



**IDENTIFYING COMPUTER LITERACY GAPS AMONG LOCAL GOVERNMENT
EMPLOYEES IN PUDTOL FOR TARGETED TRAINING INTERVENTIONS**

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ABSTRACT

This study assessed the computer literacy levels of employees in the Local Government Unit (LGU) of Pudtol, Apayao as basis for targeted ICT training programs. A quantitative descriptive survey design was used involving 79 LGU employees from different municipal offices. Data were collected through a structured questionnaire and analyzed using frequency, percentage, and weighted mean. Findings revealed that respondents demonstrated advanced proficiency in Microsoft Office applications ($M = 3.70$) and internet and email use ($M = 3.80$). However, multimedia applications obtained the lowest proficiency level ($M = 2.48$), indicating that respondents possess only basic knowledge and still require guidance. Online services and digital operations ($M = 3.41$), online government platforms ($M = 2.81$), and AI applications ($M = 2.84$) were interpreted as intermediate. The overall computer literacy level of respondents was intermediate ($M = 3.17$), which indicates that employees can perform digital tasks with minimal supervision but still require enhancement in advanced ICT competencies. The study identified several computer literacy gaps, including limited multimedia editing skills, insufficient familiarity with online government systems, lack of structured ICT training, limited AI utilization, and inadequate cloud collaboration skills. Based on the findings, targeted ICT training interventions were proposed to improve employee digital competencies and support the digital transformation initiatives of the LGU.

Keywords: *computer literacy, ICT training, digital competence, local government unit, Pudtol Apayao*

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INTRODUCTION

Internationally, many local governments face similar challenges. A study conducted in South Africa found that a substantial number of municipal workers lacked the necessary Information and Communication Technology (ICT) knowledge to use even basic government Software Systems, resulting in operational inefficiencies and reduced service delivery capacity (Naidoo R., et al., 2020). In India, local government staff in rural panchayats demonstrated limited familiarity with Digital Tools, Prompting the need for structured Information and Communication Technology (ICT) training programs to bridge knowledge gaps and support e-governance (Sharma, A., & Sinha, S. 2019). Many municipal employees lacked the necessary digital literacy to utilize these technologies effectively (Vargas, J. M., & Gómez, J. 2021). These global experiences underscore the universal challenge of equipping local government personnel with adequate computer and ICT skills.

Computer literacy has become a core ability of government workers to carry out Administrative Functions, Deliver Public Services, and Facilitate the Computerization of governance in the information age. Local Government Units (LGUs), being the frontline implementers of government initiatives, increasingly use Digital Tools for Planning, Documentation, Communication, and Service Delivery. However, variations in computer literacy among Local Government Units (LGUs) workers remain one of the major obstacles, particularly in rural and underserved like Pudtol, Apayao.

In the Philippines, the situation mirrors these international trends. While national government programs promote Digital Transformation, Local Implementation is hampered by gaps in employee skills and insufficient training opportunities (Dela Cruz, M. T., & Garin, A. M. (2018) (Tolentino, M. S., et al., 2020).

Computer literacy covers basic competencies such as Word Processing, Spreadsheet Management, Internet Navigation, and Communication through digital platforms (Hatlevik, O. E., 2015). Employees who lack these skills may struggle with tasks such as Report Writing, Email Correspondence, and Data Entry - core functions of local government work. Identifying these skill gaps is essential for developing targeted training programs that address specific needs, improve public service delivery, and support the goals of the Philippine Development Plan 2023–2028, which emphasizes inclusive digital development (NEDA, 2023).

This study aimed to assess the current level of computer literacy among Local Government Units (LGU) employees in Pudtol, to identify specific areas for improvement, and to propose targeted training programs that would enhance digital competence.

Background of the Study



Computer literacy in this computer age has become an important skill in order to increase productivity, efficiency, and public service delivery. In Local Government Units (LGUs), employees' capacity to make efficient use of Information and Communication Technology (ICT) is fundamental in attaining transparency, accountability, and responsible governance. The Local Government Unit of Pudtol, like other municipalities, is slowly adopting digital systems for administrative procedures.

In spite of the increasing dependence on information and communication technology in public administration, one can surmise from anecdotal reports and initial research that there are differing levels of computer literacy among LGU officials. These may be influenced by age, educational attainment, job classification, and awareness of ICT training. This disparity in digital proficiency might cause a lack of effectiveness in the performance of functions, technology use, and innovation resistance.

This research, thus, attempted to identify the computer literacy needs of LGU Pudtol employees and analyzed how demographic and work variables influenced their ICT skills. The results will guide the creation of targeted training interventions that facilitated the digital revolution of the municipality.

