

Modular Learning in Times of Pandemic: Elementary Teachers' Commitment and Learners' Performance

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Date Submitted: January 2, 2024

Date Revised: January 14, 2024

Date Published: January 17, 2024

Originality: 87%

Grammarly Score: 83%

Similarity: 13%

Recommended citation:

Nagdapanan, M., & Nagdapanan, J. (2024). Modular learning in times of pandemic: elementary teachers' commitment and learners' performance. *Journal of Interdisciplinary Perspectives*, 2(2), 42–50. <https://doi.org/10.69569/jip.2024.0021>



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ABSTRACT

This quantitative, descriptive-correlational study was conducted among 50 completely enumerated teachers handling the modular learning of pupils in the public elementary schools of Arakan North District, Cotabato, Philippines. It utilized weighted mean, Pearson r, and multiple regression to analyze their commitment level; their pupils' performance level; and the relationship and influence of teachers' commitment on the pupils' performance, respectively. The results revealed a significantly high relationship between the delivery of learning materials and pupils' performance, and between retrieval of learning materials and pupils' performance. Also, there was a significant relationship between the provision of learning materials and pupils' performance, and between the reproduction of learning materials and pupil's performance. Overall, teachers are encouraged to continue their committed nature; sustain and enhance the spirit of volunteerism; and be prompt in the distribution and collection of self-learning materials. Implications of modular learning in basic education, even in post-pandemic times, were given importance and discussed comprehensively.

Keywords: modular learning; teacher's commitment; pupils' performance.

Introduction

With the occurrence of the COVID-19 pandemic, almost 200 countries have shut down schools affecting approximately 90% of pupils from kindergarten to university (Huck & Zhang, 2021; UNESCO, 2020). This temporary school closure limited the transmission of outbreaks (Cowling, 2020; Garbe et al., 2020; Tadesse & Muluye, 2020). However, this had a significant impact on students, their families, and their instructors' everyday lives. This fast shift took many instructors, families, and students off guard, resulting in some difficulties and obstacles in increasing parent participation in various levels and types of remote learning of their children, such as: online, e-education, and e-learning (Alsayed & Althaqafi, 2022; Mahyoob, 2020; Nafisah, 2018).

The lack of financial resources (Hohlfeld, 2010), internet access (Hollingworth, 2011), motivation to use technology (Beckman, 2019), and low digital self-efficacy (Povey, 2016) were some of the problems that may limit parental involvement in remote learning environments. Several studies revealed that distance education permits all or most of the teaching to be done by someone who is physically separated from the learner, and their communication takes place through electronic or print media (Anderson & Rivera-Vargas, 2020; Saykili, 2018; UNESCO, 2015). Many countries and their people have a positive reception of this new mode of teaching and learning (Altawalbeh & Al-ajlouni, 2022; Gilbert, 2015; Malaysian Qualification Agency, 2011). However, this remains inaccessible to many teachers and learners, especially in many parts of Southcentral Mindanao, Philippines.

When looking at the elements that influence a student's success in any educational institution, there are two main components to look at – there are both individual and institutional influences at play. Individual factors include the learner's interest, attitude, ability, social economic status, gender, and other personal traits. The availability of

materials, the teacher's demeanor, and his or her competency are all factors that the institution considers (Ozcan, 2021; Masud et al., 2019; Rugutt & Chemosit, 2005). Thus, this study was conducted to determine teachers' commitment to the modular learning and performance of pupils in Arakan North District, Cotabato, Philippines, specifically addressing the following questions: what is the level of teachers' commitment to the provision of learning materials, reproduction of learning materials, delivery of learning materials, and retrieval of learning materials?; what is the level of pupils' performance on modular learning strategy?; what is the relationship between teachers' commitment on the modular learning and the pupils' performance?; and is there a significant influence by the teachers' commitment on modular learning to the pupils' performance?

Methodology

Research Design

All features of the research are held together by the quantitative research methodology used in this study – the descriptive-correlational approach. It demonstrates how all the research's primary components work together to meet the problem's statement (Kothari, 2006). The independent variable of the present study is composed of the teachers' commitment to modular learning, in terms of the provision, reproduction, delivery, and retrieval of learning materials, while the dependent variable consists of the student performance in the first and second quarters of School Year 2020-2021.

Research Locale

The researchers carried out this study among the public elementary schools under the Arakan North District, for the School Year 2020-2021. This northernmost municipality of Cotabato Province is a 69,322-hectare, first-class municipality that has mostly mountainous terrain. Of its 28 barangays, ten (10) are under the Department of Education Arakan North District: Anapolon, Binoongan, Datu Mantangkil, Katipunan, Napalico, Datu Ladayon, Gambodes, Kabalantian, Kulaman Valley, and Sumalili (Department of Interior and Local Government, 2013).

