



What Behaviors “Strategic Teachers” Did for Pandemic-Era Modular Learning?

An Exploratory Study with Basic Education Teachers in the Philippines

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Abstract

At the height of the pandemic, the Department of Education (DepEd) in the Philippines distributed self-learning modules to basic education students as part of its learning continuity program. This practice may have brought stress and challenges to many teachers, but this has also become a catalyst for creative problem-solving. This current study was designed to identify adaptive behaviors that were perceived to characterize “strategic teachers” in the midst of modular learning at the time of the pandemic. To address this objective, 120 statements were generated from narratives of four focus groups ($N = 20$ teachers). After content validation, 48 statements were retained and were administered to 429 basic education teachers ($\text{Mean}_{\text{age}} = 31.024$; $\text{SD}_{\text{age}} = 7.466$) through Google Forms. Exploratory factor analysis was done to analyze the data. Results revealed two subsets of teachers behaviors: 1) motivating students (“Establish good relationships with students by creating a non-threatening classroom environment”), and 2) using alternative delivery modalities (“Video-record lectures for students to watch”). These findings indicate that delivering student learning and managing academic motivation, related to key domains of the Philippine Professional Standards for Teachers (PPST), are necessary, hence shall serve as priorities for capacity building and enhancement training programs towards better basic education schools in the post-COVID world.

Keywords: Teacher Behaviors, Basic Education, Exploratory Factor Analysis, Modular Learning, Post-COVID

Introduction

The COVID-19 pandemic may have been a time of threats to physical health and serious mental health challenges (Oducado et al., 2021) but it has also been a time of innovation and adaptation (Cahapay & Anoba, 2021). Many basic education teachers, for example, were able to thrive and were proud of what they had achieved for their learners despite restrictive, delimiting, difficult times. This study aimed to identify the behaviors that “strategic teachers” performed when modular learning was fully implemented in basic education schools in the Philippines at the height of the COVID-19 pandemic.

Framework: The PPST and “Strategic Teachers”

In the Philippines, quality teachers are defined using the Philippine Professional Standards for Teachers or PPST (Department of Education, Republic of the Philippines, 2017). In this framework, teachers in basic education schools are expected to possess mastery in six domains: 1) content knowledge and pedagogical skills, 2) design and management of conducive learning environments, 3) handling learners with diverse profiles from diverse backgrounds, 4) curriculum and planning, 5) assessment and reporting, 6) establishing linkages and doing professional engagements, and 7) pursuit of personal and professional growth.

When the global COVID-19 pandemic was declared, specifically when it hit home in January 30, 2020, the Department of Education (DepEd) was quick to respond by crafting its learning continuity plan. The singular, most important, aim during that time was to continue the delivery of learning despite the health crisis, but not at costs of safety, health, and well-being of all stakeholders (Department of Education, Republic of the Philippines, 2020b). Teachers were also called to be more sensitive about equity concerns of learners, and were encouraged



to address them while remaining steadfast to the duty of delivering quality education for all learners. Altogether, these obligations laid out in the DepEd's Learning Continuity Plan for combatting the COVID-19 pandemic presented an additional layer of expectations to basic education teachers, adding to the already demanding PPST.

In this study, the term "strategic teachers" is used to describe those Filipino basic education teachers who were able to adapt and surmount the teaching challenges during the COVID-19 pandemic. Such term also applies to those who were fully aware of the necessary PPST competencies that they needed to demonstrate for modular learning implementation to be successful. It is close to *diskarte*, a Filipino construct that refers to creative problem-solving and innovation (Morales, 2017), though *diskarte* is much more cognitive, rather than behavioral.

The existing literature on Filipino basic education teachers has always focused on challenges they encountered (e.g., Bustillo & Aguilos, 2022; Collado et al., 2021; Junsay & Madrigal, 2021; Talidong & Toquero, 2020), and only very few has looked into the positive qualities and adaptive teacher behaviors that may provide a new framework and inspire more relevant trainings to produce highly skilled teachers for better basic education schools post-COVID. To contribute to the dearth of studies on positive teacher adaptations in pandemic-era learning, particularly on behaviors that characterize "strategic teachers" in the use of self-learning modules, this study was conducted.

