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Developing Learning Modules for the Printed Modular Distance Learning Modality Amid the COVID-19 Pandemic: Assessment of the Experiences of the Teacher-Developers of Learning Resources in the Schools Division of Cabanatuan City

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ABSTRACT

The COVID-19 pandemic required the Department of Education to implement the Basic Education Learning Continuity Plan and accelerate the development of self-learning modules and other learning resources for distance learning. This study assessed the experiences of teacher-developers of learning resources in the Schools Division of Cabanatuan City. It used a quantitative descriptive survey design and purposive sampling to include 277 teachers who developed learning resources during School Years 2020-2021 and 2021-2022. A researcher-made questionnaire with a reported pilot-test reliability coefficient of .83 was administered. Frequency, percentage, weighted mean, independent t-test, one-way analysis of variance, and Pearson correlation were used to analyze the data. Results showed that the teacher-developers demonstrated a high level of preparedness (overall mean = 3.42) and experienced moderate difficulty (overall mean = 2.88). Preparedness differed significantly according to age, civil status, and level of training in learning resource development, while perceived difficulty differed significantly according to age and length of service. The item-level correlations between preparedness and experienced difficulty were generally low to moderate positive relationships; no single high positive or high negative relationship was reported. The findings indicate that prior preparation and training supported teacher-developers in managing the demands of learning resource development during the pandemic. Tailored training, technology support, professional collaboration, psychosocial support, and regular monitoring are recommended to strengthen future learning resource development initiatives.

Keywords: *learning resources, self-learning modules, teacher-developers, printed modular distance learning, preparedness, learning resource development*

INTRODUCTION

The COVID-19 pandemic disrupted face-to-face education and required schools to adopt alternative learning delivery modalities. In the Philippines, the Department of Education (DepEd) adopted the Basic Education Learning Continuity Plan (BE-LCP) for School Year 2020-2021 to guide the delivery of basic education during the public health emergency. Modular distance learning allowed learners to use self-learning modules (SLMs) in print or digital format, supported by other learning resources when applicable (Department of Education, 2020).

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The rapid transition to distance learning created an urgent demand for quality learning resources. DepEd subsequently issued guidelines for evaluating SLMs to ensure that the materials used in modular distance learning met requirements for content, language, design, and layout (Department of Education, 2021). At the division level, teacher-developers were mobilized to prepare learning resources while simultaneously carrying out teaching responsibilities and other distance-learning tasks.

In the Schools Division of Cabanatuan City, teacher-developers served as writers, illustrators, layout artists, and members of related learning resource development teams. Their preparation varied: some had prior training and experience, some had training only, and others had limited previous exposure. Their experiences provide a basis for strengthening future capacity-building programs and support systems for learning resource development.

This study assessed the demographic profile of the teacher-developers, their level of preparedness, the level of difficulty they experienced, differences in their assessments when grouped according to selected profile variables, and the relationships between preparedness indicators and difficulty indicators. The results were used to identify practical recommendations for future learning resource development initiatives.

Literature Review

Learning Continuity and Self-Learning Modules

The pandemic caused widespread educational disruption and required education systems to implement flexible strategies that could sustain access to learning (UNESCO, 2020). In the Philippine basic education context, the BE-LCP provided a policy basis for distance-learning approaches, including modular distance learning. The use of SLMs became central because printed resources could reach learners whose access to digital technologies and stable internet connectivity was limited.

The quality of SLMs remained an essential concern. DepEd Order No. 001, s. 2021 established a systematic process for evaluating SLMs for Quarters 3 and 4 of School Year 2020-2021. This policy emphasized the importance of reviewing content, language, and design and layout before modules were used in schools (Department of Education, 2021).

Teacher-Developed Learning Resources

Teacher-developed materials can respond to learner needs because teachers understand their instructional contexts and the challenges faced by their students. The source manuscript reviewed literature indicating that locally developed resources may improve relevance, engagement, and alignment with instructional goals when they are carefully designed and quality-assured. Open educational resource initiatives similarly show that locally adapted materials can support instructional flexibility and resource sharing (Hilton et al., 2013).

However, developing learning resources requires time, technical capacity, access to references, connectivity, and professional support. During emergency remote and modular learning, these demands were compounded by teaching responsibilities, personal and family concerns, and psycho-emotional strain. Therefore, preparedness must be examined together with experienced difficulty.

Preparedness and Professional Support

Preparedness for learning resource development includes prior training, knowledge of quality standards, familiarity with productivity and design software, ability to use online communication and file-sharing platforms, access to review materials, and awareness of available technical assistance. These dimensions are especially important when resource development is performed under time pressure and through non-face-to-face coordination.

The present study focused on teacher-developers' assessments of these conditions. Rather than assuming that preparedness eliminates difficulty, the study examined how preparedness indicators were associated with specific challenges encountered during the development of learning resources.

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METHODS

Research Design

The study employed a quantitative descriptive survey design. This design was used to describe the teacher-developers' profile, preparedness, and experienced difficulty and to test differences and relationships among the variables. Survey research is appropriate when a study aims to describe existing conditions and provide a basis for planning and decision-making (Bueno, 2016).

