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Exploring Learning Retention of Students in Distance Learning

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Abstract: *The closure of schools as a result of the COVID-19 pandemic has undeniably resulted in a learning loss of great magnitude which consequently attributed for learners to experience significant learning poverty. As patchworks of interventions were made, mainly the utilization of distance learning and in the context of the Philippine basic education system, the use of printed self-learning modules, issues on the quality of the learning process were raised by community education stakeholders. One of the aspects of the learning process that is highly affected by the implementation of distance learning modality is learning retention, or the ability to store new information in a way that will allow one to rapidly recall and utilize it in the future. This study explored how this learning retention is manifested among learners. A qualitative approach was used to conduct this research, specifically the use of content analysis, following the thematic analysis approach in analyzing data gathered through randomly conducted interviews. The results of this research yielded various themes indicating that learning retention among learners is disproportionate across learning areas, varies in depth and breadth, is not evident to most learners, and is attributed to various factors. These results affirm that learning retention in the context of distance learning modality, primarily in the use of learners of self-learning modules, is multifaceted. With these, proposed intervention programs were put forth to implement research-based high-impact learning recovery programs as schools transition to full face-to-face classes.*

Key Words: *Learning Retention, Distance Learning.*

1. INTRODUCTION:

The occurrence of COVID-19 pandemic has forced schools around the world, including the Philippines, to close their doors to protect learners, teachers, personnel, and other stakeholders against the hostile effects of the causative agent of this worldwide health crisis. With its great magnitude, this closure of schools has brought ambiguities in the education sector, especially in its effects on the learning process of its main clientele, the learners.

In the Philippines, with the education sector's executive call to the non-stoppage of the learning process, the basic education community has adapted various forms of distance learning modalities, as embedded in the Department of Education's Basic Education Learning Continuity Plan (DO 12, s. 2020). This was crafted to "respond to basic education challenges brought by COVID-19."

The Schools Division of Passi City tasked also to develop a contextualized learning continuity plan, has opted to use a combination of varied distance learning modalities that are perceived to deliver the learning process effectively and efficiently in the safety and comfort of the respective houses of the learners. The learning modalities implemented in the school's division included the integration of the use of self-learning modules, primarily on printed format, and video-recorded and/or audio-based lessons, in which the latter have been developed locally by a team of teachers across learning areas and grade levels with direct supervision of school's division officials.

As the implementation of the distance learning modalities has progressed, now in its second year, many boons and banes have been observed. On the positive side, the utilization of different distance learning modalities has proven that education can still thrive and continue amidst the fear and struggles related to the pandemic. Learners and teachers have resumed their teaching-learning interactions, though in their modified form – virtual or non-personal. But one just cannot disregard the many skirmishes this learning setup has. Lastly, the use of varied distance learning modalities has highlighted the many problems the basic education sector has, which existed even before the pandemic times. Many learners have struggled in independent learning as they are stocked in their homes and expected to learn on their own.

With this learning setup, many sectors question the quality of learning learners have. Do they really learn something amidst distance learning? How deep does the learning process go? How extensive is it?

The capacity to retain new information such that one may quickly recall it and use it in the future is known as learning retention (Colman, 2021). If the knowledge is not kept, it will stay in the short-term memory for a while before dissipating.

The human brain does forget knowledge relatively quickly. Memory's archenemy is forgetting, as psychologist Hermann Ebbinghaus discovered in the 1880s. When it came to learning and memory, Ebbinghaus was a trailblazer, noticing what is now known as the forgetting curve, which is a gauge of how much we forget over time. In his research, he found that information is swiftly forgotten—roughly 56 percent—without any reinforcement or linkages to earlier knowledge.

To look with depth and vigor at this issue of learning retention vis-à-vis the learning process and struggles of learners, amidst their exposure to distance learning using self-learning modules with video-recorded lessons, this qualitative study was conducted. Specifically, this exploration was conducted to discover the different facets of learning retention coming from the actual point of view of the learners as they thrived in distance learning in the spirit of the continuance of the learning process amidst the COVID-19 pandemic.

2. METHODOLOGY:

Participant Selection: This study utilized stratified random sampling in the selection process of research participants. According to DeYoreo (2018), stratified random sampling is a method for sampling from a population whereby the population is divided into subgroups, and units are randomly selected from the subgroups. In the context of this research, the population of learners was divided into three groups according to their learning performance/profile, i.e. above-average, average, and below-average. From these groups, samples were randomly selected. Three participants came from the above-average group, four participants came from the average group, and the last three came from the below-average group, which resulted in a sample size of 10. Research participants across groups were randomly selected from various grade levels coming from various schools. The distribution of participants is shown in the table below.

