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The Development of Future-proof Learning Materials for Learners with Difficulty in Applying Knowledge

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Development of Future-Proof Learning Materials for Learners with Difficulty in Applying Knowledge,
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Abstract The development and validation of future-proof instructional materials for learners with special needs along with difficulty in applying knowledge in DepEd Camarines Sur focused on descriptive qualitative research design. Pre and post-test assessments were done through testing and direct observations. Likewise, informal interviews were done with the group of special education teachers and parents in order to gauge how they conducted and facilitated the entire process of assessing the students in different groups. Furthermore, in order to get the content reliability of the materials, format, and language level acceptability, a series of validation and try out was done by school administrators and area supervisors in DepEd Camarines Sur. For difficulty in applying knowledge, the objectives explored the learner's capacity to understand the parts of the body and the role they play. The researcher also includes the SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) booklet to heighten the ability to solve problems with navigation, or with visualization of faces, scenes, and objects. The instructional materials developed contain steps that the learners followed. A set of scoring rubrics was used based on a specific set of criteria.

Keywords: *instructional materials using ADDIE model, special education*

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1. Introduction

The Department of Education (DepEd) [1] issues the Policy Guideline on the Provision of Educational Programs and Services for Learners with Disabilities in the K to 12 Basic Educational Program. This is pursuant to Section 3 of Republic Act No. 10533 known as the Enhanced Basic Education Act of 2013 and Sections 8 and 8.2 from its Implementing Rules and Regulations (officialgazette.gov.ph). The enclosed policy guidelines shall provide an overall direction and guidance in the organization, management, and implementation of appropriate programs, services, and interventions for learners with disabilities at the different levels of governance in the Department. Likewise, this policy may serve as a guide for external stakeholders and partners in addressing the needs of learners with disabilities. Moreover, the K to 12 curriculum offers various educational opportunities that are developmentally appropriate for learners and are based on their interests, strengths, and needs. Ensuring that it is learner-centered, contextualization and adaptations of the curriculum shall be made in favor of the learner. The special education teachers also made several adjustments through chunking or simplifying content, extending, or shortening time and periods for tasks, and using differentiation in instruction when providing instructions. Teachers also developed several materials to be used by the students with special needs at various levels due to a lack of instructional support and materials.

This study developed four-future-proof learning instructional materials for students with special needs. These covered the four difficulties such as remembering and concentrating and seeing, in DepEd Camarines Sur and Naga City Division for the school year 2021-2022. The developed instructional materials followed ADDIE model approach (Analysis, Design, Develop, Implement and Evaluate). ADDIE is one of the most used learning models. It is important because it provides a proven method for designing clear and effective training programs. The developed materials underwent content and reliability validation by DepEd key officials and were able to use as part of this study. The progress evaluation of learners with disabilities shall be based on his/her IEP and goals were also considered. Assessment of a learner with a disability was consistent with the curriculum. The instructional materials are essential tools in learning every subject in the school curriculum and these benefit the stakeholders in and out of the school system. This research therefore may provide policymakers with information that could be useful in developing policies in support of providing necessary importance and learning materials for learners with special needs.

The findings generated from this study also may be useful for teacher training institutions in DepEd Camarines Sur, where a greater degree of attention might be directed to materials that facilitate inclusivity and learning for learners with special needs and to encourage teachers to provide suitable resources.

2. Framework

Future-proof learning materials consist of multimedia and guides that can be accessed on any platform available as shown in Figure 1. The constructivist theory by Dewey (1938) [2] posited that learners are active participants in their learning journeys and knowledge is built based on experiences. Oyarzun, B. & Sheri Conklin (2020) [3] pointed out that constructivism revolves around the premise that students actively construct knowledge. In this study, the learners with special needs learned the art of modeling clay and followed step-by-step procedures through hands-on learning activities.

Modeling can be accessed by use of printed media and audio-visual presentation that increases the attention span of the learners. A set of instructions was provided and assessed the learners based on the achieved goals. These instructions were easy to understand.

The Situated Learning Theory of Brown, Collins, and Duguid (1989) [4] on the hand was based on the premise that active learning is combined with knowing and doing. Kurt (2021) [5] divulges that technology has become an important tool in assisting situational learning. In this study, the integration of videos and prompts was helpful in guiding learners on the different steps and procedures that make learners with special needs active and attentive.

The Flow theory of Csikszentmihalyi (1990) [6] focused on learners' attention gained by the use of multimedia that serves as a guide in the engaging activities in the developed materials. The design of the future-proof learning materials allows some choice of activity to build on the learner's strengths and interests and strive to match and personalize the challenge level of the learning to the learner's abilities.