Research Participants

Fifty (50) teachers from ten selected public elementary schools of the aforementioned district participated in the study for the school year 2020-2021. They are the teachers who facilitated the provision and reproduction of modules, and the delivery and retrieval of the same to and from the learners, their parents, and/or in the designated dropping stations. To obtain the total samples of respondents in the study, the researchers used complete enumeration (Efron, 1982) of the 50 teachers from different schools of DepEd Arakan North District who served in the modular teaching-learning during the COVID 19 pandemic.

Research Instrument

The researchers patterned, changed, and adapted some elements of the study instrument from Johnson (2012). They also used Cronbach's Alpha reliability test to evaluate the checklist, which yielded a score of 0.861 ("Good Coefficient"). The questionnaire included the following parts: Part I looked at how committed teachers are to providing learning resources, reproducing learning materials, delivering learning materials, and retrieving modules. Part II was created to collect data on the students' performance in the first- and second-quarter evaluations based on mean percentage scores (MPS).

Data Gathering Procedure

The researchers wrote a letter expressing their desire and requesting permission to perform the study. This letter was sent to the Arakan North District Schools District Supervisor for approval. They forwarded a copy to the elementary school heads after receiving approval from the District School Supervisor. They handed out the survey questionnaires to the target respondents. Finally, they collected the questionnaires and thanked the respondents for their time.

Data Analysis

To analyze and interpret the data acquired, this study used descriptive statistics (Kaur et al., 2018). The weighted mean was the technique being utilized in the analysis of teachers' commitment to modular learning of pupils (provision, reproduction, delivery, and retrieval of learning materials). Still, weighted mean was used to assess students' performance in terms of Mean Percentage Scores (MPS) for the first and second quarters of the S.Y. 2020-2021 school. Pearson Product Moment Correlation/Pearson r (Pearson, 1908) was the instrument used to determine the degree of relationship between the teachers' commitment to modular learning and the academic performance of the students. To examine the impact of instructors' dedication on students' academic performance, multiple linear regression (Pearson, 1908) was utilized.

Ethical Consideration

In this study, the researchers followed ethical procedures (Hammersly & Traianou, 2012) by processing the gathered data in strict privacy (Strydom, 2011) to protect the respondents' personal information and identifiable qualities. Also, they made sure that the data were not altered, which could affect the results. The teacher-respondents were knowledgeable about the study and partook freely rather than being pressed or compelled (Thackray, 2018). The researchers also followed the five important principles of ethical research—beneficence or no harm to participants (Bless & Higson-Smith, 2000); confidentiality of data shared; anonymity of research respondents; and reciprocity (Halai, 2006) – the teachers were free to partake (or not) or pull out from the study (at any time) without consequence for whatsoever reason, including uneasiness, embarrassment, etc. The researchers also established trust with the respondents, and they made clear that the answers would not be shared with anyone else (Hammersley & Traianou, 2012). Additionally, before starting this research, the researchers followed the stipulated criteria and avoided plagiarism. If the data were erroneous, it was the responsibility of the researchers to fix it. Additionally, as researchers, they correctly referenced the authors who provided quotes for this study. After the survey was finished, they gave some souvenirs to the respondents to show their sincere appreciation for their support in the study.

Results and Discussion

Level of Teachers' Commitment

The teachers' commitment to the modular learning of pupils is shown in the following tables, which include the provision, reproduction, delivery, and retrieval of learning materials.

Provision of Learning Materials

The teacher's commitment to providing their pupils with learning materials (Table 1) obtained an overall mean of 4.62, which means that they were highly committed to this function. Since most of the materials were made available by DepEd online, the teachers accessed them regularly on the internet using laptops, cellphones, or other devices, and would even spend for internet WiFi load even in places with weak signals. The results imply that the teachers maintained a high degree of commitment despite the different limiting factors that may have hindered them in the delivery of a modified learning system during the time of the world pandemic. Before COVID-19, sufficient teaching-learning resources were available in the respective workplaces of these teachers. Truly, teachers' commitment to their work has been proven during the time of pandemic. When most people were staying at home, trying to avoid the virus, the teachers were at the forefront of providing the printed modules needed by the learners during the pandemic (Gatus & Vargas, 2022; Tugano et al., 2022).

