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CHALLENGES IN THE DEVELOPMENT OF INSTRUCTIONAL MATERIALS AMONG IN-SERVICE ELEMENTARY TEACHERS

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Abstract

The quality of elementary education relies heavily on the availability and effective use of instructional materials. While essential for supporting diverse learning needs, many teachers struggle with their development. This study examined the profile of in-service elementary teachers and the challenges they encounter in developing instructional materials in terms of limited resources, time management, and ICT integration. Using a descriptive-comparative design, findings revealed that most respondents were female, highly experienced, and predominantly master's degree holders.

Results showed that limited resources were not considered a major challenge, although some teachers still resorted to personal funds for instructional needs. Time management was identified as a significant challenge, with teachers reporting difficulties in balancing multiple academic and administrative responsibilities. ICT integration was also found to be a major concern due to limited training, inadequate access to technology, and poor internet connectivity. However, no significant differences were found in all variables when grouped according to sex, years of teaching experience, and educational attainment, indicating that these challenges are experienced uniformly across teacher profiles. The study concludes that the challenges in instructional material development are primarily systemic in nature, highlighting the need for institutional support, professional development, and improved technological infrastructure.

Consequently, it is recommended that school administrations strengthen ICT resources, provide adequate funding, and implement workload support. Furthermore, targeted professional development programs should be designed based on educational attainment to enhance instructional material development and overall teaching performance.

INTRODUCTION

Instructional materials play an important role in the teaching and learning process because they help make lessons clearer and more meaningful for students. These materials include traditional resources such as textbooks, maps, newspapers, charts, and models, as well as modern and digital resources like multimedia presentations and other online platforms that can support and enhance and make teaching and learning process effective and engaging (Mesue, 2018; Yadav, 2023). Traditional material like blackboards and printed textbooks remains used in educational setting but, but due to the demand for 21st-century skills, there's a need for integration of modern resources in teaching and learning. The integration of instructional materials allows teachers to present concepts in an easy and more meaningful manner (Jibililu, 2024; Iramboa & Chang'ach, 2023).

Despite its importance, many in-service elementary teachers encounter challenges in developing instructional materials. Studies have shown that teachers do not create materials and purely rely on textbooks and chalkboards due to limited resources to support teaching and heavy workload, despite training provided skills development of materials (Basnet, 2023). Also, delays in the distribution of learning materials and lack of access to technological tools further hinder the effective implementation of instructional materials, particularly in rural areas (Delos Reyes et al., 2024). Moreover, common issues contributing to this practice include heavy workload, lack of creativity skills, limited support, insufficient funds, lack of technological support and competence (Cayabas & Sumeg-ang, 2023; Dave-Ugwu et al., 2024).

Addressing the challenges in developing instructional materials is essential in improving the quality of education. Existing studies show that well-developed materials can support different learning styles, bridge different concepts to real-world applications to make learning experiences meaningful (Portana et al. 2021; Lane, 2022).

Despite the growing body of literature on instructional material development, limited studies have comprehensively examined the challenges encountered by in-service elementary teachers in terms of time management, ICT integration, and limited resources. Furthermore, evidence is scarce regarding whether these challenges vary across teachers' demographic and professional profiles. Hence, this study was conducted to address this gap and provide empirical evidence that may guide support programs for teachers.

METHODS

Research Design

This quantitative study utilized a descriptive-comparative research design. The descriptive aspect was used to present the respondents' profile, as well as to determine the challenges encountered in the development of instructional materials (IMs) among in-service elementary teachers, while the comparative design was applied to determine the difference in the challenges encountered by the respondents in the development of IMs when they are grouped according to their profile.

Respondents and Locale of the Study

This study was conducted in three central schools in Echague, Isabela: Echague East Central School, Echague West Central School, and Echague South Central School. The respondents consisted of in-service elementary teachers currently employed in these schools. A purposive sampling technique was utilized to select participants who met the inclusion

criteria of being actively engaged in classroom instruction and involved in the development and utilization of instructional materials.

A total of 50 in-service elementary teachers participated in the study, drawn from a population of 74 teachers across the three schools. Of the total respondents, 25 (50%) were from Echague West Central School, 14 (28%) were from Echague East Central School, and 11 (22%) were from Echague South Central School. The inclusion of teachers from the three central schools provided a broader perspective on the challenges encountered in the development of instructional materials and allowed for the representation of varying school contexts within the municipality.

