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Assessing the Impact of Power Outages on Appliances of Farmers and Fisherfolks in Selected Barangays of Cawayan, Masbate, Philippines: Basis for a Proposed Extension Program

Alberto B. Luzong III., Roger Y. Ibañez, Jr., and Jacob Frederick P. Velza

ABSTRACT

This paper presents data on the economic background and power supply situation in selected barangays of the Municipality of Cawayan in Masbate, Philippines. It examined the constraints in power supply experienced by the respondents. The study results showed that many respondents had an annual income of less than ₱18,200, which was considered low and may have resulted in difficulty in paying high bills brought by power outages. All respondents relied on the power grid as their source of electricity, and power interruptions were a common occurrence. The data revealed that 97.7% of respondents experienced power interruptions, with 51.1% experiencing 3-4 hours of interruption. Almost all respondents claimed that power interruption increased their electric consumption and bill, and 56% were not satisfied with their electric bill when there was a power interruption. The study also found that refrigerators and televisions were the most power-consuming appliances, and bulbs were reported to be the most affected by power interruption. Possible reasons for power interruptions cited by respondents included part of the service and performing maintenance. The study findings suggested a need for capacity training for farmers and fishers on adopting solar energy to address power supply constraints. The extension project proposal titled, Electrical and Electronic Designs using Renewable Energy that Led to Net Zero, was an excellent opportunity to provide training to all marginalized sectors in the municipality of Cawayan. The proposal included training on solar installation and maintenance.

Keywords*: households, outages, power grid, solar energy, trip-off*

INTRODUCTION

The issue of power interruptions or outages is a prevalent concern across the globe and has significant repercussions on households and businesses (Fakih et al., 2020). The availability of consistent and reliable electricity is fundamental for promoting economic competitiveness and sustainability, as energy security is a crucial aspect of modern economics (Gielen et al., 2029). Access to uninterrupted power supply is considered a vital catalyst for economic growth (Sanni et al., 2021), and its absence can hinder development efforts and impede social progress (Casey et al., 2020).

The Municipality of Cawayan in Masbate Province, the Philippines, is one area where frequent power outages have become a pressing issue for the local community, particularly in rural areas with underdeveloped power infrastructure. This issue is consistent with research indicating that power interruptions are common in developing countries (Taniguchi, 2019), particularly in rural areas (Ali, 2016). In such regions, unreliable electricity supply not only affects daily life but also hampers agricultural productivity (Seetharaman, 2019), limits educational opportunities (Meles, 2020), and restricts access to healthcare services (Mechtenberg et al., 2020).

The adverse effects of frequent power interruptions on household appliances in the Municipality of Cawayan, Masbate, have been reported on various social media platforms, including Cawayan Talks and Masbate Talks pages. The electric surges caused during power outages can disrupt the normal functioning of appliances, leading to damage,

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overheating, and grounding issues (Nduhuura et al., 2021). A study by Francisco (2022) found that electricity customers in the Philippines experienced an average of 5.7 power interruptions or 8.8 hours. Luzon encountered more frequent power interruptions than Visayas, while Visayas experienced more prolonged power outages. A study by Al-Shaalan (2017) in the Kingdom of Saudi Arabia found that frequent power interruptions had caused economic losses to households, inconvenience, and frustration.

This study aims to investigate the frequency and duration of power outages in the rural areas of the Municipality of Cawayan and analyze their effect on household appliances. The study also seeks to examine the coping mechanisms that households use in response to power outages and their perceptions of the impact of these outages on their daily lives. While prior studies have focused on the impact of power outages on businesses and industries, there needs to be a greater understanding of how households are affected. Therefore, this study will contribute to the existing literature by providing insights into the impact of power interruptions on household appliances and the coping mechanisms the households use in response to these outages.

This research is significant in the context of the Philippine government's efforts to enhance power infrastructure and address power outages in rural areas, particularly in remote barangays of Cawayan in Masbate. The Department of Energy has prioritized improving the power infrastructure in rural areas to promote sustainable economic development and enhance the quality of life of rural communities (DOE, 2019). Additionally, the United Nations' Sustainable Development Goals (SDG 7) aim to ensure universal access to affordable, reliable, sustainable, and modern energy services for all by 2030, with a focus on renewable energy sources to support sustainable development (United Nations, 2015).