Pandemic-era Modular Learning in the Philippines

Internet services in the Philippines have been described as being expensive, but offered at slow speeds (Hernandez & Rola, 2021). This connectivity problem is an often-mentioned reason why online learning was difficult to implement at the height of the COVID-19 pandemic (Collado et al., 2021; Rotas & Cahapay, 2020). To manage this problem, the DepEd offered Self-Learning Modules (SLMs), which were learning packets that consisted of several reading materials and writing exercises meant for students to learn at home. Modular learning was seen as the most applicable and effective learning delivery format in the country (Department of Education, Republic of the Philippines, 2020a).

However, the implementation of pandemic-era modular learning was full of challenges. To mention a few, there was the burden of transportation expenses that obstructed many parents in picking up and returning SLMs in schools (Abante et al., 2021). Adult supervision was also seriously limited in many homes, especially in low-income families (Estrada, 2021). There were almost no able adults who could guide learners in making the most out of their SLMs, resulting to poor academic engagement (Collado et al., 2021). Altogether, these issues may have caused stresses in many basic education teachers, but they definitely offered opportunities for them to become strategic and adaptive. Moorhouse & Wong (2022) noted that the COVID-19 pandemic had been a catalyst for teacher innovation and development, but surprisingly there is a dearth of studies on specific behaviors were considered strategic and important for modular learning.

The Research Question

The COVID-19 pandemic has been notably a time of stresses and losses, but many teachers took it as a challenge to be innovative and come out of the crisis situation productive and proud. This study was an exploratory work to identify teacher behaviors that were perceived as the characterization of "strategic teachers" in the time of the pandemic. Specifically, this study sought to answer a single research question: What behaviors "strategic teachers" performed during pandemic-era modular learning? This question was thought to be important to inspire future professional development programs towards the formation of more resilient and more adaptive teachers in the post-COVID world.



Methods and Methodology

This research is quantitative in nature, specifically descriptive non-experimental (Johnson, 2001). Survey questionnaire was used to collect ratings of agreement with behavioral statements that were circumscribed around the actions of strategic teachers at the time of COVID-19. These statements were generated inductively, which means that they were generated based on the narratives of four focus groups of basic education teachers ($N = 20$). The first two focus groups consisted of teachers that were plainly classroom teachers whose time was dedicated fully to student learning: Focus Group 1 had four teachers with teaching experiences ranging from 5 to 7 years (3 females, 1 male), and Focus Group 2 had six teachers with teaching experiences ranging from 5 to 9 years (4 females, 2 males). The other two focus groups consisted of teachers with administrative positions, such as school principals, education specialists, and program supervisors: Focus Group 3 had six teachers, with work experience ranging from 6 to 26 years (4 females, 2 males), and Focus Group 4 had four teachers, with work experience ranging from 4 to 10 years (1 female, 3 males). The main question used to facilitate Focus Group Discussion (FGD) was: "Bring me to situations or actual events that happened in the past where you as a teacher (or someone you know) manifested the qualities of a strategic teacher. How would you describe your (or their) actions?"

A total of 120 behavioral statements were initially generated from all the narrative data. These statements were subjected into systematic content validation, following the guidelines set by Lynn (1986). There were five content validators: three of them were experts in the field of educational psychology (two from Xavier University and one from Nueva Vizcaya State University), one was an English language educator (pursuing doctorate degree in Cebu Normal University and formerly a school head), and the last one was a guidance counselor (former teaching staff of Father Saturnino Urios University). They rated based on relevance and how well the statements captured the concept of "strategic teachers at the time of the pandemic" from 1 to 4, where 1 meant *Not at all relevant* and 4 meant *Very relevant*. They were also asked to provide comments of wording issues.