Research Locale

The study was conducted in the Schools Division of Cabanatuan City, Department of Education Region III. The division mobilized teachers for the development of self-learning modules and other learning resources used during School Years 2020-2021 and 2021-2022.

Participants and Sampling Technique

The participants were 277 teacher-developers who prepared learning resource materials, including self-learning modules, learning activity sheets, radio-broadcast instruction scripts, and electronic comics. Purposive sampling was applied because the study specifically required participants who had direct experience in learning resource development during the implementation of distance-learning modalities.

Research Instrument

A researcher-made survey questionnaire was used. It gathered information on the participants' demographic profile, level of preparedness, level of difficulty experienced, differences in assessments according to profile variables, relationships between preparedness and difficulty indicators, and recommendations for improving learning resource development processes. The questionnaire used five-point response scales. Pilot testing was conducted among teacher-developers who were not included in the main survey, and the source manuscript reported a reliability coefficient of .83.

Data Gathering Procedure

Permission to conduct the study was secured through the Curriculum Implementation Division and the appropriate Schools Division authorities. After the instrument was pilot-tested and validated, the questionnaire was administered to the selected teacher-developers. The responses were summarized, encoded, and analyzed. The findings were then interpreted as a basis for conclusions and recommendations.

Data Analysis

Frequency and percentage distribution were used to describe the participants' profile. Weighted mean was used to determine the level of preparedness and experienced difficulty. Independent t-test and one-way analysis of variance were used to test differences in assessments according to selected profile variables. Pearson correlation was used to examine relationships between preparedness indicators and difficulty indicators. Microsoft Excel and the Statistical Package for the Social Sciences were used for computation.

Ethical Consideration

The study observed intellectual honesty, proper citation, confidentiality, voluntary participation, and the protection of participants' data privacy rights. Participants were informed of the study objectives and their right to withdraw during data gathering. The researcher followed the ethical-research principles described in DepEd Region III guidelines for studies involving teaching and teaching-related personnel.

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RESULTS AND DISCUSSION

The findings are presented according to the participants' profile, preparedness, experienced difficulty, group differences, and item-level relationships between preparedness and difficulty.

Profile of the Teacher-Developers

Table 1. *Summary Profile of the Teacher-Developers*

Profile Variable	Largest Category	Frequency	Percentage
Sex	Female	148	53.43%
Age	41 years old and above	100	36.10%
Civil status	Married	193	69.68%
Teaching position	Teacher III	110	39.71%
Length of service	6-10 years	91	32.85%
Highest level of LR-development training	Division level	179	64.62%
Educational attainment	Bachelor's degree	150	54.15%

The profile indicates that the largest groups were female teacher-developers, participants aged 41 years old and above, married teachers, Teacher III personnel, those with 6-10 years of service, teachers with division-level learning resource development training, and participants with bachelor's degrees. The profile also shows that learning resource development involved teachers with varied professional backgrounds and levels of experience.

Level of Preparedness in Learning Resource Development

Table 2. *Preparedness of the Teacher-Developers*

Preparedness Indicator	Mean	Interpretation
School-based or LAC training in LR development	3.54	High Extent
Division-level training in LR development	3.50	High Extent
Regional-level training in LR development	2.84	Moderate Extent
Prior experience developing learning resources	3.26	Moderate Extent
Knowledge of LR-development basics and standards	3.42	High Extent
Capacity to use basic productivity software	3.51	High Extent
Capacity to use advanced design software	3.38	Moderate Extent
Capacity to use online interaction platforms	3.68	High Extent
Capacity to use online file-sharing and data-management services	3.64	High Extent
Training for print modular distance-learning resources	3.49	High Extent
Copies of training materials for review	3.23	Moderate Extent
Knowledge of contacts for technical assistance	3.61	High Extent
Overall mean	3.42	High Extent

The overall preparedness mean was 3.42, interpreted as High Extent. The highest-rated indicator was the use of online interaction platforms (M = 3.68), followed by online file-sharing and data-management services (M = 3.64) and knowledge of contacts for technical assistance (M = 3.61). Moderate ratings were reported for regional-level training, prior learning-resource development experience, advanced design software, and access to copies of training materials.

Level of Difficulty Experienced in Learning Resource Development

Table 3. *Difficulties Experienced by the Teacher-Developers*

Difficulty Indicator	Mean	Interpretation
Insufficient time due to distance-learning-related tasks	3.08	Moderate
Insufficient time due to personal concerns during the pandemic	3.08	Moderate
Insufficient time due to family concerns during the pandemic	3.05	Moderate

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No personal internet connectivity because of limited budget	2.82	Moderate
Unreliable internet connectivity because of weak signal	2.92	Moderate
Limited access to reference materials	2.88	Moderate
Limited co-teacher support system at the school level	2.77	Moderate
Limited master-teacher support for preliminary quality assurance	2.74	Moderate
Limited school-head guidance and technical assistance	2.75	Moderate
Pandemic anxiety affecting focus	2.92	Moderate
Difficulty coordinating through non-face-to-face and asynchronous processes	2.83	Moderate
Difficulty due to delayed or limited team responses	2.78	Moderate
Overall mean	2.88	Moderate

The overall difficulty mean was 2.88, interpreted as Moderate. The highest-rated challenges were insufficient time due to distance-learning tasks (M = 3.08), insufficient time due to personal concerns (M = 3.08), and insufficient time due to family concerns (M = 3.05). Internet connectivity, access to references, professional support, coordination, and pandemic-related anxiety were also rated as moderate challenges.