Statement of the Problem

This study sought to identify computer literacy gaps among Local Government Employees in Pudtol for targeted training. Specifically, the following questions were answered:

1. What is the profile of the respondents in terms of:
 - 1.1 Age,
 - 1.2 Sex,
 - 1.3 Civil Status,
 - 1.4 Positions,
 - 1.5 Highest Educational Attainment,
 - 1.6 Employment Status,
 - 1.7 Length of Service, and
 - 1.8 ICT Related Trainings.
2. What is the perceived level of computer literacy among LGU employees in Pudtol in terms of the following areas?
 - 2.1 Microsoft Office Application Software
 - 2.1.1 Word Processing
 - 2.1.2 Spreadsheet
 - 2.1.3 PowerPoint
 - 2.2 Multimedia Application Software
 - 2.2.1 Canva
 - 2.2.2 Adobe Photoshop
 - 2.2.3 Adobe Premier
 - 2.2.4 Capcut



- 2.2.5 Audacity
- 2.3 Online Services and digital operations
 - 2.3.1 Uploading and Downloading
 - 2.3.2 Cloud Storage (Google Drive, One Drive, and Dropbox)
 - 2.3.3 Online Collaboration (Google Workspace, Microsoft Teams, Zoom)
 - 2.3.4 File Sharing Platforms (Share It)
- 2.4 Internet and email use
 - 2.4.1 Web Browsing (Google Chrome, Microsoft Edge, and Mozilla Firefox)
 - 2.4.2 Email Platforms (e.g., Gmail, Outlook, and Yahoo Mail)
 - 2.4.3 Online Communication (e.g., Messenger, WhatsApp, Telegram)
- 2.5 Use of online government platforms
 - 2.5.1 Philippine Government Websites (GOV.PH Portal)
 - 2.5.2 DICT Platforms (GovMail, and eGov)
 - 2.5.3 DILG Portals (Full Disclosure Policy Portal)
 - 2.5.4 Online Submission and Reporting Systems (HRIS, eBPLS, PhilGEPS)
- 2.6 AI Applications
 - 2.6.1 ChatGPT (OpenAI)
 - 2.6.2 Microsoft Copilot
 - 2.6.3 Google Gemini (Bard)
 - 2.6.4 Grammarly (AI Writing Assistant)
 - 2.6.5 Adobe Firefly (AI Image and Design Generator)
- 3. What computer literacy gaps can be identified among LGU employees in Pudtol based on the results of the computer literacy assessment, and what targeted ICT training interventions may be proposed to address these gaps and enhance their digital competencies?

Theoretical Framework

One foundational theory is Everett Rogers' Diffusion of Innovations Theory, which explains how new technologies and practices spread within an organization. Rogers identifies categories of adopters - innovators, early adopters, early majority, late majority, and laggards (Rogers, E. M. 2003) – highlighting that in a setting like LGU Pudtol, some employees may readily embrace digital tools while others may resist due to unfamiliarity or perceived complexity. Understanding these adoption patterns aids in designing targeted and timely training interventions (Davis, F. D. 1989).

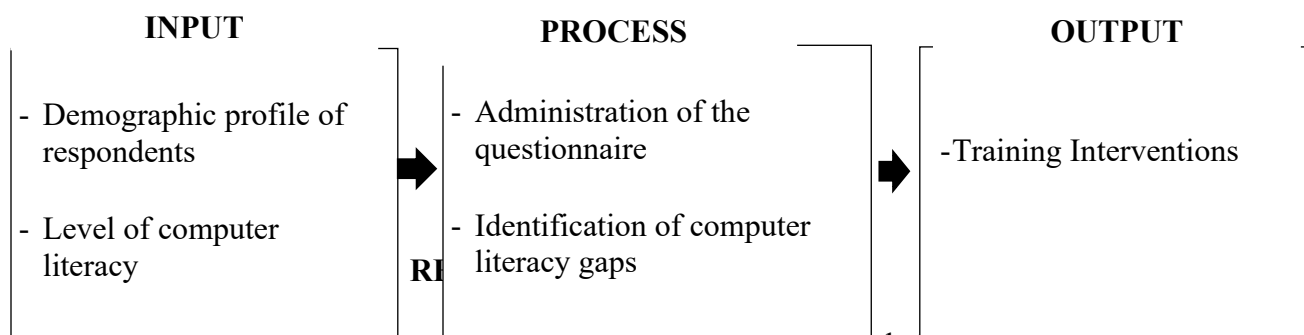
Further supporting the study is the Constructivist Learning Theory, which posits that learning is most effective when individuals actively engage with content and construct knowledge through real-life experiences (Vygotsky, L. S., 1978). Applied to digital literacy, this theory



supports the implementation of hands-on, interactive training sessions that are contextualized to the actual responsibilities of LGU employees. Moreover, Adult Learning Theory or Andragogy, introduced by Malcolm Knowles, highlights that adult learners are self-directed, goal-oriented, and bring prior knowledge into the learning environment (Knowles, M. S., et al., 2015).