Research Instrument

The researcher used a self-made questionnaire for this study. Prior to its administration, the survey questionnaire underwent pilot testing to check its clarity and reliability. It was also validated by experts to ensure content accuracy and relevance before using it. A Cronbach's Alpha of 0.85 was obtained in the reliability analysis, making the instrument reliable in assessing the challenges encountered by the respondents in developing IMs. The survey questionnaires consist of 3 parts: Demographic information, for respondents' profiles, and Likert scale (1-4) statements about challenges in the development of creating instructional materials. For parts 2 and 3, a Likert scale was used with the following: 1-Strongly Disagree, 2 -Disagree, 3-Agree, 4-Strongly Agree.

Data Gathering Procedure and Analysis

The researchers secured necessary permissions to conduct surveys from the School Principals. Once approval was granted, the researchers coordinated with the schools to identify the respondents and the schedule of the survey. Once settled, the researchers finally distributed the printed questionnaires to all in-service teachers. Respondents were given enough time to complete the form. Upon completion of the data collection period, responses were collected and encoded to spreadsheets, and data were organized and coded using appropriate statistical treatment, preparing for statistical analysis to determine patterns and differences in the responses.

Moreover, all responses were organized and coded using appropriate statistical tools. Frequency and percentage were used to describe the respondents' profile, while the weighted mean was applied to determine the extent of challenges in developing instructional materials. The t-test and One-Way ANOVA were used to identify significant differences in perceived challenges when respondents were grouped according to their profile.

RESULTS AND DISCUSSIONS

Profile of the Respondents

Table 1 shows the profile of the respondents in terms of sex, number of years in teaching, and educational attainment. It also presents the frequency and percent distribution of the respondents.

Based on the table, the majority of the respondents are female (90%), which indicates that women dominate the teaching profession in the selected school, while 10% were male. In terms of teaching experience, 90% of the respondents have more than ten years of service, which means they are already experienced in handling classroom instruction and developing instructional materials. Regarding educational attainment, the largest group consists of

master's degree holders (54%), followed by bachelor's degree holders (34%), and a smaller number with doctorate degrees (12%).

Table 1. Profile of the Respondents in terms of Sex, Number of Years in Teaching, and Educational Attainment

Variables	Frequency (n=50)	Percent
Sex		
Male	5	10.00
Female	45	90.00
Number of Years in Teaching		
1-3 years	2	4.00
4-9 years	3	6.00
More than 9 years	45	90.00
Educational Attainment		
Bachelor's Degree Holder	17	34.00
Master's Degree Holder	27	54.00
Doctorate Degree Holder	6	12.00

Challenges Encountered in Developing Instructional Materials among In-Service Elementary Teachers

The tables below present the challenges encountered in developing instructional materials among in-service elementary teachers in terms of limited resources, time management, and ICT integration.

Table 2. Challenges Encountered in Developing Instructional Materials among In-Service Elementary Teachers in terms of Limited Resources

Limited Resources	Mean	Qualitative Description
1. I often do not have access to enough materials and resources to create effective instructional content and materials	3.06	Disagree
2. The lack of available technological resources limits my ability to develop interactive and engaging instructional materials.	2.66	Disagree
3. Limited and outdated resources hinder me in preparing my instructional materials to meet the diverse needs of my students.	2.80	Disagree
4. Due to shortage of instructional materials, I often rely on old or re-used and available materials in school.	2.62	Disagree
5. The delay in receiving necessary materials makes it difficult for me to prepare and create my instructional materials on time.	2.64	Disagree
6. The school cannot always provide the needed resources; I sometimes use my personal money to buy materials.	2.26	Agree
7. The insufficiency of physical and digital resources discourages me from trying new or innovative teaching strategies with instructional materials.	2.70	Disagree
Weighted Mean	2.68	Disagree

1.00-1.75=Strongly Agree; 1.76-2.50=Agree; 2.51-3.25=Disagree; 3.26-4.00=Strongly Disagree

Table 2 presents the challenges encountered in developing instructional materials among in-service elementary teachers in terms of limited resources. The results show that only 1 out of 7 indicators was rated "agree." This refers to the fact that the respondent approved that the school cannot always provide the needed resources; sometimes they use their personal money to buy their own materials due to insufficiently provided materials. However, the overall mean is categorized as "Disagree," which indicates that limited resources are not considered a major challenge by most of the respondents. This implies that while schools provide support, there are still instances where teachers need to supplement materials using personal resources.

These findings partially align with the studies of Salama et al. (2024), Junaidi et al. (2024), and Aini (2023), which highlighted that lack of resources and technological limitations are common challenges affecting teachers' ability to develop instructional materials.

