine the effectiveness of artificial intelligence-supported applications in reducing administrative workload while maintaining data privacy, accuracy, and responsible technology use.

Compliance with Ethical Standards

The study adhered to the ethical principles and research guidelines established by the Department of Education (DepEd), particularly DepEd Order No. 16, s. 2017, as amended by DepEd Order No. 26, s. 2021, and the Basic Education Research Ethics Handbook. Prior to data collection, the researcher secured the necessary permissions from the Schools Division Superintendent and the respective school heads of the participating public schools in Barobo District, Surigao del Sur, Philippines. All participants were informed of the study's objectives, procedures, voluntary nature, and their right to withdraw at any time without penalty. Written informed consent was obtained before administering the research instruments. Confidentiality and anonymity were maintained by excluding personally identifiable information from the presentation of findings and restricting access to collected data. All responses were used exclusively for academic research purposes and handled in accordance with applicable institutional policies and ethical standards. The researcher ensured respect for participants' rights, privacy, dignity, and welfare throughout the research process.

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