Universal Design in Learning (UDL) principle by Mayer et. al (2014) [7] caters to multiple means of representation that help different learning styles of the LSENs. Other than that, it is a powerful approach because, from the very start of your lesson, it helps to anticipate and plan for all the learners. This design also allows the developed materials to be flexible in use. In this, the materials became accessible to the learners and teachers who will be using it. The universal design utilizes different learning styles to maximize the intended learning outcomes of the learners, especially the learners with special educational needs.

3. Research Objectives

This study developed and validated future-proof instructional materials for learners with special needs along in difficulty in applying knowledge in the Department of Education, Division of Camarines Sur for school year 2021-2022.

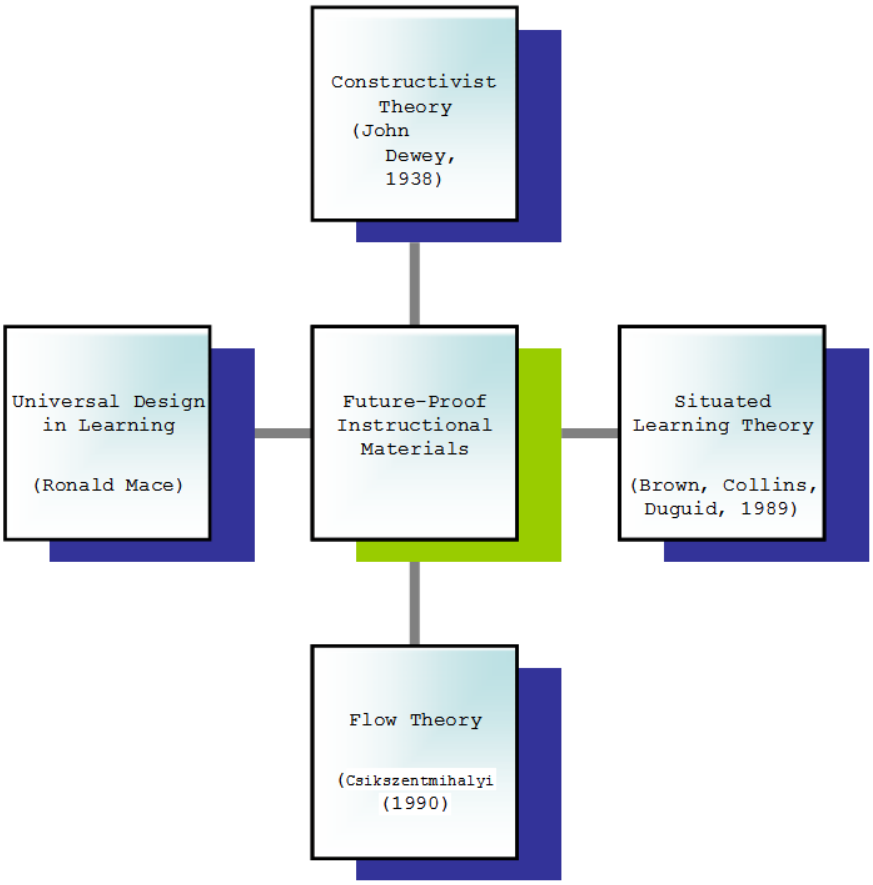

Figure 1. Theoretical Paradigm

4. Materials and Methods

The development and validation of future-proof instructional materials for learners with special needs along with difficulty in applying knowledge in DepEd Camarines Sur focused on descriptive qualitative research design. The different disabilities were the areas of concentration of the material development based on their academic response to the sets of learning activity sheets and instructional videos provided.

Moreover, pre and post-test assessments were done through testing and direct observations to measure students' abilities and skills, especially fine motor abilities and following sequential directions. On the other hand, informal interviews were done with the group of special education teachers in order to gauge how they conducted and facilitated the entire process of assessing the students in different groups. Also, part of the descriptive design was the consultations, interviews, and response inputs of external validators on the LAS materials in order to look into the different parameters used in the learning activity sheets. Furthermore, in order to get the content reliability of the materials, format, and language level acceptability, a series of validation and try out was done by school administrators and area supervisors in DepEd Camarines Sur.

5. Results and Discussion

DEVELOPMENT OF FUTURE-PROOF LEARNING MATERIALS FOR LEARNERS WITH DIFFICULTY IN APPLYING KNOWLEDGE

Learners with difficulty in applying knowledge were those who have manifestations of learning disabilities. These groups of learners cover a specific group of learning challenges like the ability to read, write, listen, speak, reason, or do math.