Table 3: Challenges Encountered in Developing Instructional Materials among In-service Elementary Teachers in Time Management

Time Management	Mean	Qualitative Description
1. I struggle to balance the time needed in creating materials with my other work-related responsibilities because creating instructional materials consumes a lot of my available time.	2.28	Agree
2. I sometimes bring unfinished instructional materials at home because school hours are not enough to complete them.	2.08	Agree
3. The limited time for preparation makes it challenging for me to make, update, and improve my instructional materials regularly.	2.04	Agree
4. Heavy workload prevents me from integrating different strategies into my materials.	2.16	Agree
5. Limited time causes me to focus more on content delivery than the quality of my materials.	2.18	Agree
6. Because of limited time, I sometimes use common or ready-made materials instead of creating new ones.	2.16	Agree
7. Managing my time during instructional materials preparation is challenging, and it makes me feel unprepared during class.	2.34	Agree
Weighted Mean	2.18	Agree

1.00-1.75=Strongly Agree; 1.76-2.50=Agree; 2.51-3.25=Disagree; 3.26-4.00=Strongly Disagree

Table 3 presents the challenges encountered in developing instructional materials among in-service elementary teachers in terms of time management. All indicators were rated "Agree", which shows that time management is a significant challenge among teachers. The results indicate that teachers struggle to balance lesson preparation, classroom responsibilities, and additional tasks such as paperwork and reporting. Because of these demands, teachers may not have enough time to develop instructional materials effectively.

The findings are consistent with Cayabas & Sumeg-ang (2023) and Boblovskyi (2024), who identified that limited time, heavy workload, and frequent interruptions as key factors that hinder the effective development of instructional materials.

Table 4: Challenges Encountered in Developing Instructional Materials among In-service Elementary Teachers in terms of ICT Integration

ICT Integration	Mean	Qualitative Description
1. Incorporating ICT tools in teaching reduces the time needed to prepare instructional materials.	1.84	Agree
2. Students respond better when using digital instructional materials, but I often struggle to implement them.	2.00	Agree
3. I need more professional development to effectively integrate ICT in class.	1.90	Agree
4. I am not confident in how to effectively use or incorporate technology to enhance my instructional materials.	2.68	Disagree
5. I often struggle to select and apply appropriate digital resources to my lessons.	2.48	Agree
6. Limited access to technology and the internet makes ICT integration difficult for me.	2.14	Agree
7. The lack of training and professional development opportunities hinders my ability to effectively integrate ICT in developing instructional materials.	2.24	Agree
Weighted Mean	2.17	Agree

1.00-1.75=Strongly Agree; 1.76-2.50=Agree; 2.51-3.25=Disagree; 3.26-4.00=Strongly Disagree

Table 4 presents the challenges encountered in developing instructional materials among in-service elementary teachers in terms of ICT integration, 6 out of 7 indicators were rated "agree", showing that teachers encounter notable challenges in integrating ICT into instructional materials. They struggle with applying digital tools, selecting appropriate online resources, and dealing with limited internet access and training opportunities. However, one indicator was rated "disagree" relating to the teachers' confidence in using ICT, indicating that teachers do not perceive themselves as lacking confidence or willingness to use technology.

The findings align with Mohd et al. (2024), Kandel (2022), and Ogenyi et al. (2023), who emphasized that despite ICT availability, teachers struggle because of insufficient training and support. It further confirms that challenges are caused by systematic factors rather than gaps in their personal skills.

Overall, the results suggest that time management and ICT integration constitute the most significant challenges faced by teachers in the development of instructional materials. This highlights the need for adequate time allocation, technological resources, and professional support.

Difference in the Perceived Challenges Encountered in Developing Instructional Materials among In-service Elementary Teachers and the Respondents' Profile

The current study investigated how the perceived challenges in developing IMs vary across different profiles of the in-service elementary teachers as presented in the tables below.

Table 5. Differences in the Perceived Challenges in Developing Instructional Materials in Terms of Limited Resources Among In-Service Elementary Teachers Based on Profile Variables

Limited Resources	Sex		No. of Years in Teaching		Educational Attainment	
	t-value	p-value	F-value	p-value	F-value	p-value
1. I often do not have access to enough materials and resources to create effective instructional content and materials	0.38^{ns}	0.71	0.56^{ns}	0.58	1.48^{ns}	0.24
2. The lack of available technological resources limits my ability to develop interactive and engaging instructional materials.	1.31^{ns}	0.20	0.28^{ns}	0.76	1.85^{ns}	0.17
3. Limited and outdated resources hinder me in preparing my instructional materials to meet the diverse needs of my students.	0.00^{ns}	1.00	0.14^{ns}	0.87	1.12^{ns}	0.33
4. Due to shortage of instructional materials, I often rely on old or re-used and available materials in school.	0.93^{ns}	0.36	0.28^{ns}	0.76	2.93^{ns}	0.06
5. The delay in receiving necessary materials makes it difficult for me to prepare and create my instructional materials on time.	1.08^{ns}	0.29	0.02^{ns}	0.98	0.14^{ns}	0.87
6. The school cannot always provide the needed resources; I sometimes use my personal money to buy materials.	0.16^{ns}	0.88	0.41^{ns}	0.67	1.69^{ns}	0.20
7. The insufficiency of physical and digital resources discourages me from trying new or innovative teaching strategies with instructional materials.	0.72^{ns}	0.47	0.05^{ns}	0.96	2.13^{ns}	0.13