Table 1. Distribution of participants across grade levels and performance profiles

Profile	Grade Level										Total
	K	1	2	3	4	5	6	7	8	9	
Above-Average	1		1				1				3
Average		1			1	1				1	4
Below-Average				1				1	1		3

Relationship with Participants: This research was conducted with learners in the Schools Division of Passi City as primary participants. The primary interviewers in this research are the teachers to establish "closeness" with the participants. This is to make sure that data gathered from participants are of quality, rich, and authentic. This was made to assure that the data gathered truly reflected the state of learning and learning retention of learners in the school's division.

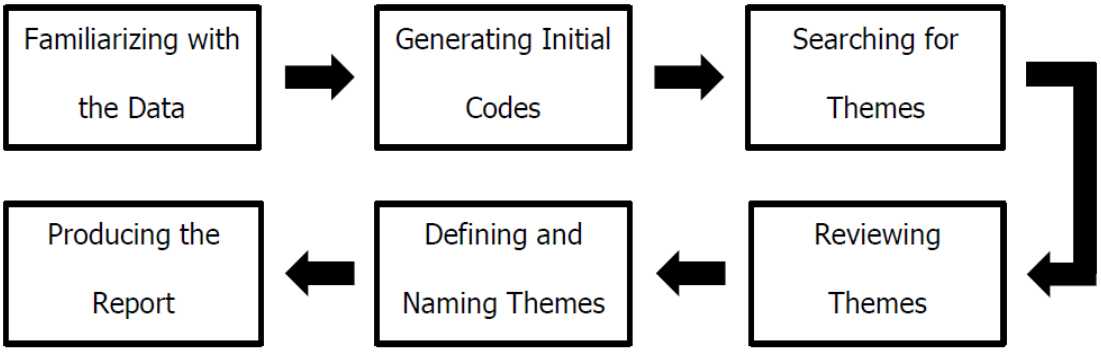
Methodology: This research primarily used content analysis as the primary methodological orientation. According to Haggarty (2009), content analysis is a research method that allows the qualitative data collected in research to be analyzed systematically and reliably so that generalizations can be made from them about the categories of interest to the researcher.

To manage the data collection, a division-wide effort on gathering data with the use of an instrument developed by the school's division office was conducted face-to-face. Data collection was collated across three performance levels of learners: (1) below-average learners, (2) average learners, and (3) above-average learners.

Data Collection: This research used an interview guide enclosed in Division Memorandum No. 46, s. 2022 re: The Status of Retention Level among K to 12 Learners in SDO Passi City. The interview was recorded through manual note-taking following the format of the interview guide. The interview session per learner has a duration of at most 20 minutes per learner-participant.