Following Lynn (1986), the decision rule was to omit statements that got an Item Content Validity Index (I-CVI) of $< .8$. Given that there were five content validators, the $.8$ cutoff for I-CVI meant that at least one of them rated the item irrelevant. This stringent rule was used to filter the behavioral statements to only use those that were truly definitive of being strategic teachers. After content validation, 72 behavioral statements had I-CVI of $< .8$, thus discarded. The pool of behavioral descriptors was reduced to 48.

The remaining behavioral statements were then administered to 429 basic education teachers ($\text{Mean}_{\text{age}} = 31.024$; $\text{SD}_{\text{age}} = 7.466$; $\text{Mean}_{\text{teaching-experience}} = 5.559$ years; $\text{SD}_{\text{teaching-experience}} = 5.264$) from the province of Surigao del Norte, Philippines through Google Forms from October 17 to 20, 2021. These participants were sampled through non-probability voluntary sampling (Murairwa, 2015), which meant that they were those who received the link for the digitized survey questionnaire and volunteered to respond. While probability random sampling is important for findings to be generalizable to the general population, EFA does not necessarily require a specific random sampling design as long as the size is adequate (Tabachnick & Fidell, 2019). No tokens were given to the teachers who volunteered to respond to the questionnaire.

The digitized survey questionnaire had an accompanying informed consent form, where every participant would have to check Yes to signify that they understood and accepted the purpose of the survey, and that they were fully consenting the use of their responses for research. Eight-point numerical analog scale was used to collect ratings



of their agreement that the statements were descriptive of being strategic teachers, where 1 meant *Strongly Disagree* and 8 meant *Strongly Agree*.

To answer the research question, the plan for analysis was to use Exploratory Factor Analysis (EFA) using JASP, an open-source statistical program. As a data analytic procedure, what EFA does is it forms subsets from a single set of variables (Tabachnick & Fidell, 2019). Any sampling design is acceptable when using this procedure as long as the sample size is at least 300 (Tabachnick & Fidell, 2019).

Results and Discussion

Before doing the EFA, data screening was performed by looking into the following: sample size, missing data, extreme scores, and normality. In terms of sample size, the dataset with 429 cases was deemed enough (Tabachnick & Fidell, 2019). Relative to the number of statements ($N = 48$), the subject-to-statement ratio was 9 : 1, satisfying Gorsuch's (2015) recommendation of 5 : 1 for EFA. There were no missing data since the online survey was designed to require participants to supply a response for every item. The 429-case dataset was then examined for presence of multivariate outliers by looking at the Mahalanobis distance values. Sixty-seven cases were identified as influential extreme cases based on probability values of < 0.001 , and were deleted, leaving the sample size to 362 and the subject-to-item ratio to 7.5 : 1. Lastly, the now 362-case dataset was found to be non-normal based on p values less than 0.05 in the Kolmogorov-Smirnov test.

Principal Axis Factoring (PAF) was used as the extraction method because of non-normality in the data. Suitability for EFA was supported by correlations of items to one another (all $> .30$) and communalities ($> .40$), except for one statement, which had a communality value of .341 (Statement 10). This item with low communality value was retained for EFA. Lastly, sampling adequacy was supported by Kaiser-Meyer-Olkin measure of sampling adequacy of .957 ($> .70$), and the Bartlett's test of sphericity yielded significant p value at 0.000.

The decision as to the number of factors to extract was based solely on visual examination of the scree plot. As shown in Figure 1, the point of inflection in the scree plot revealed that two was the optimal number of factors to extract, accounting for 42.85% of variance in the data. Based on this information, the JASP software was then used to manually generate a two-factor solution. The factors were rotated orthogonally using varimax to facilitate simple interpretation of factors. The factor loading cutoff was set to .60, resulting to the retention of 19 statements. The RMSEA (root mean square error of approximation) of the accepted factor solution was .067 (90% confidence interval: .065 to .07) and the TLI (Tucker-Lewis index) was .802, both indicating acceptable fit (Kenny, 2020).