ns = not significant

Table 5 presents the differences in perceived challenges in developing instructional materials among in-service elementary teachers in terms of limited resources when grouped according to sex, years of teaching experience, and educational attainment. Across all groupings, the results show that all indicators obtained p-values greater than 0.05, indicating no significant differences.

In terms of sex, both male and female teachers reported similar levels of difficulty related to limited resources, including lack of instructional materials, outdated resources, use of recycled materials, and personal financial support for instructional needs. This suggests that these challenges are experienced equally regardless of gender.

Similarly, when grouped according to years of teaching experience, no significant differences were found. Both novice and experienced teachers reported comparable difficulties in accessing and utilizing instructional materials, indicating that teaching experience does not influence perceptions of resource-related constraints.

Likewise, educational attainment did not yield significant differences. Teachers, whether bachelor's, master's, or doctorate degree holders, shared similar experiences regarding insufficient and outdated instructional resources.

These findings are consistent with Salama Muhammad et al. (2024) and Junaidi et al. (2024), who emphasized that limited resources are a common challenge among teachers across different profiles. Aini (2023) further noted that inadequate funding and facilities contribute to these difficulties. Overall, the results suggest that resource-related challenges are universal among teachers regardless of demographic or professional background.

Table 6. Differences in the Perceived Challenges in Developing Instructional Materials in Terms of Time Management Among In-Service Elementary Teachers Based on Profile Variables

Time Management	Sex		No. of Years in Teaching		Educational Attainment	
	t-value	p-value	F-value	p-value	F-value	p-value
1. I struggle to balance the time needed in creating materials with my other work-related responsibilities because creating instructional materials consumes a lot of my available time.	1.17^{ns}	0.25	0.06^{ns}	0.94	1.45^{ns}	0.25
2. I sometimes bring unfinished instructional materials home because school hours are not enough to complete them.	1.69^{ns}	0.10	0.20^{ns}	0.82	0.94^{ns}	0.40
3. The limited time for preparation makes it challenging for me to make, update, and improve my instructional materials regularly.	0.58^{ns}	0.56	0.14^{ns}	0.87	0.77^{ns}	0.47
4. Heavy workload prevents me from integrating different strategies into my materials.	1.36^{ns}	0.18	0.07^{ns}	0.93	0.37^{ns}	0.69
5. Limited time causes me to focus more on content delivery than the quality of my materials.	0.05^{ns}	0.96	0.09^{ns}	0.92	2.37^{ns}	0.11
6. Because of limited time, I sometimes use common or ready-made materials instead of creating new ones.	0.89^{ns}	0.38	0.55^{ns}	0.58	1.76^{ns}	0.18
7. Managing my time during instructional materials preparation is challenging, and it makes me feel unprepared during class.	1.86^{ns}	0.07	0.29^{ns}	0.75	0.92^{ns}	0.41

ns – not significant

Table 6 presents the differences in perceived challenges in developing instructional materials among in-service elementary teachers in terms of time management when grouped according to sex, years of teaching experience, and educational attainment. Across all variables, the results show that all indicators obtained p-values greater than 0.05, indicating no significant differences.

In terms of sex, both male and female teachers reported similar difficulties in time management, including heavy workload, limited preparation time, working beyond school hours, and reliance on ready-made instructional materials. These findings suggest that time-related challenges are experienced equally regardless of gender and negatively affect the quality of instructional materials developed.

Similarly, when grouped according to years of teaching experience, no significant differences were found. Both novice and experienced teachers experienced comparable difficulties in managing time, balancing multiple responsibilities, and completing instructional materials within limited school hours, often resulting in unfinished work being brought home.

Likewise, educational attainment showed no significant differences. Teachers, regardless of academic qualification, experienced similar challenges related to workload, time constraints, and dependence on readily available materials.

These findings support the studies of Cayabas and Sumeg-ang (2023) and Boblovskyi (2024), who identified heavy workload and limited time as major barriers in instructional material development. Overall, the results indicate that time management challenges are universal among teachers and are not influenced by sex, teaching experience, or educational attainment.