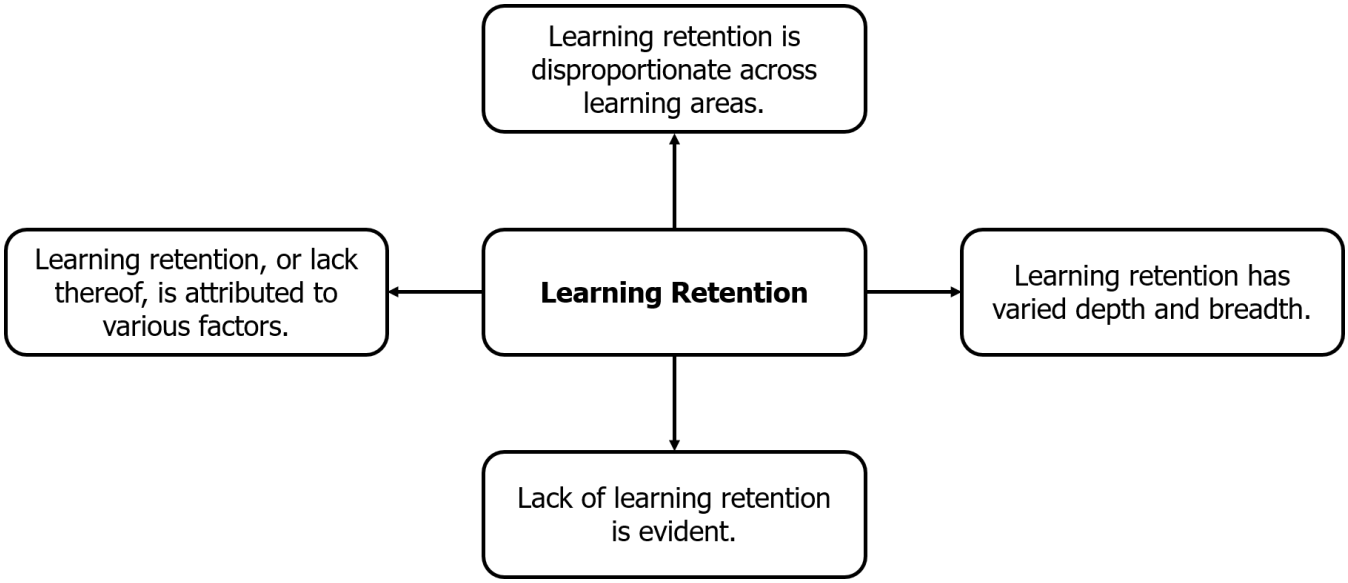
Data Analysis: The primary qualitative data analysis procedure used in this research was thematic analysis to analyze qualitative data gathered on learners' retention of learning in the SDO Passi City. Braun and Clarke (2006) described the thematic analysis as a method for identifying, analyzing, and reporting patterns in the form of themes within data. It organizes and describes available data sets in rich detail. King (2004) suggested that thematic analysis is an effective technique for comparing and contrasting the views of various research participants and for producing unexpected insights. Themes were generated from data from the interviews of participants.

The steps in the thematic analysis are shown in the figure below.



3. RESULTS AND DISCUSSION:

The analysis of gathered interview transcripts using content analysis, specifically thematic analysis, on the learning retention of learners amidst distance learning, has resulted in various themes which included the following: (1) perceived retention of learning is disproportionate across learning areas, (2) retention of learning has varied depth and breadth, (3) lack of learning retention is evident, and (4) learning retention, or lack thereof, is attributed to various factors.



Perceived retention of learning is disproportionate across learning areas.

Frequency count was conducted to determine how frequently learning areas are mentioned when learners are asked about the learning area they can remember engaging in within the last 24 hours. Learners perceive that they have retained their learning more in the languages (*f=9*) and STEM-related learning areas (*f=9*) than in others.

Table 2. Frequency of learning areas where there is perceived learning retention

Learning Areas	Frequency
Languages (English and Filipino)	9
STEM (Science and Mathematics)	9
TLE/EPP	3
MAPEH	2
EsP	1

For science and mathematics, the perceived learning retention may be attributed to the inquiry-based nature of these learning areas. Schmid (2015) has shown through a quasi-experiment that inquiry-based science teaching, through matching hands-on experiments, learning about the theoretical background of these experiments, describing observations, and formulating explanations, has resulted in a significant short-term and a long-term increase in knowledge scores after 6 weeks. When assessed 12 weeks later, students maintained the same level of content understanding, proving that they had not forgotten anything from the previous 6 weeks. Despite the absence of actual classroom-based inquiry-based learning tasks, it can still be surmised that the distance learning modality in science and mathematics did not lose its inquiry-based characteristics that are embedded in the different learning tasks in the self-learning modules.

In other learning areas, and in general per se, to achieve long-lasting knowledge students need to be given demanding learning goals. It is quite an effort to create learning environments that are more than lecture talk and more than discovery learning. Students need directions and the possibility to think for themselves (Blank, 2000). These properties of learning are surely integrated into the language learning areas, the different interactive tasks, often requiring constructed responses, result in better learning retention among learners.

Retention of learning have varied depth and breadth.

The analysis of the data gathered showed that learners have a different manifestation of learning retention. Learning retention among learners ranges from mere remembering of the topic last studied to be able to expand and give examples of the lesson or concept remembered. Learning retention may be described in various scales which included (1) learning retention with substantial depth and breadth, (2) learning retention with very limited depth and breadth, (3) inconsistent depth and breadth of learning retention across learning areas per learner, and (4) insignificant or tangential learning retention.