Research Paradigm

The research paradigm of this study follows the Input-Process-Output (IPO) model. This framework outlines how the research is conducted and how data flows from the initial inputs, through research processes, and ultimately to the expected outputs. It guides the investigation of computer literacy gaps among LGU Pudtol employees and helps develop a clear path for targeted training interventions.



This research utilized quantitative descriptive survey research design. This type of design is suitable for ascertaining the level of computer literacy for the employees of the local government in Pudtol, identifying the particular gaps, and exploring the relationship between demographic variables and levels of computer literacy.

The descriptive component sought to portray the status quo of computer proficiency among the LGU personnel. It is the gathering of demographic data and evaluation of computer proficiency with the use of a validated questionnaire. It gives a definitive view of the overall levels of proficiency as well as the areas of weakness.

Locale of the Study

The research was implemented in the municipality of Pudtol, which is within the province of Apayao, Cordillera Administrative Region, Philippines. Pudtol is a member of the seven municipalities of the province of Apayao and is a rural but developing municipality with some functioning government offices and agencies under the Local Government Unit (LGU).

The choice of Pudtol as the field site is purposeful since it is a representative local government site in a Geographically Isolated and Disadvantaged Area (GIDA), and where digital infrastructure and technology training challenges are more salient. The local government is made up of different government offices including the Mayor's Office, Municipal Planning and Development Office, Human Resources Management Office, Municipal Health Office, Municipal Social Welfare and Development Office, and more, that employ personnel with different educational qualifications and ICT exposure.



The setting gives a proper background in determining the computer literacy levels of LGU personnel and pinpointing certain skill gaps that could impede the efficiency and digitalization drive of local public service delivery.

Respondents of the Study

The respondents of this study were the employees of the Local Government Unit (LGU) of Pudtol, Apayao, who are actively serving in different municipal offices. These include, but are not limited to, the Office of the Municipal Mayor, Municipal Planning and Development Office, Municipal Treasurer's Office, Human Resource Management Office, Municipal Health Office, Municipal Social Welfare and Development Office, Office of the Municipal Engineer, and other administrative and support offices.

To ensure that the results represent the general level of computer literacy in the LGU workforce, the respondents consisted of a diverse mix in terms of age, sex, civil status, positions and department /offices, highest educational attainment, employment status, length of service, ICT related trainings, unit/section, and nature of job.

ICT Unit staff and employees holding a Bachelor of Science in Information Technology (BSIT) degree were excluded from the survey. Their advanced knowledge of computer systems and digital tools could skew the findings and would not accurately reflect the training needs of the majority of the workforce.

Sampling Technique

This study employed the descriptive survey method as the primary sampling technique. A descriptive survey is appropriate because it seeks to obtain accurate and factual information about the current level of computer literacy among employees of the Local Government Unit (LGU) of Pudtol. All employees who are actively employed in various municipal offices and who are expected to use computers and digital tools in the performance of their official duties be considered as part of the survey population.

From this population, respondents were drawn based on their availability and willingness to participate in the study.

The total number of respondents depended on the actual number of eligible LGU employees during the period of data collection. Standard ethical considerations such as informed consent, confidentiality, and voluntary participation were strictly observed throughout the process.

Research Instruments

To collect the necessary data for this study, a structured questionnaire was developed, validated by experts, and utilized as the primary research instrument. The questionnaire was specifically designed to assess the computer literacy levels of local government employees in Pudtol and to obtain relevant demographic information. It had three parts:



Part I – Respondent Profile: This section gathered demographic information such as age, sex, civil status, positions and department /offices, highest educational attainment, employment status, length of service, ICT related trainings, unit/section, and nature of job.

Part II – Computer Literacy Assessment: This section measured the respondents' self-assessed proficiency in using various digital tools, including Microsoft office applications, Google workspace, multimedia software, and online services and digital operations.

Part III – Gaps and Training Needs: This section identified areas where employees perceived a need for further training and support.

Research Procedure

A formal request for permission to conduct the study was submitted to the Local Government Unit (LGU) of Pudtol. Approval was obtained from the Municipal Mayor's Office and relevant department heads to administer the questionnaire among LGU personnel. The questionnaire was distributed to the target respondents across various municipal offices.

Statistical Treatment of Data

To ensure accurate interpretation and analysis of the data collected from the respondents, appropriate statistical tools were employed. The following statistical treatments were used:

A 5-point Likert scale was used to measure the levels of computer literacy of the respondents.

