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Assessing students' learning difficulties and strategies: Basis for developing instructional support materials

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A R T I C L E I N F O

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A B S T R A C T

Despite growing advocacy for inclusive education, few empirically validated instructional materials exist to support secondary learners with learning difficulties, particularly within localized curriculum contexts. Addressing this gap, the study developed instructional support materials to assist teachers in delivering responsive and inclusive instruction. Specifically, it determined the profile of learners with learning difficulties and identified the best teaching practices employed by teachers in inclusive classrooms.

Guided by a Research and Development (R&D) design, the study involved 303 identified secondary learners, 20 teachers, and 10 expert validators from public secondary schools in the Schools Division of Ilocos Norte. Data were gathered through validated survey questionnaires, structured interviews, and expert validation tools, and analyzed using frequency counts, percentages, weighted means, and thematic analysis.

Results revealed that learners exhibited diverse manifestations of learning difficulties, particularly in reading comprehension, writing mechanics, and numeracy skills. Teachers implemented differentiated instruction, scaffolding, multisensory approaches, and structured routines; however, collaboration with parents and specialists remained limited. The developed materials, anchored on the Activate–Acquire–Apply–Assess framework and aligned with the K to 12 Transition Curriculum for Learners with Disabilities, were rated as very highly valid and acceptable. Therefore, the materials are recommended for institutional adoption to strengthen inclusive classroom practices and promote equitable learning outcomes.

Introduction

Inclusive education is essential for ensuring that all learners, especially those with learning difficulties, have equitable access to quality education. Globally, 15–20% of learners struggle with foundational academic skills, often leading to disengagement and long-term disadvantage (UNESCO, 2023). The

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Universal Design for Learning (UDL) framework promotes flexible, learner-centered strategies that address diverse needs in mainstream classrooms, supporting equitable learning outcomes (Florian & Spratt, 2015).

In the Philippines, inclusive education is reinforced through legislation, including Republic Act No. 10533 (Enhanced Basic Education Act of 2013) and Republic Act No. 9442 (Magna Carta for Disabled Persons), operationalized via DepEd's Basic Education Development Plan (BEDP) 2030. Despite these policies, teachers report insufficient preparation for inclusive practice and limited access to context-specific instructional materials, hindering the translation of policy into classroom strategies (David et al., 2021; Gines, 2020; Ocampo & Labrador, 2022).

Locally, the Division of Ilocos Norte mirrors national challenges. The 2024 Monitoring and Evaluation Report identified over 200 secondary learners with persistent difficulties in reading, writing, and mathematics, often indicative of undiagnosed learning challenges. Teachers observed that these learners required extensive scaffolding, yet practical, localized resources were scarce. Centralized interventions often fail to address specific local contexts, limiting their effectiveness (Medina & Ebron, 2020).

Existing literature has largely focused on policies and teacher perceptions, with limited development of practical, localized instructional materials for learners struggling with basic academic skills. Florian & Spratt (2015) and David et al. (2021) highlighted inclusive education reforms but provided no classroom-ready tools. Gines (2020) and Medina & Ebron (2020) documented teacher challenges without proposing context-specific interventions, while Ocampo & Labrador (2022) noted the limitations of centralized programs without offering adaptable solutions. This indicates a clear gap in the availability of teacher-focused, evidence-based, and contextually relevant instructional resources.

This study addresses this gap by developing and validating a teacher-focused instructional support material grounded in UDL, Constructivist principles, and Vygotsky's Zone of Proximal Development (ZPD). The study aims to enhance differentiated instruction, promote learner engagement, and support secondary students with learning difficulties. Guided scaffolding within learners' ZPD facilitates stepwise mastery and gradual independence, while multimodal UDL strategies ensure equitable access to learning.

The study was also motivated by the researcher's firsthand experience as a junior high school reading teacher in Ilocos Norte, observing recurring learning challenges among students often misperceived as unmotivated. By providing research-based, teacher-friendly, and contextually adapted resources, this study seeks to bridge the gap between policy and classroom practice, strengthen inclusive education, and empower teachers to effectively support learners with learning difficulties.

Literature review

Inclusive education has emerged as a global commitment to ensure that all learners, regardless of their abilities or circumstances, receive equitable access to quality education. This approach recognizes the

diverse needs of students, particularly those who experience learning difficulties that may not always be formally diagnosed but are evident in their academic performance and classroom behavior.