5.1. Analyze Phase. Of the 10 learners identified, only one (1) graded learner and two (2) non-graded have difficulty applying knowledge. Based on the pre-assessment and individual educational plan, learners with difficulty applying knowledge have difficulty in basic learning, and applying knowledge in one or more of the basic learning processes involved in understanding or using language both spoken and written may manifest itself in an imperfect ability to listen, speak, read, think, write, spell, or do mathematical calculations (Snowling, 2005) [8]. Specific terms for these difficulties may include difficulty in reading, writing, counting, calculating, and spelling.

The researcher selected self-help skills level 1 activity to carefully provide accommodation such as but not limited to verbal instructions, repetition of instructions, text/instructions in audio-format, larger print, fewer items per page, visual prompts, or cues (e.g., arrow pointing on page), highlighted text, alternative answer sheet and information in songs or poems (e.g., facts, definitions).

5.2. Design Phase. The researchers map out the process of how learners will achieve the desired learning objectives for learners with difficulty in applying knowledge. Given the preliminary concepts based on most essential learning competencies for the self-contained/ non-graded program of special education specifically on MELC for children with difficulty in applying knowledge, the learning activity sheet contains the intended content standards, performance task, and the duration of the activity.

The objectives were: ***nauunawaan ang mga bahagi ng katawan, natutukoy ang mga bahagi ng katawan at ang tungkulin nito and mapangalanan at maituro ng wasto ang sariling mga parte ng katawan***. The objectives explored the learner's capacity to understand the parts of the body and the role they play.

The researchers also include the SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) booklet as shown in Figure 2, Figure 3 and Figure 4 to heighten the ability to solve problems with navigation, or with visualization of faces, scenes, and objects. Also, verbal reasoning capacity to connect seemingly disconnected ideas was also highlighted in SKPL book.

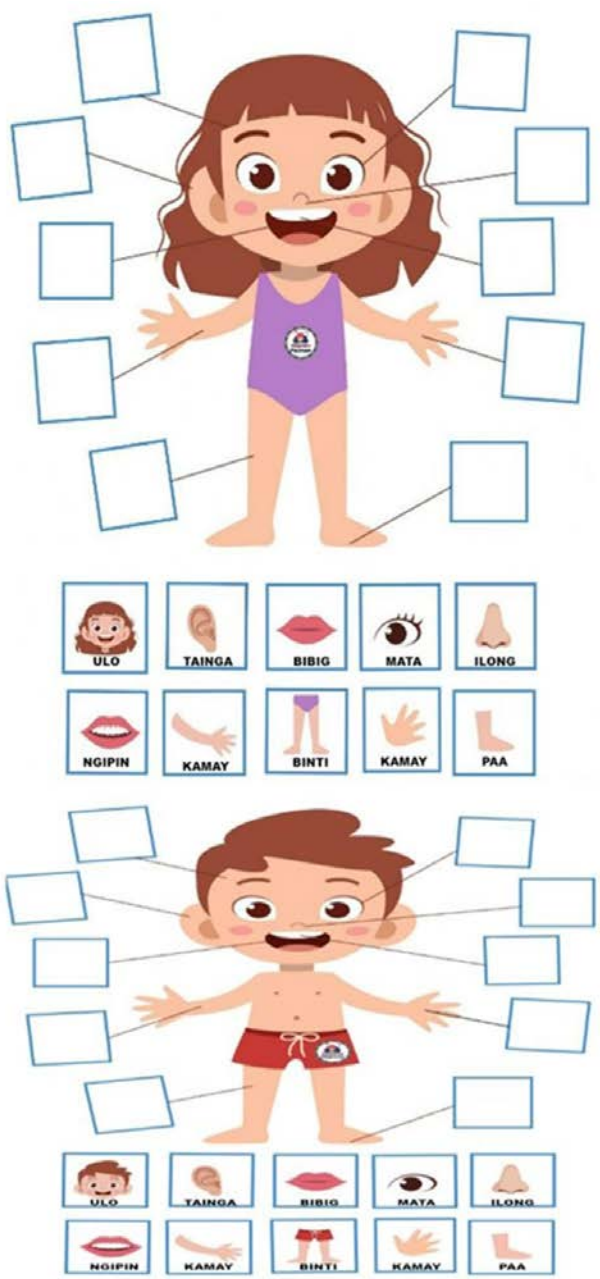

Figure 2. Screenshot of the SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) for Gawain 1. Mga Bahagi ng Katawan