Differences in Preparedness According to Profile Variables

Table 4. *Differences in Preparedness According to Profile Variables*

Profile Variable	p-value	Interpretation
Sex	.619	Not significant
Age	.030	Significant
Civil status	.003	Significant
Teaching position	.197	Not significant
Length of service	.225	Not significant
Level of LR-development training	.003	Significant
Educational attainment	.387	Not significant

Preparedness differed significantly according to age, civil status, and level of training in learning resource development. No significant differences were reported according to sex, teaching position, length of service, and educational attainment. The findings suggest that preparedness was associated with selected personal and professional factors, especially training exposure.

Differences in Experienced Difficulty According to Profile Variables

Table 5. *Differences in Experienced Difficulty According to Profile Variables*

Profile Variable	p-value	Interpretation
Sex	Verify original output	Not significant as reported
Age	.046	Significant
Civil status	.067	Not significant
Teaching position	.115	Not significant
Length of service	.008	Significant
Level of LR-development training	.714	Not significant
Educational attainment	.699	Not significant

Experienced difficulty differed significantly according to age and length of service. No significant differences were reported according to civil status, teaching position, level of training, and educational attainment. The original source table reported an invalid negative value for the sex-related p-value; therefore, the corresponding statistical output should be checked before journal submission. The source narrative interpreted the difference according to sex as not significant.

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Relationship Between Preparedness and Experienced Difficulty

Table 6. *Representative Item-Level Relationships Between Preparedness and Difficulty*

Preparedness Indicator	Difficulty Indicator	r	Relationship	p-value
School-based/LAC training	Insufficient time due to distance-learning tasks	.445	Moderate positive	< .001
Division-level training	Insufficient time due to distance-learning tasks	.445	Moderate positive	< .001
Print-modular LR training	Insufficient time due to family concerns	.421	Moderate positive	< .001
Print-modular LR training	Insufficient time due to distance-learning tasks	.417	Moderate positive	< .001
Knowledge of technical-assistance contacts	Limited school-head guidance and technical assistance	.396	Moderate positive	< .001
Copies of training materials	Pandemic anxiety affecting focus	.323	Moderate positive	< .001
Prior LR-development experience	Difficulty due to delayed or limited team responses	.159	Low positive	.008

The source manuscript reported item-level Pearson correlations rather than a single aggregate coefficient for preparedness and difficulty. The coefficients were generally low to moderate positive relationships. The representative values in Table 6 range from r = .159 to r = .445. No high positive or high negative relationship was reported. The result indicates that preparedness and experienced difficulty should not be treated as simple opposites: teachers could be well prepared while still facing time, connectivity, support, and psycho-emotional challenges.

The findings support the need for sustained capacity building. Training appears to have helped teacher-developers respond to the demands of emergency learning resource development, but training alone could not remove contextual constraints. Support systems must therefore combine technical preparation with practical assistance, coordination mechanisms, access to resources, and psychosocial support.

CONCLUSION

Teacher-developers in the Schools Division of Cabanatuan City demonstrated a high level of preparedness in learning resource development while experiencing moderate challenges during the implementation of printed modular distance learning amid the COVID-19 pandemic. Their preparation was supported by training, familiarity with technology platforms, and access to technical assistance. Nevertheless, time constraints, internet limitations, restricted access to references, uneven school-level support, coordination difficulties, and pandemic-related anxiety remained relevant concerns. Differences in preparedness were reported according to age, civil status, and training exposure, while differences in experienced difficulty were reported according to age and length of service. Item-level correlations showed low to moderate positive relationships rather than a single strong association. Overall, the findings indicate that capacity building was valuable but must be complemented by responsive institutional support.

Recommendations

1. The Schools Division may develop tailored training programs that respond to the technical and contextual challenges encountered by teacher-developers.
2. Additional mentoring and support may be provided to younger or less experienced teacher-developers, particularly when new learning-resource projects are launched.
3. Reliable access to software, reference materials, file-sharing tools, and internet connectivity may be strengthened to reduce technology-related barriers.
4. School-level support systems involving co-teachers, master teachers, school heads, and division technical teams may be formalized to improve guidance and quality assurance.

5. Regular monitoring, feedback, and post-project evaluation may be institutionalized to identify recurring challenges and improve future learning-resource development initiatives.
6. Professional-development activities may include collaboration, resource sharing, flexibility in work arrangements, and resilience-building or psychosocial-support components.
7. Before final journal submission, the original statistical output for the sex-related difficulty comparison should be checked because the source table contains an invalid negative p-value.

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