Numeric Value	Range	Description	Verbal Interpretation
5	4.20 – 5.00	Expert	Can perform tasks exceptionally well, mentor others, define best practices, and innovate within the domain.
4	3.40 – 4.19	Advanced	Can perform tasks independently and efficiently.
3	2.60 – 3.39	Intermediate	Can perform tasks with minimal supervision.
2	1.80 – 2.59	Beginner	Has basic knowledge but needs guidance.
1	1.00 – 1.79	No Knowledge	Not familiar or unable to perform tasks, and requires foundation training.

1. Frequency and Percentage Distribution were used to describe the demographic profile of the respondents such as age, sex, civil status, positions and department /offices, highest



educational attainment, employment status, length of service, ICT related trainings, unit/section, and nature of job.

2. Weighted Mean. Applied to measure the overall level of computer literacy of the respondents in various skill areas (e.g., word processing, spreadsheet use, internet navigation).

Ethical Considerations

This study observed ethical research principles as outlined in national and international guidelines to ensure the rights, dignity, and safety of all participants from the Local Government Unit (LGU) of Pudtol.

Before any data collection, participants received clear information about the purpose, scope, and procedures of the study. Written informed consent was obtained, ensuring participation was voluntary and based on a full understanding of the research (Cristobal, A., & Cristobal, R. 2017). Respondents were informed of their right to withdraw from the study at any time without any consequences.

To protect privacy, the research did not collect personally identifiable information unless explicitly permitted by the participant. Responses were anonymized and coded for analysis. Results were presented in summary form to prevent the identification of any individual or specific LGU office (University of Santo Tomas. n.d.).

All respondents, regardless of rank or position, were treated with equal respect. The study avoided any form of coercion, particularly from supervisors or department heads, and participation was completely voluntary (Philippine Council for Health Research and Development. (2022); (World Medical Association Declaration of Helsinki. 2013).

All questions focused solely on computer literacy and training needs and avoided to intrude into personal or sensitive matters. The research intended to benefit the LGU by identifying training needs to improve public service delivery (UP Open University Institutional Research Ethics Committee. n.d.).

Data were not used for any other purpose beyond the academic and developmental objectives of the study (UP Diliman Data Privacy Policy for Researchers and Research Subjects n.d.).

RESULTS AND DISCUSSIONS

Table 1. Profile of Respondents

Age Range	Frequency	Percentage
23 – 28	35	44.30
29 – 34	16	20.25
35 – 40	8	10.13
Above 40	19	24.06
Total	79	100
Sex		
Male	18	22.78
Female	61	77.22



Journal of Social Transformation, Governance and Public Administration (JSTGPA)

Volume 2 Issue 2-2026

e-ISSN 3116-2916

<https://jstgc.minduraresearch.com/journal/index>

Submitted 3-3-2026: | Accepted: 5-8-2026 | Published 6-30-2026

Total	79	100
Civil Status		
Single	36	45.57
Married	37	46.84
Widow	2	2.53
Total	79	100.00
Positions		
Administrative Officers	8	
Administrative Assistants	10	
Administrative Aides	5	
Support Personnel	12	
Section-Level & Specialized Roles	23	
Total	58	
Highest Educational Attainment		
High School Graduate	1	1.27
College Level	2	2.53
College Graduate	67	84.81
Master's Graduate	6	7.59
Total	79	100.00
Employment Status		
Permanent	30	37.97
Contract of Service	40	50.63
Total	79	100.00
Length of Service		
0 – 4	39	49.37
5 – 9	15	18.99
10 – 14	8	10.13
15 – 19	4	5.06
20 – 24	3	3.80
25 – 29	3	3.80
30 – 35	3	3.80
Total	79	100
ICT Related Trainings		
With Training	33	41.77
No Training	37	46.84
Total	79	100.00

The age distribution of the 79 local government employee-respondents in Pudtol. The data shows that the largest proportion of respondents belongs to the 23–28 age group, with 35 respondents (44.30%), indicating that nearly half of the workforce covered by the study is relatively young. This is followed by the 29–34 age group, comprising 16 respondents (20.25%), further emphasizing that a substantial majority of the respondents are in their early career stages. Middle age groups are less represented. Respondents aged 35–40 account for 8 (10.13%), while those aged 41–46 represent only 3 (3.80%), the smallest identified age group. Meanwhile, older age brackets 47–52 and 53–58 constitute 10.13% and 8.86%, respectively, suggesting a moderate



presence of senior employees. Very few respondents fall under the 59–64 age range (1.27%), and an equally small proportion (1.27%) preferred not to disclose their age. Overall, the age profile indicates that the respondent population is predominantly young to early middle-aged, with more than 64% of respondents aged 23–34.

The distribution of the respondents according to sex. Out of the 79 local government employees who participated in the study, 61 respondents (77.22%) are female, while 18 respondents (22.78%) are male. This indicates that the respondent group is predominantly female. The data suggest that women comprise the majority of the local government workforce in Pudtol represented in this study, particularly in positions covered by the survey.