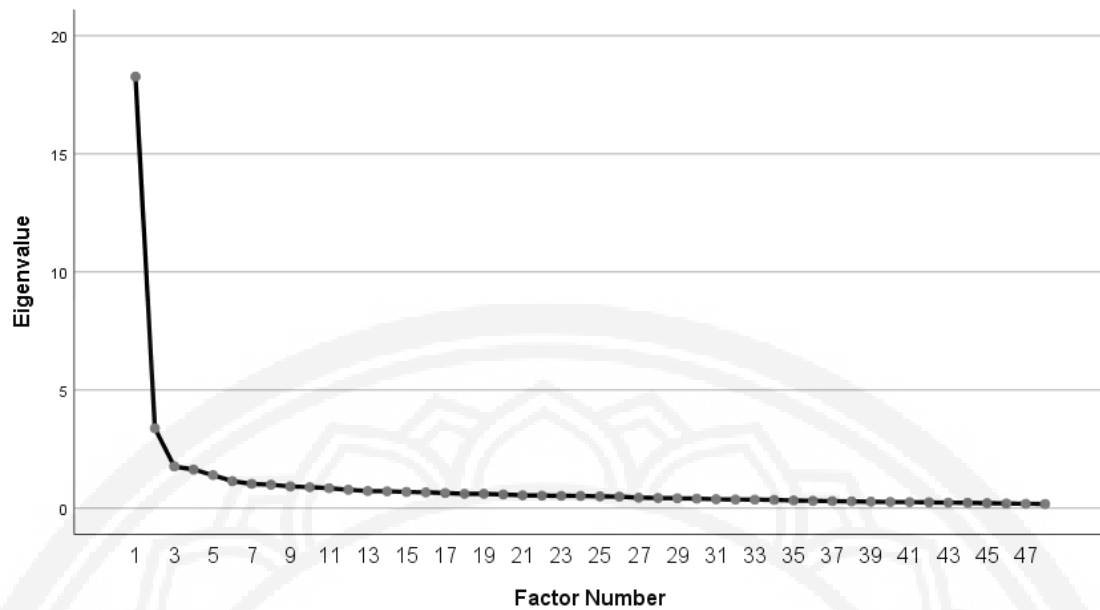


Figure 1 Scree Plot.

Table 1 presents the 19 behavioral statements, which in essence answered the research question as to what actions “strategic teachers” did for pandemic-era modular learning. The first factor is *motivating students*, which is a subset of behaviors that involves establishing good teacher–student relationships, allowing students to talk, and making sure that life skills are taught aside from content knowledge. The second factor is *using alternative delivery modalities*, which includes behaviors that involved use of online learning, such as making use of videoconferencing for synchronous communication with students and preparing lecture videos for asynchronous learning purposes. Taken together, these findings indicate that what “strategic teachers” did for pandemic-era modular learning was using various learning delivery formats while managing academic motivation of students.

Table 1 Behaviors Strategic Teachers Did for Pandemic-era Modular Learning

Factor 1: Motivating Students (12 Statements; Eigenvalue: 18.27; Cronbach Alpha: .934)		F1	F2
Establish good relationships with students by creating a non-threatening classroom environment (Statement 11)		0.758	
Serve as a good model to students by seeking lifelong learning (Statement 16)		0.753	
Embrace the challenges of using new technologies to adapt well to changes (Statement 36)		0.751	
Call the attention of learners privately and talk to them privately also when they have sensitive issues and concerns (Statement 33)		.743	
Allow students to talk and share their ideas in class because he/she values them as co-teachers too (Statement 20)		0.735	
Make sure that I teach not only content lessons but also life skills (Statement 18)		0.702	
Remember past experiences and use them to make better instructional decisions (Statement 28)		0.679	
Explore how to improve one’s Microsoft PowerPoint presentations (Statement 12)		0.671	
Prepare different sets of activities and worksheets to remedy students (Statement 32)		0.654	
Give immediate constructive feedback to students (Statement 24)		0.646	
Share personal experiences to motivate students for lifelong learning (Statement 17)		0.622	
Do not dominate the class discussion; I ask students to contribute and share their ideas (Statement 21)		0.618	