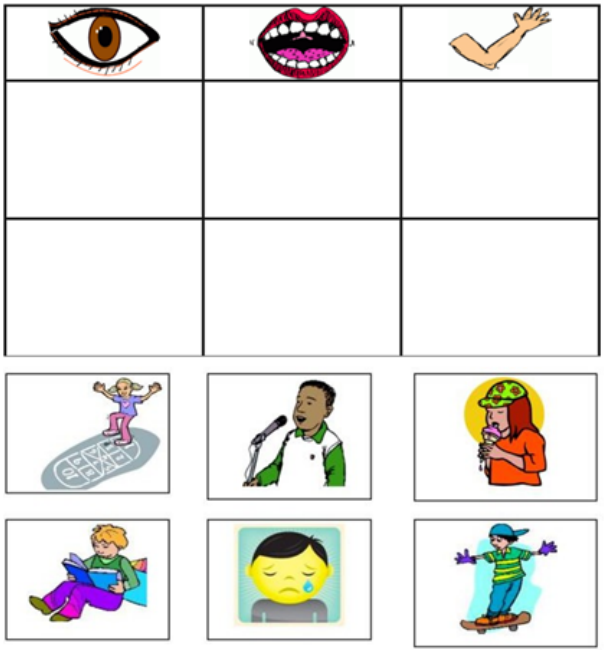

Figure 3. Screenshot of the SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) for Gawain 2. MgaTungkulin ng mga Bahagi ng Katawan

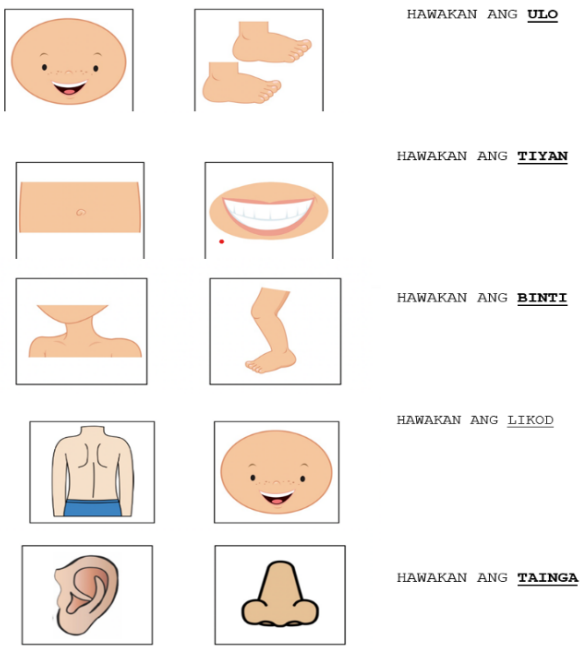

Figure 4. Screenshot of the SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) for Gawain 3. Pangalan at ituro ang bahagi ng katawan

Table 1. Rubrics of the Learning Activity Sheet (SKPL)

Gawain	3	2	1	puntos
Naging maunawain ang bata sa pagtukoy ng bahagi ng katawan	Nasabi ng bata ang mga bahagi ng katawan.	Nasabi ng bata ang dalawang bahagi ng katawan.	Sinubukan ng bata unawain ang bahagi ng katawan	
Natukoy ng bata ang tungkulin ng bahagi ng katawan.	Lahat natukoy ang tungkulin ng bahagi ng katawan na ipinakita sa aktibidad.	May isa o dalawang bahagi ng katawan na hindi natukoy ang tungkulin.	Sinubukan ng bata pero hindi niya natukoy ang tungkulin ng bahagi ng katawan.	
Naipakita at naituro ng bata ang mga bahagi ng katawan.	Naituro ng bata ang tatlong bahagi ng katawan.	Naituro ng bata ang dalawang bahagi ng katawan.	Sinubukan ng bata pero hindi niya naituro ang tamang bahagi ng katawan.	
Kabuuang Puntos				

Interpretasyon:
1-3 Kailangan pa ng pagsasanay
4-6 Magaling
7-9 Napakagaling

The activities should provide experiences that will enable students to engage, practice, and gain feedback on specific outcome/s. Difficulty in basic learning and applying and, knowledge represents a difficulty in one or more of the basic learning processes involved in understanding or using language both spoken and written that may manifest itself in an imperfect ability to listen, speak, read, think, write, spell, or do mathematical calculations.

5.3. Development Phase. The three sets of activities such as *mga bahagi ng katawan, mga tungkulin ng mga bahagi ng katawan at mapangalanan at ituro ang bahagi ng katawan* was provided to the learners through SKPL workbook. Each task contains steps that the learners followed. A set of scoring rubrics was used to assess student performance based upon a specific set of criteria.