The distribution of respondents according to civil status. Among the 79 local government employees surveyed, 37 respondents (46.84%) are married, while 36 respondents (45.57%) are single. This indicates an almost equal representation of single and married employees in the study. A small proportion of respondents are widowed (2.53%), while 4 respondents (5.06%) preferred not to disclose their civil status. The near balance between single and married respondents suggests that the workforce in Pudtol is composed of employees with varied family responsibilities and personal circumstances.

The distribution of respondents according to position reflects the diverse workforce composition of the Local Government Unit (LGU) of Pudtol. Respondents occupied various administrative, technical, clerical, and support positions across different municipal offices and functional areas. Among the identified positions, the largest group belonged to Section-Level and Specialized Roles with 23 respondents, followed by Support Personnel with 12 respondents, Administrative Assistants with 10 respondents, Administrative Officers with 8 respondents, and Administrative Aides with 5 respondents, resulting in a total of 58 respondents who provided answers for this category. However, out of the total 79 respondents included in the study, 21 respondents did not indicate their position in the survey questionnaire.

A considerable number of respondents were classified under Section-Level and Specialized Roles, including Agricultural Technologists, Engineer's Assistants, Record Officers, Tourism Operation Assistants, and Cultural Affairs Assistants. This indicates that the LGU workforce is composed not only of administrative personnel but also of employees performing technical and service-oriented functions essential to local governance and public service delivery.

Administrative positions such as Administrative Officers, Administrative Assistants, and Administrative Aides were also well represented. These positions commonly involve office management, documentation, records handling, and coordination tasks that require regular use of computers and digital tools. Furthermore, support personnel, including technical support staff and committee secretaries, were included in the study, indicating that digital technologies are utilized across different levels and functions within the organization.

The educational attainment of the 79 local government employee-respondents in Pudtol. The data reveal that a substantial majority of the respondents are college graduates, with 67 respondents (84.81%), indicating that most employees possess formal tertiary-level education. This is followed by master's degree holders, who account for 6 respondents (7.59%), reflecting



the presence of employees with advanced academic training. Only a very small proportion of respondents reported lower levels of educational attainment, with 1 high school graduate (1.27%) and 2 respondents (2.53%) having reached college level but not completed a degree. Meanwhile, 3 respondents (3.80%) chose not to disclose their educational attainment. Overall, the findings indicate that the workforce in Pudtol is highly educated, suggesting a strong capacity to learn and adapt to digital systems. However, the results also reveal that educational attainment alone does not guarantee uniform computer literacy levels among employees. Variations in digital competence may be attributed to differences in job roles, level of ICT exposure, and access to relevant training programs. Employees whose tasks are less technology-oriented tend to demonstrate lower levels of computer proficiency compared to those who are regularly engaged with digital tools. This implies that digital skills are developed not only through formal education but also through actual practice and continuous ICT training opportunities.

Furthermore, the findings on ICT training attendance indicate that a considerable proportion of employees (46.84%) have not participated in any ICT-related training, highlighting a significant gap in capacity-building initiatives. Without such training, employees may face challenges in utilizing digital tools and systems effectively.

Table 2. Level of Computer Literacy among LGU Employees

Areas	Mean	Description	Verbal Interpretation
Microsoft Office Applications			
1. Word Processing (Microsoft Word)	3.86	Advanced	Can perform tasks independently and efficiently.
2. Spreadsheet (Microsoft Excel)	3.56	Advanced	Can perform tasks independently and efficiently.
3. Presentation (Microsoft PowerPoint)	3.68	Advanced	Can perform tasks independently and efficiently.
Average Mean	3.70	Advanced	Can perform tasks independently and efficiently.
Multimedia Applications			
1. Canva (basic layout and design)	2.71	Intermediate	Can perform tasks with minimal supervision.
2. Adobe Photoshop (photo editing)	2.29	Beginner	Has basic knowledge but needs guidance.
3. Adobe Premiere (video editing)	2.24	Beginner	Has basic knowledge but needs guidance.
4. Capcut (mobile/desktop video editing)	2.87	Intermediate	Can perform tasks with minimal supervision.
5. Audacity (audio recording/editing)	2.29	Beginner	Has basic knowledge but needs guidance.
Average Mean	2.48	Beginner	Has basic knowledge but needs guidance.
Online Services and Digital Operations	Mean	Description	Verbal Interpretation



Journal of Social Transformation, Governance and Public Administration (JSTGPA)