Inclusive education and legislative frameworks in the Philippines

Inclusive education in the Philippines is anchored in strong policy foundations promoting equitable learning opportunities for all. The Enhanced Basic Education Act of 2013 (RA 10533) institutionalized learner-centered and differentiated instruction, while the Magna Carta for Disabled Persons (RA 9442) and the Inclusive Education Act of 2022 (RA 11650) strengthened legal protections for learners with disabilities and difficulties. RA 11650 specifically mandates the establishment of Inclusive Learning Resource Centers (ILRCs) to provide specialized support irrespective of formal diagnosis (Philippine Congress, 2022). These frameworks underscore the government's commitment to equity and inclusion. However, implementation gaps persist. Many schools—especially in rural and resource-constrained areas—face challenges related to teacher preparedness, availability of materials, and institutional capacity (Tuazon & Calub, 2021; David et al., 2021). Teachers often report inadequate training in inclusive pedagogies, while schools lack adaptive instructional resources and support staff. Effective realization of inclusive education thus requires systemic efforts combining policy, continuous professional development, and evidence-based school practices (Bernardo et al., 2021; Meyer et al., 2014).

Classification systems and understanding learners with manifestations

Accurate identification and classification of learners with difficulties are essential for inclusive instruction. The Department of Education's Learner Information System (LIS) documents learner profiles and observable manifestations such as reading, numeracy, or attention-related difficulties (DepEd, 2022). The World Health Organization's International Classification of Functioning, Disability and Health (ICF, 2001) emphasizes a holistic view that considers both individual and environmental factors. Misclassification or under-identification, especially in linguistically diverse and under-resourced contexts, limits learners' access to appropriate interventions (Tumanan & Reotutar, 2022).

Functional assessment tools—observation checklists, performance-based tasks, and teacher collaboration—ensure accurate understanding and tailored support (Basilio, 2024). Teachers who recognize and respond to these manifestations through differentiated strategies achieve better learner outcomes in academic performance, motivation, and social participation (Garcia & Ramos, 2023).

Instructional strategies and the role of teachers in supporting learners with difficulties

Teachers are pivotal to inclusive education, serving as mediators of adaptive instruction. Evidence-based approaches such as Differentiated Instruction (Tomlinson, 2014), scaffolding (Wood et al., 1976), Universal Design for Learning (Meyer et al., 2014), and multisensory methods (Shams & Seitz, 2018) enable teachers to respond flexibly to learner diversity. Complementary strategies—graphic organizers, repetition, and collaborative learning—enhance comprehension and retention (Kim et al., 2015).

Teacher attitudes and preparedness remain critical determinants of success. Many educators still lack training in inclusive pedagogy and exposure to practical applications (Council for Exceptional Children, 2024; Medina & Ebron, 2020). Sustained professional development, mentoring, and collaboration with

specialists strengthen teacher competence and confidence, resulting in more responsive classroom environments (Florido & Manlapaz, 2023).