**Table 1** (Cont.)

Factor 2: Using Alternative Delivery Modalities (Seven Statements; Eigenvalue: 3.38; Cronbach Alpha: .859)		F1	F2
Video-record lectures for students to watch (Statement 42)			0.740
Conduct both online and offline learning sessions for students (Statement 39)			0.694
Edit videos to generate relevant video learning materials (Statement 43)			0.658
Find ways to enhance the learning experiences of students, such as using Google Meet and Zoom (Statement 26)			0.656
Make use of several apps, such as programming, Photoshop, and others, when I develop instructional materials (Statement 44)			0.650
Do action research to come up with an intervention or remediation program when students' performances are low (Statement 47)			0.629
Conduct blended learning classes, and do not rely on one learning delivery modality only (Statement 38)			0.627

The “extraction” of these two strategic teacher behaviors from the data is consistent with recent literature, such as Bishop’s (2021) study, where it was found that American middle school teachers during the pandemic used motivational strategies, such as letting students learn at their own pace and providing them with choice-making opportunities, as well as application of technological skills for instructional purposes. In Harris et al.’ (2022) work also, they found that distance education teachers considered building relationships and using technological tools as “engagement strategies” for supporting basic education students in Australia.

The salience of teacher behaviors directed towards motivating students and using various learning delivery formats could indicate that the “strategic teachers” in pandemic-era modular learning were those who went beyond the use of SLMs. They were those who perhaps had deeper appreciation of the reality that using SLMs alone would not be productive for every learner, and that basic education teachers had to put *diskarte* (Morales, 2017) into action. As a result, they explored and used other learning delivery formats, such as online learning, lecture videos, and other asynchronous digital learning devices in order to ensure that their students were learning new information and acquiring necessary skills. But, they did not stop there: they very likely owned and acted on the responsibility of managing the academic motivational resources of their students by establishing positive teacher-student relationships and giving necessary feedback, among others. Bringing in the PPST framework (Department of Education, Republic of the Philippines, 2017), these findings signify that the basic education teachers’ ability to design and deliver student learning (Domains 1 and 2 of the PPST) and the ability to handle learner motivation (connected to Domain 3 of the PPST) are valuable teacher behaviors that may intertwine in the context of remote education amid an emergency situation such as the COVID-19 pandemic.

Conclusion and Suggestions

This current study was designed to identify and describe the behaviors that strategic teachers did during the time of COVID-19 where the trend of the use of self-learning modules. After factor analysis of behavioral statements generated inductively, two subsets of behaviors were determined: motivating students and using alternative learning delivery modalities. These teacher behaviors complement the knowledge and skills that quality teachers should possess according to the PPST framework (Department of Education, Republic of the Philippines, 2017). All of them are actual demonstrations of mastery of the first three PPST domains, which are mastery of content and pedagogy, managing learning environments, and taking care of all learners regardless of background.



On this note, professional development activities and teacher education curricula in the post-COVID world may consider preparing teachers for distance and remote education, specifically for using self-learning modules in an emergency or crisis situation, by focusing on their knowledge and ability to use various strategies to motivate learners, aside from the popular and widely implemented digital literacy training for teachers (Dharmaraj, 2020). Knowledge and literacy on academic motivation is important, but may sometimes be overlooked or assumed to have been mastered already by in-service teachers. This current study reinforces the idea that strategies to motivate learners are as important as strategies to use technological and digital tools for instruction.

Future research may consider investigating the factors and social conditions that facilitate teachers' use of strategies for managing student motivation and technology for instruction, as well as their incremental value in facilitating learning and achievement of basic education students. A measure for these behaviors may be developed and validated to aid further investigations of such strategic teacher behaviors.

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