Volume 2 Issue 2-2026

e-ISSN 3116-2916

<https://jstgc.minduraresearch.com/journal/index>

Submitted 3-3-2026: | Accepted: 5-8-2026 | Published 6-30-2026

1. Uploading and Downloading	3.61	Advanced	Can perform tasks independently and efficiently.
2. Cloud Storage (Google Drive, One Drive, and Dropbox)	3.28	Intermediate	Can perform tasks with minimal supervision.
3. Online Collaboration (Google Workspace, Microsoft Teams, Zoom)	3.32	Intermediate	Can perform tasks with minimal supervision.
4. File Sharing Platforms (Share It)	3.43	Intermediate	Can perform tasks with minimal supervision.
Average Mean	3.41	Intermediate	Can perform tasks with minimal supervision.
Internet and Email Uses	Mean	Description	Verbal Interpretation
1. Web Browsing (Google Chrome, Microsoft Edge, and Mozilla Firefox)	3.67	Advanced	Can perform tasks independently and efficiently.
2. Email Platforms (e.g., Gmail, Outlook, and Yahoo Mail)	3.76	Advanced	Can perform tasks independently and efficiently.
3. Online Communication (e.g., Messenger, WhatsApp, Telegram)	3.96	Advanced	Can perform tasks independently and efficiently.
Average Mean	3.80	Advanced	Can perform tasks independently and efficiently.
Online Government Platforms			
1. Philippine Government Websites (GOV.PH Portal)	3.09	Intermediate	Can perform tasks with minimal supervision.
2. DICT Platforms (GovMail, and eGov)	2.89	Intermediate	Can perform tasks with minimal supervision.
3. DILG Portals (Full Disclosure Policy Portal)	2.59	Intermediate	Can perform tasks with minimal supervision.
4. Online Submission and Reporting Systems (HRIS, eBPLS, PhilGEPS)	2.67	Intermediate	Can perform tasks with minimal supervision.
Average Mean	2.81	Intermediate	Can perform tasks with minimal supervision.
AI Applications	Mean	Description	Verbal Interpretation
1. ChatGPT (OpenAI)	3.39	Intermediate	Can perform tasks with minimal supervision.
2. Microsoft Copilot	2.61	Intermediate	Can perform tasks with minimal supervision.
3. Google Gemini (Bard)	2.90	Intermediate	Can perform tasks with minimal supervision.
4. Grammarly (AI Writing Assistant)	2.95	Intermediate	Can perform tasks with minimal supervision.
5. Adobe Firefly (AI Image and Design Generator)	2.34	Beginner	Can perform tasks with minimal supervision.
Average Mean	2.84	Intermediate	Can perform tasks with minimal supervision.



Table 2 presents the level of computer literacy among LGU employees across various digital competency areas. The findings reveal that respondents demonstrate advanced proficiency in Microsoft Office applications, with an overall mean of 3.70. This indicates that they can perform tasks independently and efficiently, suggesting frequent exposure and practical use of productivity tools such as Word, Excel, and PowerPoint. These competencies provide a strong foundation for documentation, reporting, and data management tasks, implying that respondents are well-prepared for clerical, administrative, and academic responsibilities. This observation is supported by studies emphasizing that proficiency in Microsoft Office applications is a core component of digital competence and is strongly associated with improved workplace performance and academic productivity (International Computer and Information Literacy Study 2026).

In contrast, multimedia applications recorded a lower overall mean of 2.48 (Beginner), indicating that respondents possess only basic knowledge and still require guidance. While tools such as Canva and CapCut show intermediate familiarity, more advanced software like Adobe Photoshop, Adobe Premiere, and Audacity remain at the beginner level. This suggests that respondents are more comfortable using user-friendly platforms for basic design and editing but lack the technical expertise required for professional-level multimedia production. Existing research supports this pattern, noting that while intuitive tools are easier to adopt, mastery of professional multimedia software requires structured training and deeper technical understanding (Csernoch, M., et al., 2024).

With regard to online services and digital operations, the respondents obtained an overall mean of 3.41 (Intermediate), indicating that they can perform tasks with minimal supervision. High proficiency in uploading and downloading files reflects strong foundational digital skills. However, moderate scores in cloud storage and online collaboration platforms suggest that respondents may need further enhancement in collaborative digital workflows, particularly in areas such as real-time coordination, file sharing, and system integration. Studies have shown that competence in cloud-based tools is essential for improving teamwork, efficiency, and productivity in modern digital work environments (Frequency and percentage on technological skills possessed by students 2023).

In terms of internet and email use, respondents achieved the highest overall mean of 3.80 (Advanced). This indicates strong capability in web browsing, email communication, and the use of online messaging platforms. Such results imply that respondents are highly digitally connected and can efficiently access, evaluate, and communicate information online. This finding is consistent with literature identifying internet navigation and digital communication as among the most developed competencies due to their frequent use in daily personal, academic, and professional activities ("Frequency and Percentage," 2023).