Table 1: Teachers' commitment to the modular learning of pupils in terms of provision of learning materials

Statements	Mean	Description
1. Acquisition of an internet device for accessing learning materials.	4.70	Highly committed
2. Acquisition of a laptop to access learning materials regularly.	4.64	Highly committed
3. Acquisition of a cellphone with high specs for faster access to links.	4.52	Highly committed
4. Finding ways to access Wi-Fi signals in case of weak signals.	4.58	Highly committed
5. Willingness to spend for internet Wi-Fi load.	4.64	Highly committed
Weighted Mean	4.62	Highly committed

Reproduction of Learning Materials

When it comes to the reproduction of learning materials (Table 2), the teachers are highly committed to doing their job as shown by the mean score of 4.66.

Table 2: Teachers' Commitment to the Modular Learning of Pupils in terms of Reproduction of Learning Materials

Statements	Mean	Description
1. Acquisition of personal printer for immediate reproduction.	4.70	Highly committed
2. Willingness to spend personal resources for the reproduction of learning materials.	4.44	Highly committed
3. Spending countless times in packing of learning kit.	4.64	Highly committed
4. Willingness to work behind official time to finish reproduction ahead of delivery schedule.	4.72	Highly committed
5. Willingness to cope with printing the needed number of copies.	4.82	Highly committed
Weighted Mean	4.66	Highly committed

This is proven by their willingness to print the needed number of copies even beyond official working hours just to finish reproduction ahead of the delivery schedule. They also make use of their resources to reproduce the materials and learning kits. These teachers, if not all, have meager salaries but still use their resources for the reproduction of learning materials. The limited budget allocation from the Department of Education does not deter them from providing what their learners need in this time of the COVID-19 pandemic. These results agree with the findings of Galano (2021), Alea et al. (2020), and Malipot (2020) when they explained that teachers were able to prepare printed materials during the pandemic but had to surmount difficult levels of preparation.

Delivery of Learning Materials

The teachers' commitment to the modular learning of pupils in the delivery of learning materials was rated 4.64 (see Table 3), which means that the teachers were highly committed to this academic function. Specifically, they are highly committed to the timely delivery of materials even in far-flung areas/sitios, making sure that these are well accounted for before and after reaching the target learners. As they do that, they spend their money/fuel on an organized delivery of modules. It could be surmised that these humble government workers are going the extra mile, even beyond their call of duty. Unlike other places where the learners could be easily reached through home visitation, the rugged and mountainous areas of Arakan North District make all forms of transportation hard and sometimes barely possible. Truly, even if the distribution of learning materials during the COVID-19 pandemic was difficult for teachers (Hidalgo, 2022; Agayon et al., 2022) they still stayed true and committed to their work.

Table 3: Teachers' commitment to the modular learning of pupils in terms of delivery of learning materials

Statements	Mean	Description
1. Distribute the module on time and without delay.	4.72	Highly committed
2. Follows the prescribed time to deliver the modules to the learners, their parents, or to the assigned dropping stations.	4.50	Highly committed
3. Keeps record of all distributed modules.	4.64	Highly committed
4. Spends money/fuel for the delivery in every purok.	4.64	Highly committed
5. Bring learning materials even in far flung areas/sitios.	4.68	Highly committed
Weighted Mean	4.64	Highly committed

Retrieving of Learning Materials

The overall mean of teachers' commitment to the modular learning of pupils in retrieving learning materials was rated at 4.64 (see Table 4). In particular, they are highly committed, considerate, and understanding to receiving delayed learners' output and learning kits with damage. The teachers spend countless time retrieving and keeping records of all materials. It implies, therefore, that teachers in Arakan North District are highly committed to retrieving learning materials and are willing to wait and accommodate learning modules even those with some discrepancies. They are aware that their learners come from far-flung places, where coming to school on foot is the normal scene, and riding a vehicle is unusual. On one hand, retrieval of the printed materials was demanding and posed many challenges (Boholano et al., 2022) for the teachers. On the other, it developed their intrapersonal and professional skills by becoming considerate, flexible, and patient even in the most unfavorable conditions amid the pandemic (Lagrio et al., 2022).