Crafting of instructional materials for inclusive education

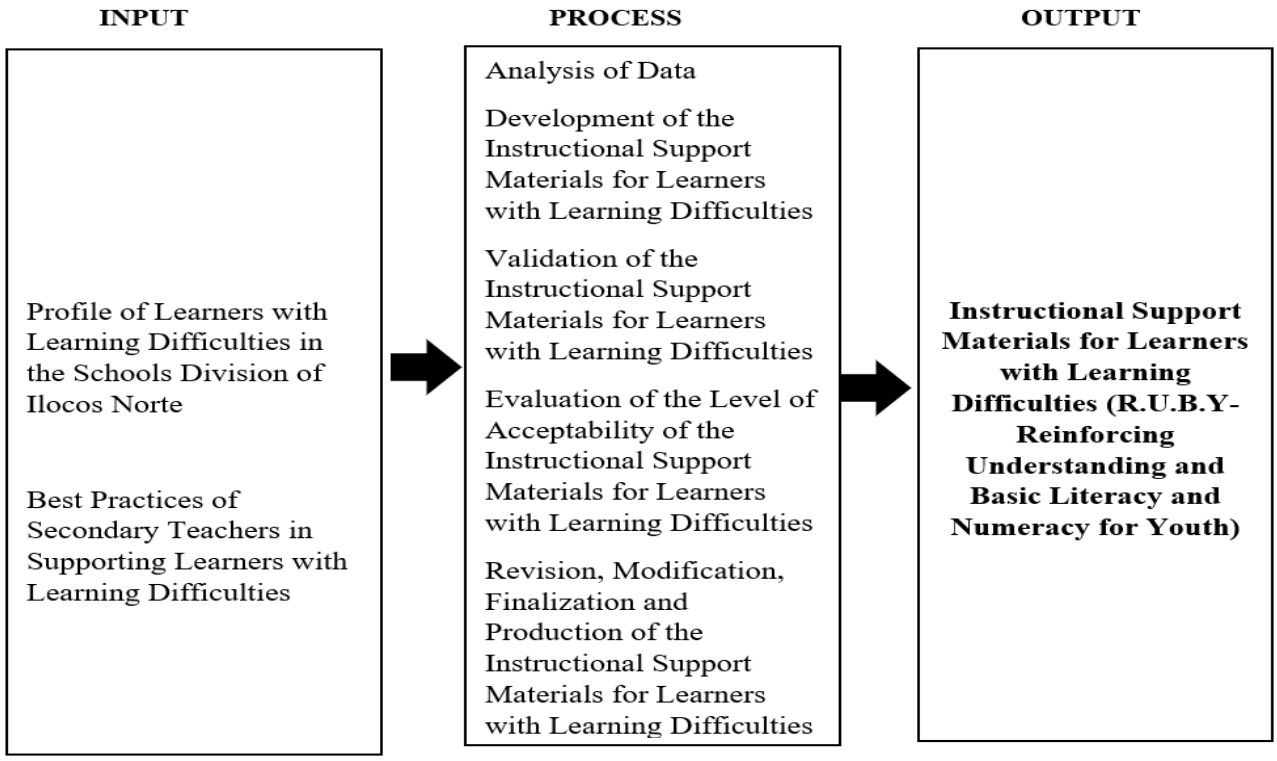
Instructional materials operationalize inclusive education by making learning accessible and meaningful. Effective materials must be pedagogically sound, culturally relevant, and adapted to learners' varying abilities (Polit & Beck, 2017). The Learning Resource Management and Development System (LRMDS) provides guidelines for creating inclusive, context-appropriate learning resources (DepEd, 2022).

Participatory and localized development—engaging teachers, learners, and specialists—ensures usability and cultural relevance (Creswell & Creswell, 2018). For learners with difficulties, scaffolded, visually rich, and multimedia-based instructional support materials (ISMs) enhance comprehension, retention, and engagement (Santos & Villanueva, 2023; Picat et al., 2024). Thus, well-designed ISMs serve as catalysts that bridge policy and practice, empowering teachers and promoting equitable learning outcomes.

Role of instructional support materials in inclusive education

Instructional support materials (ISMs) play a critical role in fostering inclusive education by addressing diverse learning needs and promoting equitable access. Previous studies emphasize that contextualized materials are essential, especially in settings where rural schools often lack assistive tools (Pagtulon-an & Aguilar, 2022). Observation-based and scaffolded resources facilitate early identification of learning difficulties and enhance knowledge transfer, supporting timely interventions and improved student outcomes (Reyes & Garcia, 2021; Santos & Villanueva, 2023). Interactive and localized ISMs have been shown to increase learner engagement and academic performance, particularly in subjects like mathematics (Abun et al., 2023; Picat et al., 2024). These findings collectively underscore that culturally relevant, evidence-based, and collaboratively developed ISMs are indispensable for inclusive, learner-centered instruction, providing a foundation for the design and validation of the present study's instructional support materials.

Conceptual framework



Source: Magaoay (2025)

Figure 1. Conceptual framework of the study

The INPUT stage involved collecting data from the Learner Information System (LIS) of the Schools Division of Ilocos Norte, identifying learners with difficulties in learning, remembering, concentrating, communication, mobility, and adaptive functioning. To complement this, interviews with secondary teachers were conducted to gather insights on best practices, instructional challenges, and needed pedagogical support.

The PROCESS stage focused on developing, validating, and evaluating the instructional materials based on Constructivism, Universal Design for Learning (UDL), and Vygotsky's Zone of Proximal Development (ZPD). Expert validators assessed the draft's content, instructional design, and technical aspects, followed by teacher-based acceptability evaluation on clarity, usefulness, language, illustrations, presentation, and suitability.

The OUTPUT was a set of instructional support materials addressing literacy, numeracy, comprehension, and expression, dubbed as R.U.B.Y. (Reinforcing Understanding and Basic Literacy and Numeracy for Youth). The materials aim to operationalize inclusive practices, reduce learning barriers, and strengthen teacher competence in supporting learners with learning difficulties.