The findings of this study will provide valuable insights into the management of power infrastructure and the development of policies to mitigate the impact of power outages on households in the Municipality of Cawayan and other similar areas. This research will also shed light on the importance of investing in power infrastructure and promoting energy security to achieve sustainable economic development and enhance the quality of life of rural communities.

METHODOLOGY

Research Design and Sampling

The study employed a descriptive research design to gather data about the impacts of power interruptions in the Municipality of Cawayan and their effects on household appliances. The researchers utilized quantitative data collection methods, including various forms of surveys, such as paper surveys and face-to-face interviews. A convenience systematic sampling technique was used to select respondents that were readily available to the researchers without any specific pattern. The study's respondents were fisherfolks and farmer-consumers in selected Barangays in the Municipality of Cawayan, including Begia, Recodo, and Mahayahay. A total of 266 respondents were selected, including 86 from Recodo, 90 from Mahayahay, and 90 from Behia. The sample size was determined using Slovin's formula.

Data Collection and Statistical Analysis

Data was collected using a survey questionnaire adapted from the study of Nduhuura et al. (2021), which was personally delivered to the respondents, and information was gathered by asking questions during face-to-face interviews in the selected Barangays of Behia, Mahayahay, and Recodo in the Municipality of Cawayan. The respondents were informed first about the purpose of the study and how the data were kept anonymously before the start of the study. The respondents' responses during the interview were recorded and subjected to content analysis. The frequency of power interruptions and their effects on household appliances were computed by recording and analyzing data using cross-tabulation of the convenience sample.

The statistical tools used in this study were frequency count, percentage, and the arithmetic mean or average.

RESULTS AND DISCUSSION

Socio-Demographic Profiles of the Consumers

The data presented in Table 1 shows the economic background of fisherfolks and farmer-consumers in selected Barangays in the Municipality of Cawayan. One of the variables presented was the annual income of the respondents. The table showed that a significant number of the respondents had an average monthly income of Php1,083.00. This income level was considered low and may result in difficulty paying high bills brought about by power outages (Philippine Institute for Development Studies, 2020). Paying bills could be challenging and expensive, especially for lower-income individuals (Toh, 2021).

Power outages could disrupt the daily activities of individuals and businesses and even damage appliances and equipment. Repairing or replacing these appliances could be a significant burden for low-income households. Furthermore, power interruptions could also impact the livelihood of individuals whose source of income was dependent on electricity, such as those in the fishing industry. With frequent power outages, they

Table 1. Economic background of the fisherfolks and farmer-consumers in selected Barangays in the Municipality of Cawayan

Variable	Recodo (n=86)		Mahayahay (n=90)		Behia (n=90)		Total (n=266)	
	F	%	F	%	F	%	F	%
Occupation								
Farming	30	34.9	6	6.7	2	2.2	38	14.3
Vendor	14	16.3	20	22.2	15	16.7	49	18.4
Unemployed	10	11.6	0	0.0	10	11.1	20	7.5
Driver	6	7.0	11	12.2	5	5.6	22	8.3
Fishing	21	24.4	25	27.8	49	54.4	95	35.7
Employment	3	3.5	18	20.0	9	10.0	30	11.3
Security Guard	1	1.2	0	0.0	0	0.0	1	0.4
Carpenter	1	1.2	10	11.1	0	0.0	11	4.1
Monthly Income								
Less than ₱10,957	86	100.0	90	100.0	90	100.0	266	100.0
₱10,957 to ₱21,914	0	0.0	0	0.0	0	0.0	0	0.0
₱21,914 to ₱43,828	0	0.0	0	0.0	0	0.0	0	0.0
₱43,828 to ₱76,699	0	0.0	0	0.0	0	0.0	0	0.0
₱76,699 to ₱131,484	0	0.0	0	0.0	0	0.0	0	0.0
₱131,483 to ₱219,140	0	0.0	0	0.0	0	0.0	0	0.0
At least ₱219,140 and up	0	0.0	0	0.0	0	0.0	0	0.0

may have needed help properly storing or processing their catch, resulting in spoilage and loss of income. Therefore, it was important for policymakers to consider the affected population's economic background when addressing power interruptions. Programs and policies to improve access to reliable and affordable electricity could alleviate the burden on low-income households and support the livelihood of those dependent on electricity.