For online government platforms, the overall mean of 2.81 (Intermediate) indicates that respondents can perform basic functions with minimal supervision but may lack confidence in



more complex processes. This moderate proficiency suggests limited familiarity or infrequent use of systems such as government portals, DICT platforms, and online reporting tools. Previous studies on e-government adoption highlight that effective utilization of digital public services often depends on user readiness, system usability, and adequate training (Organisation for Economic Co-operation and Development. 2019).

Lastly, in the area of AI applications, respondents demonstrated an overall mean of 2.84 (Intermediate), indicating a developing level of competence. Higher familiarity with conversational AI tools such as ChatGPT and writing assistants like Grammarly suggests that respondents are more comfortable with text-based AI applications. However, lower proficiency in advanced AI tools such as Adobe Firefly indicates limited exposure to creative and design-oriented AI technologies. This aligns with research showing that foundational AI tools are more widely adopted, while specialized applications require additional training and technical skills

Table 3. Proficiency Level of Respondents across Different Areas

Areas	Mean	Description	Verbal Interpretation
A. Microsoft Office Applications	3.70	Advanced	Can perform tasks independently and efficiently.
B. Multimedia Applications	2.48	Beginner	Has basic knowledge but needs guidance.
C. Online Services and Digital Operations	3.41	Intermediate	Can perform tasks with minimal supervision.
D. Internet and Email Use	3.80	Advanced	Can perform tasks independently and efficiently.
E. Use of Online Government Platforms	2.81	Intermediate	Can perform tasks with minimal supervision.
F. AI Applications	2.84	Intermediate	Can perform tasks with minimal supervision.
Average Mean	3.17	Intermediate	Can perform tasks with minimal supervision.

Table 3 summarizes the overall proficiency level of respondents across different digital competency areas. The results reveal an overall mean of 3.17 (Intermediate), indicating that respondents possess a moderate level of digital competence and can perform tasks with minimal supervision. The highest levels of proficiency were observed in Microsoft Office applications (3.70) and internet and email use (3.80), both categorized as advanced. On the other hand, multimedia applications recorded the lowest mean (2.48, Beginner), highlighting a significant gap in creative and technical digital production skills. Furthermore, online services and digital operations (3.41) also fall within the intermediate category, indicating that while respondents can perform routine online tasks, there is still a need to enhance their skills in collaborative platforms, cloud computing, and integrated digital workflows. Overall, the findings suggest that respondents are digitally functional but not yet fully proficient across all domains.



Table 4: Computer Literacy Gaps and Targeted ICT Training Interventions

Computer Literacy Gaps	ICT Training Intervention
Absence of structured and continuous ICT capacity-building programs	Conduct foundational ICT training on computer basics, file management, internet use, and office productivity tools for employees with limited digital exposure.
Employees demonstrate basic operational digital skills but require further enhancement in more advanced computer applications.	Conduct capability-building activities focused on advanced Microsoft Office functions such as Excel formulas and data analysis, professional PowerPoint presentation design, and advanced Word formatting techniques.
Limited experience in multimedia editing and digital content development.	Provide practical training sessions on graphic design and multimedia tools including Canva, Adobe Photoshop, CapCut, Adobe Premiere, and Audacity to improve creative and communication-related digital skills.
Limited ability to maximize online government systems and platforms	Conduct practical training on HRIS, eBPLS, PhilGEPS, GOV.PH, DICT platforms, and online reporting systems to improve efficiency in digital governance.
Limited knowledge and utilization of AI tools and automation technologies	Provide seminars and workshops on AI applications such as ChatGPT, Microsoft Copilot, Google Gemini, Grammarly, and ethical AI use in public administration.
Insufficient collaboration and cloud-based digital workflow skills	Conduct training on Google Workspace, Microsoft Teams, Zoom, cloud storage systems, and file-sharing platforms with version control and collaborative functions.
Lack of role-specific ICT competency development	Develop customized training programs based on job roles such as administrative, technical, finance, records management, and frontline service functions.
Limited exposure to cybersecurity and data privacy practices	Conduct awareness training on cybersecurity, password protection, phishing prevention, safe internet practices, and compliance with the Data Privacy Act.
Inconsistent participation in ICT-related trainings	Institutionalize regular ICT capability-building programs, monitoring, and evaluation of employee digital competencies.
Difficulty adapting to emerging technologies and digital transformation initiatives	Introduce continuous digital literacy enhancement programs and mentoring activities to build confidence and adaptability in using new technologies.

Table 4 presents the identified computer literacy gaps among LGU employees in Pudtol and the corresponding ICT training interventions recommended to address these deficiencies. The findings reveal that while employees possess basic to intermediate digital competencies, there are still major areas that require improvement, particularly in advanced applications, multimedia production, online government systems, AI tools, and collaborative digital platforms.