Research questions

The study aimed to develop instructional support materials for learners with learning difficulties.

Specifically, it sought to answer the following questions:

1. What is the profile of learners with learning difficulties in the Schools Division of Ilocos Norte?

2. How do teachers support learners with learning difficulties?

2. What can be developed to support teachers in handling learners with learning difficulties?

4. How valid is the material for learners with learning difficulties along:
    4.1 Content Quality;
    4.2 instructional quality; and
    4.3 Technical quality?

5. What is the level of acceptability of the instructional support materials for learners with learning difficulties along:
    5.1 clarity;
    5.2 usefulness;
    5.3 language and style;
    5.4 illustrations;
    5.5 presentations; and
    5.6 suitability?

Research methodology

This section presents the research design, sources of data, population and sampling, instrumentation and data collection, and tools for data analysis.

Research design

This study employed the Research and Development (R&D) approach, a systematic model for designing, refining, and validating educational innovations (Gall, Gall, & Borg, 2007). The approach integrated three phases—Planning, Development, and Validation—to ensure that the instructional support materials (ISMs) were pedagogically sound and empirically verified.

Sources of data

The study was conducted in selected public secondary schools within the Schools Division of Ilocos Norte, comprising four zones: North, Central, East, and West. The locale was selected due to its documented population of learners with literacy and numeracy difficulties as reflected in the Learner Information System (LIS) (DepEd, 2017).

Population and sampling

Four participant groups were involved: 204 learners with documented learning difficulties, 20 teachers, 10 expert validators, and 20 teachers for the acceptability test. Purposive sampling ensured that participants possessed relevant expertise, allowing for triangulated insights from learners, practitioners, and specialists (Creswell & Creswell, 2018).

Instrumentation and data collection

Three instruments were employed: an interview questionnaire, a validation rating scale, and an acceptability rating scale. The interview tool, adapted from Mis et al. (2024), explored teachers' best practices in supporting learners with difficulties. The validation and acceptability scales were derived from DepEd's LRMDS Evaluation Rating Sheet for Print Materials (DepEd, 2017) and measured the ISMs' content, instructional, technical quality, clarity, usefulness, language, illustrations, presentation, and suitability. Data collection included interviews, validation sessions, and teacher evaluations conducted systematically across the division.

Tools for data analysis

Quantitative data were analyzed using frequency, percentage, and weighted mean, while qualitative data underwent thematic coding (Saldana, 2016). Validity and acceptability levels were interpreted using weighted mean ranges based on Calzada (2018) and Salcedo (2016).
The following ranges of values with their descriptive interpretation were used:

Range of Means	Descriptive Interpretation
4.51 - 5.00	Very Highly Valid (VHV)/ Very Highly Acceptable (VHA)
3.51 - 4.50	Highly Valid (HV)/ Highly Acceptable (HA)
2.51 - 3.50	Moderately Valid (MV)/ Moderately Acceptable (MA)
1.51 - 2.50	Slightly Valid (SV)/ Slightly Acceptable (SA)
1.00 - 1.50	Not Valid (NV)/ Not Acceptable (NA)

Ethical considerations

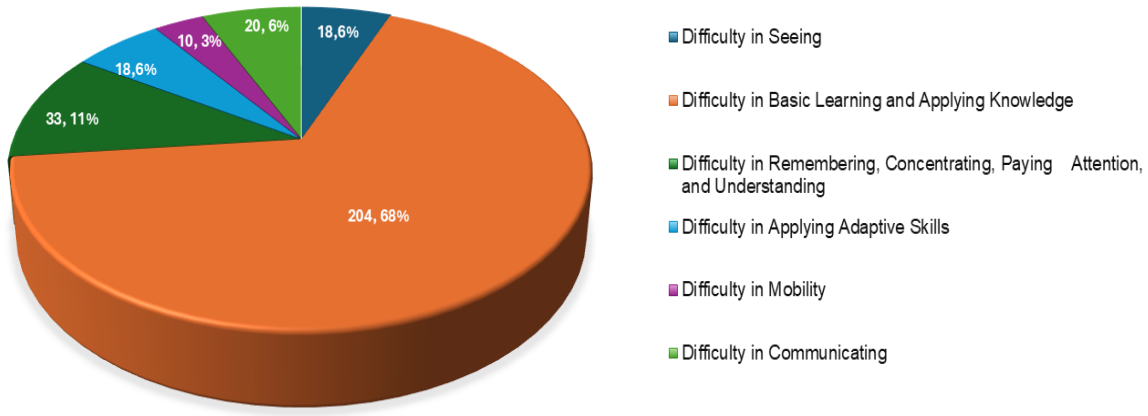
The study adhered to the ethical guidelines set by the Department of Education and the provisions of the Data Privacy Act of 2012 (Republic Act No. 10173). Formal approval was obtained from the Schools Division Superintendent before data collection. Participants were informed of the study's purpose, confidentiality procedures, and voluntary participation rights. Data were anonymized, securely stored, and used solely for academic purposes, ensuring integrity and compliance with ethical research standards (Calzada, 2018).