Table 4: Teachers' commitment to the modular learning of pupils in terms of retrieval of learning materials

Statements	Mean	Description
1. Retrieval of self-learning module from the learners, their parents, or from the assigned dropping station.	4.56	Highly committed
2. Spending countless time in the retrieval of modules from the learners, their parents, or from the assigned dropping station.	4.66	Highly committed
3. Keeping a record of all retrieved modules from the learners, their parents, or from the assigned dropping stations.	4.48	Highly committed
4. Willingness to receive delayed learners' output.	4.78	Highly committed
5. Giving consideration and understanding returned the damaged learning kit.	4.74	Highly committed
Weighted Mean	4.64	Highly committed

Pupils' Performance on Modular Learning

Pupils' academic performance, under the modular learning setup, for the first and second quarters of the school year 2020-2021, is presented in Table 5. The mean grade of the elementary pupils of Arakan North District is 83.18% which is at the 'satisfactory' level. For the first quarter, their mean grade was 83.82%, and this was slightly improved

in the second quarter with their mean grade of 83.50% which is described as ‘satisfactory’. Generally, it could be said that during this time of the pandemic, when flexible, online, and modular learning is implemented by the Department of Education, the pupils from Arakan North District are on the average cognitive level based on their MPS rating for the first and second quarters of the School Year 2020-2021. The results mirror the numerous challenges during the pandemic that affected the academic performance of students to varying degrees (Acheampong, 2023; Mahdy, 2020).

Table 5: Pupils’ performance on modular learning

Quarter	Mean	Description
First Quarter	83.18%	Satisfactory
Second Quarter	83.82%	Satisfactory
Mean Percentage Score (MPS)	83.50%	Satisfactory

Relationship between the Teachers’ Commitment and Pupils’ Performance

Provision of Learning Materials and Pupils’ Performance

The correlation matrix in Table 6 discloses that the teachers’ commitment to modular learning has a significant relationship with the provision of learning materials ($pr = 0.244^*$, probability = 0.014) on the pupils’ performance. Therefore, the hypothesis is rejected. This implies that when learners are provided with appropriate learning materials, their academic performance will greatly improve. This positive correlation shows that when teachers provide varied and interesting learning materials that are appropriate for this time of pandemic, the performance of the pupils also be boosted as shown in the slight improvement of the grades for the first and second quarters of the current year.

It is therefore important that the teachers stay committed to providing and delivering modular learning to their learners who are officially enrolled for the current school year. Truly, public elementary school teachers who served as the respondents of the study have shown profound dedication to providing their poor pupils with learning materials that were downloaded from the portal of the Department of Education. They ought to do this even if there are many and varied challenges (i.e. limited to virtually “nothing” internet connection, very limited access to cellphone signals) that they have to go through before these materials can be given to the pupils. In reality, the provision of modular learning materials helps students to actively participate in learning the concepts. Also, they develop a sense of responsibility to complete the modular tasks with or without help from others as they figure out how to learn on their own (Nardo, 2017).

Reproduction of Learning Materials and Pupils’ Performance

The results reveal that teachers’ commitment, in terms of reproduction, has a significant relationship with the pupils’ performance ($pr = 0.223^*$, probability = 0.025). There is a low correlation with the indicators included in the study. Therefore, the hypothesis of the study is rejected. The implication of this low correlation is that when teachers reproduce materials it slightly awakens the interest of the learners, and thus their grades would be improved very minimally. It is, therefore, important that the learning materials being reproduced have readable prints, visible letters, illustrations, quality paper, or even colorful pages if it is doable. Most public schools reproduce their learning materials in black and white, using thin newsprints. It may very well explain the low correlation between the two indicators.

Needless to say, despite the limitations mentioned above, teachers from public elementary schools are some of the most keen and innovative professionals. They would find ways of doing things even if these are almost close to impossibility. As with the reproduction of learning materials, even if there is an insufficient budget allocation from the government, they would spend their own money, use their resources, and acquire personal gadgets and equipment that are meant to be used for the reproduction of activity sheets and modules. Most of the time, these personal expenses are either refunded minimally or not refunded at all. But that does not deter their dedicated spirit, they continue to serve the learners, especially the underprivileged and less fortunate ones. The trend above seems very common since the academic performance of learners was affected at different levels during the implementation of modular learning mechanism during the COVID-19 pandemic (Dargo & Dimas, 2021).

Delivery of Learning Materials and Pupils’ Performance

The correlation matrix in the same table, further reveals that the teachers’ commitment, in terms of delivery of learning materials, has a highly significant relationship to the pupils’ performance ($pr = 0.294$, probability = 0.003), therefore the hypothesis of the study is rejected since the probability value is less than 5% and 1% level of significance. This is an implication that if the teachers could sustain their commitment to the delivery of learning materials, it is expected that the quarterly grades of their pupils would also improve. Commitment to the delivery of learning materials would mean earlier delivery or at least no delays in bringing the modules to their respective destinations.