The table further emphasizes the need for structured and continuous ICT capacity-building programs to strengthen employee performance and support the digital transformation initiatives of



the Local Government Unit. The proposed interventions focus on practical and role-specific training activities designed to improve productivity, efficiency, collaboration, and digital readiness among employees. Through these targeted training programs, the LGU of Pudtol can enhance workforce competence, improve public service delivery, and promote a more technology-driven and responsive local governance system.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

This study assessed the computer literacy levels of local government employees in the Municipality of Pudtol, Apayao across several areas of digital competence, including Microsoft Office applications, multimedia applications, online services and digital operations, internet and email use, online government platforms, and artificial intelligence (AI) applications. The study also examined the profile of respondents in terms of age, sex, civil status, and educational attainment, and employment status, length of service, ICT-related training attendance, position, unit or section, and nature of job.

The results show that the majority of respondents are relatively young, with 44.30% belonging to the 23–28 age group and 20.25% in the 29–34 age group, indicating that most employees are in the early stages of their careers. In terms of sex, the workforce represented in the study is predominantly female, accounting for 77.22% of the respondents, while males represent 22.78%. With regard to civil status, the respondents are almost evenly distributed between married employees (46.84%) and single employees (45.57%).

The findings also reveal that the workforce is highly educated, with 84.81% of respondents being college graduates and 7.59% holding master's degrees. In terms of employment status, the majority of respondents are Contract of Service employees (50.63%), while 37.97% hold permanent positions. Additionally, nearly half of the respondents (49.37%) have been in government service for 0–4 years, indicating that a large portion of the workforce is relatively new.

With respect to ICT-related training, the data indicate that 46.84% of the respondents have not attended any ICT-related training, while 41.77% have participated in such training, suggesting a significant gap in structured digital capacity-building initiatives within the organization.

Respondents demonstrated advanced proficiency in Microsoft Office applications, with an overall mean of 3.70, indicating that they can perform tasks independently and efficiently in word processing, spreadsheet management, and presentation creation.

In contrast, multimedia applications recorded the lowest level of proficiency, with an overall mean of 2.48 (Beginner), suggesting that respondents have only basic knowledge and require guidance when using more technical multimedia software such as Adobe Photoshop, Adobe Premiere, and Audacity.

Meanwhile, the use of online government platforms resulted in an overall mean of 2.81 (Intermediate), showing that respondents are moderately capable of using systems such as GOV.PH portals, DICT platforms, and online reporting systems but may still require further training for more complex tasks. Similarly, AI applications recorded an overall mean of 2.84



(Intermediate), indicating developing familiarity with tools such as ChatGPT, Microsoft Copilot, and Grammarly, while more advanced AI design tools remain at the beginner level.

Conclusions

The results of the study show that computer literacy among local government employees in Pudtol is generally at an intermediate level, with a mean score of 3.17. The findings show that employees are highly competent in basic computer applications and internet and email utilization, which indicates their ability to accomplish administrative, clerical, communication, and documentation work efficiently. However, their competence is low in more advanced and emerging computer applications such as multimedia applications, AI-based applications, and online government services, which are at the beginner to intermediate level. Although the employees are young and highly educated, which is an advantage in adapting to computer-based systems, there is a huge gap between basic computer functionality and advanced computer usage. The employees are computer competent in doing routine work but need further improvement in technical, creative, collaborative, and AI-based competencies.

Recommendations

On the basis of the results, it is recommended that the Local Government of Pudtol should focus on providing continuous ICT capacity-building programs for its employees based on the skill gaps identified. The areas of priority should include multimedia development, advanced spreadsheet functions, cloud collaboration tools, online government portals, and AI literacy, including ethical and strategic uses of AI in public service delivery. Hands-on workshops, mentoring, and simulation activities should be regularly undertaken to upgrade employees from an intermediate to an advanced level of proficiency. Since many of the employees are Contract of Service and quite new to government service, employee orientation programs should include digital competency training as a prerequisite. The LGU can also consider institutionalizing regular digital skills assessment to monitor progress and provide focused interventions. In addition, the LGU can also promote participation in DICT-accredited training programs and internal knowledge-sharing mechanisms to foster a culture of digital innovation in the organization. Through systematic and inclusive digital upskilling initiatives, the Local Government of Pudtol can improve the efficiency of its workforce, enhance e-governance service delivery, and improve its overall readiness for technology-driven public administration.

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Journal of Social Transformation, Governance and Public Administration (JSTGPA)

Volume 2 Issue 2-2026

e-ISSN 3116-2916

<https://jstgc.minduraresearch.com/journal/index>

Submitted 3-3-2026: | Accepted: 5-8-2026 | Published 6-30-2026

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Administration (JSTGPA)**

Volume 2 Issue 2-2026

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