Most of the average and above average learners exhibited retention of **learning with substantial depth and breadth** in which some of them were able to expand their learning through explaining the concepts and/or giving examples as asked. One learner is asked what he/she knows about a concept he/she remembered, that is about pronouns, in which that learner was able to give examples of it, e.g. he and she, and further answered that "she [is] for girl and he [is] for the boy." There is also another learner who was able to have learning retention in mathematics on basic shapes and was able to apply this learning to another context, i.e. relating the heart shape to symbolize love. Lastly, some learners can confidently retell the content of the lesson, especially when it regards learning stories in Filipino. One learner was asked "*Sin-o ang nag kadto sa Manila kag nga-a*?" [Who went to Manila? Why?], and the learner answered, "*Si Paul naga obra sa Manila, kag naga eskwela*" [Paul went to Manila to work and to study]. These examples show that there are learners who can manage to learn independently amid the implementation of the distance learning modality.

But learning retention as detailed as shown in the examples above is not that evident across learners. Instances in the data gathering have shown **learning retention with very limited depth and breadth**. Some learners interviewed about their learning mentioned only either the topic or the specific concept without the capacity of expounding this. This also includes learners mentioning the learning activities done without knowing the nature of such activities or some of the learners which cannot identify the concept but can name parts of it. One learner mentioned that he/she learned about mathematics. When asked what he/she has learned, the learner mentioned numbers and following it up and asked about

what he/she has learned about numbers, the learner delimited his/her answer by mentioning "30" without supporting it, and lastly when asked to recite the numbers more "30", the learner only mentioned "41" without further backup.

Inconsistent depth and breadth of learning retention across learning areas per learner are also evident. Learners who have mentioned multiple learning areas in which they perceive to have learning retention have shown inconsistent learning retention in reality. These learners may have shown learning retention with depth and breadth in some learning areas but not in other learning areas. An example of this is the learner who mentioned that he/she has learned something in English, Filipino, and Mathematics but when asked what he/she has learned in these learning areas, the learner was able to correctly mention his/her learning in English (i.e. pronouns – she and he) and Mathematics (i.e. multiplication – 5 x 10 = 50), but when asked about his/her learning in Filipino, the learner just dismissed it saying, "*Nalipat ko* [I forgot]". This scenario is also exhibited in the response of another learner in which he/she was able to express his retained learning in Filipino (i.e. reading a story) and English (Fact or Bluff activity) but not in *Edukasyong Pantahanan at Pangkabuhayan*, with him/her saying "*Waay ako kadumdum* [I do not remember]".

The last form of **learning retention** exhibited among learners **is described as insignificant or tangential**. This learning retention does not show any depth and breadth. Learners demonstrated this learning retention by just mentioning the learning area but cannot say the learning he/she had or the learner can mention the topic but has no idea about it. An example of this is shown in one learner who mentioned that he/she has learned about "plus or minus" but when asked what he/she can remember about it, the learner was not able to answer it and seemed not to know the answer. This was also revealed in another learner who mentioned mathematics as the learning area in which he/she has learning retention but when asked the follow-up questions, no response was given.

Lack of learning retention is evident.

The absence of learning retention amidst distance learning is evident as shown in the data gathering and analysis. Students, in this case, may mention a learning area that they perceive to have learning retention but when asked what learning is this, the typical response would be "*Indi ako kadumdum* [I cannot remember]" or no response at all.

The lack of learning retention in the implementation of distance learning through the use of self-learning modules may be attributed to the concept of the "Learning Pyramid."

Studies have shown that varying learning methods and materials will improve retention and recall of information, and enhance your learning experience (*The Learning Pyramid*, n.d.). The "learning pyramid", sometimes referred to as the "cone of learning", created by the National Training Laboratory, implies that most students only recall roughly 10% of what they study in textbooks but over 90% of what they teach others. The Learning Pyramid model suggests that some methods of study are more effective than others and that varying study method will lead to deeper learning and longer-term retention.

In this context, since most of the activities in the self-learning modules of learners involve reading and presentation of visuals, through pictures and graphics, learning retention is least expected, and in the perspective of using printed modules in distance learning, many learners manifested no learning retention at all.

Learning retention, or lack thereof, is attributed to various factors.

The qualitative data analysis has shown some of the factors which can be attributed to the varying rates of learning retention, and subsequently its absence. Among the factors identified included the following are related into the following aspects: (1) the self-learning module, (2) the nature of the learner, and (3) the more knowledgeable others (MKOs).