Data presentation and analysis

This section presents the collected data and corresponding analyses based on the research questions of the study.

Problem 1: What is the profile of learners with learning difficulties in the Schools Division of Ilocos Norte?

Profile of learners with learning difficulties in the schools division of ilocos norte



Source: SDOIN LIS 2024–2025

Figure 2. Distribution of learners with manifestations in the Schools Division of Ilocos Norte.

The pie graph presents the distribution of learners with learning manifestations in the Schools Division of Ilocos Norte. Difficulty in basic learning and applying knowledge was the most prevalent, affecting 204 learners (68%). The second most common manifestation was difficulty in remembering, concentrating, paying attention, and understanding, reported in 33 learners (11%). Other identified manifestations included difficulty in communicating (20 learners, 7%), difficulty in applying adaptive skills (18 learners, 6%), and difficulty in seeing (18 learners, 6%). The least frequent manifestation was difficulty in mobility, affecting 10 learners (3%). Overall, the data indicate that challenges related to foundational learning and cognitive processing were the most prevalent, while sensory and mobility-related difficulties were less common among learners in the division.

Problem 2. How do teachers support learners with learning difficulties?

Table 1. Best practices of teachers in supporting learners with learning difficulties.

Theme	Specific Practice	Description
Instructional strategies	Differentiated instruction	Teachers modify content, process, and assessment based on students' readiness, interests, and learning profiles to ensure equitable learning opportunities.
	Multi-sensory teaching	Lessons incorporate visual, auditory, and kinesthetic elements to reinforce understanding and memory retention among diverse learners.
	Scaffolding techniques	Teachers provide structured guidance and gradually withdraw support as learners gain independence and mastery of skills.
	Simplified instructions	Teachers break down complex tasks into simpler, step-by-step directions to enhance comprehension and task completion.

Theme	Specific Practice	Description
	Visual aids and task breakdown	Use of charts, diagrams, and sequential task guides helps students process and retain information more effectively.
Classroom management	Structured and predictable environment	Establishing consistent routines and expectations minimizes anxiety and fosters a safe, supportive learning climate.
	Positive reinforcement	Teachers use praise, rewards, and constructive feedback to motivate learners and strengthen desired academic behaviors.
	Classroom accessibility	Classrooms are organized to facilitate movement, participation, and engagement for learners with diverse needs.
Collaborative practices	Collaboration with support staff	Teachers coordinate with special education teachers and learning support staff to tailor interventions and monitor progress.
	Partnership with parents	Continuous communication with parents ensures alignment between home-based and school-based learning strategies.

Source: Magaoay (2025)

Instructional Strategies was the most frequently mentioned theme. Teachers reported using approaches such as differentiated instruction, multi-sensory teaching, scaffolding, and simplified instructions. Illustrative responses included: *"I always try to modify my lessons depending on the needs of my students. Some understand better with visuals, while others learn through hands-on activities"* (Teacher A), and *"Scaffolding really helps my students who easily get overwhelmed. I break down lessons into smaller steps so they can follow at their own pace"* (Teacher B).

Classroom Management was the second theme. Teachers highlighted consistent routines, positive reinforcement, and accessible classroom arrangements. Sample responses included: *"Learners with difficulties thrive when they know what to expect. I make sure our classroom routines are consistent, so they feel secure"* (Teacher H), and *"I always praise small improvements because it motivates them to keep trying"* (Teacher D).