5.4. Implementation Phase. As to the implementation of the learning activity sheets to the learner, the researchers with the help of parents encourage them to walk through the process of utilizing the activity by following the step-by-step procedures, activities, and the expected output.

Moreover, SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) were also helpful in order to guide learners the entire process. The researcher also advised parents to use verbal and physical prompts in presenting instructions on identifying the secondary colors with its uses. A set of rubrics and checklists was utilized to gauge how far the learners understood the entire activity. Learners develop mastery as they looked at the guided pictures and instructions using the SKPL.

5.5. Evaluation Phase. The evaluation of the learning activity sheets for non-graded class level 1-self- help skills ***(unawain ang bahagi ng katawan)*** with three sets of activities was very effective since the learners achieved what is expected of them despite the modular distance learning approach. Also, as per the parent feedback, they managed to mark answers in SKPL learning activity sheets instead of on separate answer sheets and dictated to scribe or record oral responses. They also provide a distraction-free environment and manage to reduce visual and auditory distractions with provisions for an extended time and allowing for more frequent breaks.

6. Conclusions

6.1. Development of Future-Proof Learning Materials for Learners with Difficulty in Applying Knowledge

Of the three (3) learners identified, only one (1) graded learner and two (2) non-graded underwent the pre-assessment based on the individual educational plan. The researchers selected self-help skills level 1 activity to carefully provide accommodation such as but not limited to verbal instructions, repetition of instructions, text/instructions in audio-format, larger print, fewer items per page, visual prompts, or cues (e.g., arrow pointing on page), highlighted text, alternative answer sheet and information in songs or poems (e.g., facts, definitions). For assessment procedures (e.g., extended time) that allow students to demonstrate their abilities—not their disabilities—during tests and exams.

The researchers map out the process of how learners will achieve the desired learning objectives for learners with difficulty in applying knowledge. Given the preliminary concepts based on most essential learning competencies for the self-contained/ non-graded program of special education specifically on MELC for children with difficulty in applying knowledge, the learning activity sheet contains the intended content standards, performance task, and the duration of the activity. The objectives were: ***nauunawaan ang mga bahagi ng katawan, natutukoy ang mga bahagi ng katawan at ang tungkulin nito and mapangalanan at maituro ng wasto ang sariling mga parte ng katawan***. The objectives explored the learner's capacity to understand the parts of the body and the role they play.

The researchers also include the SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) booklet to heighten the ability to solve problems with navigation, or with visualization of faces, scenes, and objects. Also, verbal reasoning capacity to connect seemingly disconnected ideas was also highlighted in SKPL book. The three sets of activities such as *mga bahagi ng katawan, mga tungkulin ng mga bahagi ng katawan at mapangalanan at ituro ang bahagi ng katawan* was provided to the learners through SKPL workbook. Each task contains steps that the learners followed. A set of scoring rubrics was used to assess student performance based upon a specific set of criteria.

The rubric consists of the following three components: criteria: the characteristics of performance*;* levels of performance: the degree to which a student is expected to meet a given criterion (3,2,1); and the descriptors**:** specific explanation linked to each criterion and level of performance and the characteristics associated with each dimension. Prior knowledge is also considered in the development of the learning activity sheet. The guided MELC for the Department of Education provided information regarding the target learning outcomes for learners with difficulty in applying knowledge. As to the implementation of the learning activity sheets to the learner, the researchers with the help of parents encourage them to walk through the process of utilizing the activity by following the step-by-step procedures, activities, and the expected output.

Moreover, SKPL (Sistema ng Kumunikasyon sa Pagpapalitan ng Larawan) were also helpful in order to guide learners the entire process. The researchers also advised parents to use verbal and physical prompts in presenting instructions on identifying the secondary colors with its uses. A set of rubrics and checklists was utilized to gauge how far the learners understood the entire activity. Learners develop mastery as they looked at the guided pictures and instructions using the SKPL. The evaluation of the learning activity sheets for non- graded class level 1-self-help skills ***(unawain ang bahagi ng katawan)*** with three sets of activities was very effective since the learners achieved what is expected of them despite the modular distance learning approach. Also, as per the parent feedback, they managed to mark answers in SKPL learning activity sheets instead of on separate answer sheets and dictated to scribe or record oral responses. They also provide a distraction-free environment and manage to reduce visual and auditory distractions with provisions for an extended time and allowing for more frequent breaks.

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