The result of the analysis presented that student learning retention is affected by their understanding of the learning modules. Learners find the content of their learning modules to be, most of the time, difficult. They also take into consideration the aesthetic of the self-learning modules. One of the entries in the data transcripts indicated that "modules were not so attractive, lacked details, and difficult to comprehend." This shows that the "attractiveness" of modules is perceived to affect the retention of learning. According to Leverage Edu (2021), one of the good characteristics of teaching-learning material, including printed modules, is that should be appealing to the learners. It added that "size, shading, development… are a portion of the properties of the materials which allure students." There is also a perception that the self-learning modules lack details that can support the retention of learning.

On the aspect of the learners, varied traits of learners primarily affect the rate of learning retention. Lack of learning retention is perceived among slow readers. On this note, it is apparent that the reading ability of learners may directly affect their learning retention. The WGBH Educational Foundation, in 2002, expressed that one of the tasks in reading is retaining, or remembering, what has been read. Learners must be able to organize and summarize the content and readily connect it to what they already know (*Misunderstood Minds . Basics of Reading| PBS*, n.d.). Reading retention enables students to store knowledge in their long-term memory and use it later on. But aside from reading

ability, motivation is also a factor in learning retention as shown in qualitative data analysis. Learners with intrinsic motivation tend to have better learning retention. In one of the anecdotes, it says, "the learner understands that she needs to study well despite the hard work to become successful." The learner to whom this anecdote was made has shown significant learning retention in some learning areas.

Lastly, one key factor that is attributed to the learning retention of learners is the role of the MKOs (more knowledgeable others). According to one of the narratives analyzed, learners with low learning retention to none at all are perceived to need tutorials and direct instruction from the teacher. More so, there is also a thread that indicates the value of the role of parents [and other family members] in following up on learning at home. This is shown in examples where learning retention, specifically on learning tasks done, is facilitated with the support of members of the family. In one of the narratives, the learner was able to retain his/her learning in the TLE on the preparation of salad and sandwich by relating his/her experience with the help of his/her family members as shown in this conversation: Question: *Sino upod mo nga naghimo ka salad, sandwich*? [Who helped you make the salad and sandwich?]", Answer: *Magurang ko, kag tana man nag-video kag nag-picture kanakon.*[My elder sibling. He/She also took the video and picture of me (while preparing the salad and sandwich).]. This scenario highlighted the role of family members in learning and learning retention. This is indicated in the work of Weiss, Bouffard, Bridglall, and Gordon (2009) which explained that more than forty years of accumulated research suggested that family engagement is among the strongest predictors of student performance.

4. CONCLUSION:

With the emergence of the different themes on learning retention of learners in the implementation of distance learning in the Schools Division of Passi City, it can be concluded that learning retention is multi-faceted, especially in the context of the use of printed self-learning modules. The use of self-learning modules resulted in different levels of learning retention, with a perceived bias to some learning areas. More so, learning retention is greatly affected by the quality of the learning modules, the qualities of the learners, and the support of MKOs.

5. PROPOSED INTERVENTIONS :

Based on the findings achieved and conclusions derived, the following interventions are proposed as part of the Basic Education – Learning Recovery and ContinuityPlan (BE-LRCP):

1. On disproportionate learning retention across learning areas, there is a need to review the cause of this disparity such that no learning area will be left behind in the learning process. It is a fact in the implementation of distance learning that some learners disregard some learning areas for various reasons, thus far to be identified, but may include firstly the improvement in the self-learning modules and production of relevant supplementary learning materials. From this, a proper intervention plan can be crafted that will truly address the issue.

2. The learning experiences of learners embedded and outlined in self-learning modules should adhere to sound educational pedagogies to ascertain learning retention that is not only tangential but extensive, with depth and breadth. As the famous adage would say, "Little learning is a dangerous thing." One of these is what is inscribed in the basic canons of the "Learning Pyramid", which in spirit is a composite of the other time-tested pedagogical models. At its core, learning activities, across learning areas, should be always highly interactive to establish efficient learning retention. As noted in the interviews, learning retention among learners came from learning activities in which the learners have done something, beyond directly reading and answering the self-learning modules.

3. The services of the learned individuals at home or in the immediate neighborhood should be solicited as "force multipliers" in this fight for lack of learning retention and the general problem of learning poverty of learners due to the disruption in the education sector of the pandemic.

The COVID-19 pandemic may soon be resolved as the scientific and medical community continue to look for methods and solutions but another pandemic is peeking, the global crisis on learning poverty if no interventions will be crafted and implemented and we are not only looking for simple interventions – these should include "high-impact learning recovery programs" (Cho, Kataoka, and Piza, 2021) which may be based on assessments of individual students' learning levels.

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