Collaborative Practices was the third theme. Teachers noted coordination with parents, colleagues, and SPED teachers, though many cited time constraints and workload as challenges. Responses included: *"Collaboration with SPED teachers is really helpful, but it rarely happens because of scheduling and workload issues"* (Teacher G), and *"We want to involve parents more, but many of them are busy or don't fully understand their child's learning needs"* (Teacher E).

Problem 3: What can be developed to support teachers in handling learners with learning difficulties?

Instructional support materials for learners with learning difficulties

The developed instructional support material, R.U.B.Y. (Reinforcing Understanding and Basic Literacy and Numeracy for Youth), targets secondary learners with difficulties in basic learning and knowledge application. Aligned with the K to 12 Transition Curriculum for Learners with Disabilities and DepEd Order No. 44, s. In 2021, it provides accessible, learner-friendly resources for inclusive classrooms. Developed collaboratively with Special Needs Education (SNED) teachers and refined through expert validation, R.U.B.Y. follows a five-part instructional sequence: Activate (engage prior knowledge), Acquire (introduce concepts), Apply (hands-on activities), Assess (evaluate mastery), and Additional Activity and Reflection (reinforce learning). It comprises ten modules covering literacy, numeracy, vocabulary, comprehension, and functional communication, enhanced with visuals and real-life contexts. The material is available in PDF format, accessible via a shortened URL and QR code.

Problem 4. How valid is the material for learners with learning difficulties along: content quality; instructional quality; and technical quality?

Table 2. Panel of experts' evaluation on the validity of the material in terms of content quality, instructional quality, and technical quality.

Indicators	Mean	DI
Content		
1. Content aligns with the needs of secondary teachers handling learners with learning difficulties.	4.90	VHV
2. Information is accurate, evidence-based, and up-to-date.	5.00	VHV
3. Content reflects inclusive education principles and Philippine educational policies.	5.00	VHV
4. Concepts are clearly defined and explained.	5.00	VHV
5. The material is free from bias (cultural, gender, social, ideological).	5.00	VHV
6. The content promotes understanding of the ICF and learner diversity.	4.90	VHV
7. Examples and cases are realistic and contextualized to public school settings.	5.00	VHV
Composite Mean	**4.97**	**VHV**

Instructional	Mean	DI
1. Learning goals and competencies are clearly stated and relevant.	5.00	VHV
2. The primer promotes reflective teaching and classroom adaptation strategies.	5.00	VHV
3. Strategies are practical, context-sensitive, and suitable for differentiated instruction.	5.00	VHV
4. The material offers flexible approaches (e.g., UDL, scaffolding, multi-sensory strategies).	5.00	VHV
5. Activities promote higher-order thinking, learner support, and real-world application.	5.00	VHV
6. The material supports teachers' professional development and classroom effectiveness.	5.00	VHV
7. The flow of instructional content is logical and builds on prior knowledge (ZPD aligned).	5.00	VHV
Composite Mean	**5.00**	**VHV**
Technical	**Mean**	**DI**
1. The layout is clean, readable, and user-friendly.	5.00	VHV
2. Fonts, spacing, and formatting support clarity and ease of use.	5.00	VHV
3. Graphics, charts, and tables enhance understanding and are properly labeled.	4.80	VHV
4. Visuals are culturally appropriate, relevant, and appealing.	4.80	VHV
5. There are no typographical, grammatical, or factual errors.	4.80	VHV
6. The instructional material is portable, printable, and suitable for digital or offline use.	5.00	VHV
7. Sections are consistently formatted and navigable.	5.00	VHV
Composite Mean	**4.91**	**VHV**
Overall Mean	**4.96**	**VHV**

Source: Magaoay (2025)

Legend:

Range of Means	Descriptive Interpretation (DI)
4.51 – 5.00	Very Highly Valid (VHV)
3.51 – 4.50	Highly Valid (HV)
2.51 – 3.50	Moderately Valid (MV)
1.51 – 2.50	Slightly Valid (SV)
1.00 – 1.50	Not Valid (NV)

The evaluation of R.U.B.Y. across three dimensions yielded an overall mean of 4.96, interpreted as very highly valid.

Content quality received a composite mean of 4.97, with validators noting alignment with DepEd regulations (RA 10533 and RA 11650), structured lessons, inclusive language, practical real-life applications, clarity, and relevance for learners with literacy and numeracy difficulties.

Instructional quality achieved a perfect mean of 5.00, highlighting alignment with learning objectives and DepEd MELCs, the effectiveness of the Activate–Acquire–Apply–Assess framework, engaging and developmentally appropriate activities, and the inclusion of multimodal, differentiated, and UDL-aligned strategies (Validators A, D, F, G).