Aside from that, a better delivery system also means that these teachers make sure that they have organized time to deliver the modules to the learners, their parents, or to the assigned dropping stations where they can easily dispatch the learning materials. In the same manner, the parents of the children are aware of the time for pick-up and fetching of the learning materials for their children. As posited by Huch and Zhang (2021) and Asgharzadehbonab et al. (2022), a better and improved delivery system could allow learners to improve their academic performance and enjoy remote learning.

Retrieval of Learning Materials and Pupils' Performance

The results indicate a highly significant relationship between the retrieval of learning materials ($p = 0.285^{**}$, probability = 0.004) and the pupils' performance. With a probability value that is lesser than a 1% level of significance, the hypothesis of the study is rejected. This goes to show that when the teachers and schools implement a better retrieval system, the students perform better in their studies. The fact that the teachers collect the learning materials in a timely and efficient manner, encourages the pupils, their parents, and guardians to perform better in modular learning. There was no problem with the retrieval system that the teachers had implemented. However, several factors could affect the recovery of learning materials during a pandemic, such as the distance of the learners' residences (Bustillo & Aguilos, 2022), and the limited time for the learners to finish all the modules (Olivo, 2021).

Table 6: Correlation matrix showing the relationship between the teachers' commitment and the pupils' performance

Teachers' Commitment	Pupils' Performance
Provision of Learning Materials	Pearson r (0.244*); Probability (0.014); N (100)
Reproduction of Learning Materials	Pearson r (0.223*); Probability (0.025); N (100)
Delivery of Learning Materials	Pearson r (0.294**); Probability (0.003); N (100)
Retrieval of Learning Materials	Pearson r (0.285**); Probability (0.004); N (100)

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

Influence of the Teachers' Commitment on Pupils' Performance

The teachers' commitment, in terms of the provision, reproduction, delivery, and retrieval of learning materials, does significantly influence the pupils' performance (Table 7). Specifically, the data on the provision of learning materials (t-value = -0.073, probability = 0.942^{ns}); the reproduction of learning materials (t-value = 0.712, probability = 0.478^{ns}); the delivery of learning materials (t-value = 0.981, probability = 0.329^{ns}); and the retrieval of learning materials (t-value = 0.642, probability = 0.523^{ns}), have probability values that are greater than the set of 5% level of significance; therefore, the stated hypothesis is accepted.

Further, it could be viewed that teachers' commitment obtained $R^2 = 0.099$ which means that only about 9.9% of the pupils' performance is due to the teachers' commitment and the remaining 99.91% could be attributed to other factors that are not included in this study. It is therefore understood that the teachers' commitment alone would not be enough to influence or be directly or indirectly related to the pupils' performance. There may be other factors that could be considered, such as but not limited to the following: the pupils' interest in studying under the new normal (Capinding, 2022); the parents' support (Malabarbas et al., 2022); the availability of books and online references (Anzaldo, 2021); the intrinsic ability of the pupils to learn (Meşe, E. & Sevilen, Ç. (2021); and others.

Table 7: Influence of the teachers' commitment on pupils' performance

Teacher's Commitment	Coef. B	Std. Error	t - value	Probability
(Constant)	75.603	2.764	27.352	0.000
Provision of Learning Materials	-0.070	0.962	-0.073	0.942 ^{ns}
Reproduction of Learning Materials	0.374	0.526	0.712	0.478 ^{ns}
Delivery of Learning Materials	0.807	0.822	0.981	0.329 ^{ns}
Retrieval of Learning Materials	0.592	0.923	0.642	0.523 ^{ns}

Note: $R^2 = 0.099$, Probability = 0.040, F - Value = 2.612, ns = not significant

Conclusions

The research explored the association between teachers' commitment and pupils' modular learning in public elementary schools in the Arakan North District. Indeed, it is concluded that the learners have average academic performance (satisfactory level); that the teachers' commitment to deliver and retrieve learning materials is related to the pupil's performance; and that the way they handled the provision and reproduction of learning materials have greatly contributed to the pupils' performance. Overall, the significant relationship between the variables mentioned are considered to have the biggest contributions and best predictors of the study. However, the present study was not

able to document and take into account the lived experiences of the teachers or other stakeholders (i.e. parents and guardians) involved in the modular learning of the elementary learners. This could be a promising researchable area, post-pandemic times.

Contributions of Authors

The authors confirm the equal contribution in each part of this work. All authors reviewed and approved the final version of this work.

Funding

This work received no specific grant from any funding agency.

Conflict of Interests

All authors declare that they have no conflicts of interest

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