Table 7. Differences in the Perceived Challenges in Developing Instructional Materials in Terms of ICT Integration Among In-Service Elementary Teachers Based on Profile Variables

ICT Integration	Sex		No. of Years in Teaching		Educational Attainment	
	t-value	p-value	F-value	p-value	F-value	p-value
1. Incorporating ICT tools in teaching reduces the time needed to prepare instructional materials.	1.20^{ns}	0.24	0.56^{ns}	0.58	2.11^{ns}	0.13
2. Students respond better when using digital instructional materials, but I often struggle to implement them.	1.00^{ns}	0.33	1.44^{ns}	0.25	0.47^{ns}	0.63
3. I need more professional development to effectively integrate ICT in class.	0.24^{ns}	0.82	0.17^{ns}	0.84	0.58^{ns}	0.56
4. I am not confident in how to effectively use or incorporate technology to enhance my instructional materials.	1.32^{ns}	0.19	0.79^{ns}	0.46	1.26^{ns}	0.29

5. I often struggle to select and apply appropriate digital resources to my lessons.	0.77^{ns}	0.44	0.36^{ns}	0.70	0.27^{ns}	0.77
6. Limited access to technology and the internet makes ICT integration difficult for me.	0.82^{ns}	0.41	0.63^{ns}	0.54	0.48^{ns}	0.63
7. The lack of training and professional development opportunities hinders my ability to effectively integrate ICT in developing instructional materials.	1.03^{ns}	0.31	0.22^{ns}	0.80	1.24^{ns}	0.30

ns – not significant

Table 7 presents the differences in perceived challenges in developing instructional materials among in-service elementary teachers in terms of ICT integration when grouped according to sex, years of teaching experience, and educational attainment. Across all variables, the results show that all indicators obtained p-values greater than 0.05, indicating no significant differences.

In terms of sex, both male and female teachers reported similar difficulties in ICT integration, including limited access to technology, lack of training, inadequate internet connectivity, and challenges in selecting and using appropriate digital tools. These findings suggest that ICT-related challenges are experienced equally regardless of gender and may hinder the effective integration of technology in instructional materials.

Similarly, when grouped according to years of teaching experience, no significant differences were found. Both novice and experienced teachers encountered comparable difficulties in accessing ICT resources, receiving adequate training, and utilizing digital tools effectively, indicating that teaching experience does not influence ICT integration challenges.

Likewise, educational attainment did not yield significant differences. Teachers, regardless of academic qualification, experienced similar constraints in ICT integration, particularly in terms of limited resources, insufficient training, and difficulty in applying digital tools in instruction.

These findings are supported by Mohd et al. (2024) and Kandel (2022), who emphasized that ICT integration challenges are largely driven by inadequate training, limited infrastructure, and insufficient technical support rather than teacher-related characteristics. Ogenyi et al. (2023) further noted that weak ICT infrastructure significantly hinders effective technology integration in schools.

Overall, the results indicate that ICT integration challenges are universal among teachers and are not significantly influenced by sex, teaching experience, or educational attainment.

CONCLUSION AND FUTURE WORKS

The study revealed that in-service elementary teachers are predominantly female, highly experienced, and mostly holders of master's degrees. In terms of challenges in developing instructional materials, limited resources were generally not considered a major concern, although occasional reliance on personal funds was noted. In contrast, time management emerged as a significant challenge, as teachers struggle to balance instructional

preparation, classroom duties, and administrative tasks. ICT integration was also identified as a major difficulty, particularly due to limited access to digital tools, insufficient training, and poor internet connectivity. However, statistical analysis showed no significant differences in perceived challenges when grouped according to sex, years of teaching experience, and educational attainment across all variables. This indicates that the challenges encountered are universal among teachers and are largely influenced by systemic and institutional factors rather than personal or demographic characteristics.

Future research may explore intervention-based studies aimed at improving teachers' time management strategies and ICT integration skills through targeted training programs and institutional support systems. It is also recommended to expand the study to a larger and more diverse sample across different schools to enhance generalizability.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this study. This research was conducted objectively, and no financial or personal relationships have influenced the results and interpretations presented in this paper.

DECLARATION OF AI USE

The authors declare that artificial intelligence (AI) tools such as ChatGPT and Grammarly were used solely to assist in language refinement, grammar correction, and formatting of the manuscript. All intellectual content, data analysis, interpretations, and conclusions presented in this study are the original work of the authors. The use of AI did not influence the research design, data collection, analysis, or the integrity of the findings.

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