Technical quality scored 4.91, with minor deductions for graphics, visual cultural relevance, and typographical/factual accuracy. Validators described the material as technically sound, visually coherent, readable, and accessible across formats. Suggested improvements, including adding an Answer Key and enhancing visuals, were implemented during revisions.

Problem 5. What is the level of acceptability of the instructional support materials for learners with learning difficulties along: clarity; usefulness, language and style, illustrations; presentations, and suitability?

Table 6. Key teachers' evaluation on the level of acceptability of the instructional support materials along clarity, usefulness, language and style, illustrations, presentation, and suitability.

Indicators	Mean	DI
Clarity		
1. The material's content is easy to comprehend.	5.00	VHA
2. Utilizes sharp, clear, intelligent, and easy-to-understand concepts.	4.95	VHA
3. Offers relevant details to support each topic.	5.00	VHA
4. Information is clear and simple.	4.95	VHA
Composite Mean	**4.98**	**VHA**
Usefulness		
1. Provides adequate information on the topic presented.	5.00	VHA
2. Creates a more productive engagement.	4.90	VHA
3. Permits the teacher to explore the knowledge independently and in group.	4.90	VHA
4. Useful to teachers, parents, school heads, and other stakeholders.	5.00	VHA
Composite Mean	**4.95**	**VHA**
Language and Style		
1. Recognizes and respects the language of the teachers in line with their profession.	4.70	VHA
2. The material is clear and observing correct grammar.	4.85	VHA

3. Utilizes words or texts that are encoded in a size standard layout following the correct font and style for the end-user.	4.95	VHA
4. Provides other essential elements that can give added information to fully understand the content of the material.	4.85	VHA
Composite Mean	**4.84**	**VHA**
Illustrations		
1. Uses illustrations that are appropriate and related to the concepts being developed.	4.85	VHA
2. Utilizes a set of vivid and attractive illustrations.	4.85	VHA
3. Shows pictures, diagrams, or illustrations that are relevant to the topic.	4.80	VHA
4. Displays a format/style that is easy to understand and follow.	4.90	VHA
Composite Mean	**4.85**	**VHA**
Presentation		
1. The material is visually appealing and professional.	5.00	VHA
2. The layout is organized and easy to navigate.	4.95	VHA
3. The font size, colors, and design are suitable for readability.	4.95	VHA
4. Clear and concise headings and subheadings guide the learner through the material.	5.00	VHA
Composite Mean	**4.98**	**VHA**
Suitability		
1. Arouses and sustains the interest of the teachers.	5.00	VHA
2. Provides essential elements to fully understand the content of the material.	5.00	VHA
3. Provides relevant background knowledge to have a meaningful understanding of the content.	5.00	VHA
4. Adaptable to different levels of understanding, catering to various learning styles.	5.00	VHA
Composite Mean	**5.00**	**VHA**
Overall Mean	**4.93**	**VHA**

Source: Magaoay (2025)

Legend:

Range of Mean	Descriptive Interpretation (DI)
4.51 – 5.00	Very Highly Acceptable (VHA)
3.51 – 4.50	Highly Acceptable (HA)
2.51 – 3.50	Moderately Acceptable (MA)
1.51 – 2.50	Slightly Acceptable (SA)
1.00 – 1.50	Not Acceptable (NA)

The instructional support material was evaluated across six key aspects, yielding an overall mean of 4.93, interpreted as Very Highly Acceptable (VHA), indicating that the material is well-received, user-friendly, and suitable for inclusive classroom application.

Suitability received a perfect mean of 5.00, indicating strong alignment with users' needs, adaptability to diverse learners, and relevance for various teaching contexts. Clarity scored 4.98, with the highest-rated indicator, "The material's content is easy to comprehend" (M = 5.00), and the lowest, "Information is clear and simple" (M = 4.95). Presentation also obtained 4.98, highlighting professional formatting and organized headings that guide learners through the material.

Usefulness achieved a mean of 4.95, with the highest-rated indicator covering comprehensive information and the lowest supporting independent and group exploration. Illustrations scored 4.85, with visuals generally relevant and reinforcing concepts, while minor refinements could enhance contextual alignment. Language and style received 4.84, reflecting clear, professional, and generally appropriate language, with minor adjustments suggested to align terminology with teacher discourse.

Discussion

The findings from the Schools Division of Ilocos Norte reveal diverse challenges among learners with learning difficulties. Most struggle with basic learning and cognitive focus, reflecting national trends of weak literacy and numeracy, highlighting the need for curriculum adaptation, teacher training, and localized instructional resources (Florido & Manlapaz, 2023). Less prevalent challenges, including difficulties in communication, adaptive skills, and mobility, underscore the importance of assistive technologies, individualized education plans, and accessible learning environments to ensure full participation (David et al., 2021; Lazaro & Nario, 2023).

Teachers' best practices show that differentiated instruction, scaffolding, and multi-sensory strategies are central to inclusive pedagogy, enhancing engagement, comprehension, and cognitive flexibility (Tayag et al., 2022; Meyer et al., 2014). Structured classroom management with predictable routines and positive reinforcement promotes behavioral engagement and motivation (Sugai & Horner, 2002). Collaboration with SPED personnel and parents, although beneficial, is limited by systemic constraints, emphasizing the need for professional learning communities and structured coordination (David et al., 2021; Lazaro & Nario, 2023).

The instructional support material R.U.B.Y. (Reinforcing Understanding in Basic Literacy and Numeracy for Youth) addresses these needs through scaffolded, learner-centered strategies, visual aids, real-life examples, and structured activities that support differentiated instruction and formative assessment (Creswell & Creswell, 2018; Santos & Villanueva, 2023). Its Activate–Acquire–Apply–Assess framework, complemented by multimodal and UDL-aligned strategies, promotes active engagement, stepwise mastery, higher-order thinking, and socio-emotional development (Hall et al., 2015; Meyer et al., 2020). QR-enabled access ensures scalable and flexible classroom use.

Acceptability evaluation indicates that R.U.B.Y. is clear, useful, visually coherent, and suitable for diverse learners. Professional layout, structured headings, and aligned illustrations enhance comprehension and usability, with minor refinements suggested for collaborative learning and professional discourse alignment (Mayer, 2019; Kendeou et al., 2020; Mina-Ramos, 2025). Overall, R.U.B.Y. demonstrates strong potential to support differentiated instruction, equitable learning outcomes, and inclusive education practices, bridging research-based principles with practical, classroom-ready application (Shams & Seitz, 2018; Meyer et al., 2020).

This study advances inclusive education by providing R.U.B.Y., a validated instructional support material for secondary learners with difficulties in basic learning, grounded in Constructivist principles, UDL, and Vygotsky's ZPD. It facilitates scaffolded, learner-centered knowledge construction, promotes mastery within learners' ZPD, and ensures equitable access through multimodal strategies, offering teachers practical tools to differentiate instruction, support socio-emotional development, and enhance engagement. Limitations include its focus on a single division and reliance on teacher perceptions rather than longitudinal outcomes. Future research should examine its long-term impact on learning performance and explore adaptations across diverse contexts to strengthen generalizability and practical applicability

Conclusion

The findings reveal that learners in the Schools Division of Ilocos Norte face diverse challenges, with difficulties in basic learning and cognitive processing being the most prevalent, alongside notable issues in communication, adaptive skills, and mobility. Teachers address these needs through differentiated instruction, scaffolding, multi-sensory strategies, structured classroom management, and limited collaborative practices, highlighting the critical role of adaptive and inclusive pedagogy. The results underscore theoretical frameworks such as scaffolded, learner-centered instruction and Universal Design for Learning, which advocate for structured, flexible, and equitable approaches to support engagement, comprehension, and socio-emotional development. It is recommended that validated instructional support materials, such as R.U.B.Y., be integrated alongside professional learning communities, targeted teacher capacity-building, and accessible learning environments to optimize differentiated instruction and foster inclusive educational practices across secondary classrooms.

***Author's contribution*:** The author conceived the study, conducted the research and data analysis, developed the instructional support material, and prepared the manuscript, taking full responsibility for its content.

***Funding statement*:** This study was entirely funded by the researcher, covering all expenses for material development, data collection, and analysis. No external funding influenced the study's design, conduct, or reporting, ensuring full independence and adherence to ethical standards.

***Ethical review statement*:** The study adhered to national and international ethical standards. Approval was obtained from the Schools Division of Ilocos Norte. Informed consent, confidentiality, voluntary

participation, and the right to withdraw were ensured. Data were anonymized and securely stored in compliance with DWIJMH ethical requirements.

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