Power Supply of Selected Barangays in the Municipality of Cawayan

Table 2 presents the power supply of the selected barangays in the Municipality of Cawayan. The data showed that all three barangays were connected to the power grid as their source of electricity, with 266 respondents. None of the respondents reported using their own generator or barangay electrification system,

nor did anyone report using solar energy as a source of electricity. The table also presented the year each barangay was connected to the power grid. The data revealed that the earliest connection was in 1999, with only four respondents from Mahayahay reporting this connection year. Most respondents (24.8%) were connected to the power grid from 2016-2020, 23.7% from 2000-2005, and 22.2% from 2006-2010. The remaining respondents were connected to the power grid from 2011-2015 (19.2%) and 2021-2022 (8.6%).

The data in this table were relevant to the research as they provided information on the availability and source of electricity in the selected barangays. This information was important in understanding the impact of power outages on the respondents' appliances. With all respondents relying on the power grid as their source of electricity, power outages may have had a significant impact on their daily lives and appliances. Additionally,

Table 2. Power Supply of Selected Barangay in the Municipality of Cawayan

Variable	Recodo (n=86)		Mahayahay (n=90)		Behia (n=90)		Total (n=266)	
	F	%	F	%	F	%	F	%
Source of electricity								
Power Grid	86	100	90	100	90	100	266	100
Own generator	0	0	0	0	0	0	0	0
Barangay electrification system	0	0	0	0	0	0	0	0
Solar	0	0	0	0	0	0	0	0
The year started that connected to a power grid								
2021-2022	5	5.8	10	11.1	8	8.9	23	8.6
2016-2020	25	29.1	22	24.4	19	21.1	66	24.8
2011-2015	14	16.3	17	18.9	20	22.2	51	19.2
2006-2010	22	25.6	24	26.7	13	14.4	59	22.2
2000-2005	20	23.3	14	15.6	29	32.2	63	23.7
1999	0	0.0	3	3.3	1	1.1	4	1.5

the data on the year that each barangay was connected to the power grid may have helped understand the level of development and infrastructure in each barangay, which could have impacted the frequency and duration of power outages experienced by the respondents.

Constraints in Power Supply

The data in Table 3 presented the power supply constraints in selected barangays of Cawayan, Masbate, Philippines. The data was derived from the survey results from 266 respondents in three barangays: Recodo, Mahayahay, and Behia. The data showed that power interruptions were common, with 97.7% of respondents experiencing them. The duration of power outages varied, with 51.1% of respondents experiencing 3-4 hours of interruption. Power interruption occurred weekly for 54.9% of respondents. The frequency of power interruption in a day/week/month/year varied, with 42.5% of respondents experiencing 6-7 times per day, which did not conform to the annual power interruption experienced by the Philippines in the year 2021, which was 5.7 times (Francisco, 2022). This meant that power interruptions suffered by consumers in selected barangays of Cawayan were alarming and required immediate attention from the concerned agency to improve its service to serve its consumers better.

Regarding the impact of power interruption, almost all respondents (93.6%) claimed that it increased their electric consumption and bill, similar to the findings of (Francisco, 2022). Moreover, 56% of respondents were unsatisfied with their electric bill during a power interruption. Regarding appliances that consumed a high amount of electricity, respondents reported that refrigerators (37.2%) and televisions (30.8%) were the most power-consuming. Power interruption also affected the respondents' appliances, with 83.1% experiencing it. Among the appliances, bulbs were reported to be the most affected, with 40% of respondents saying that they malfunctioned or got damaged. This finding was similar to the study of Meles (2020) in that one of the impacts of power interruption suddenly came back when it damaged the appliances due to the high or low ideal voltage supplied. The quality of the voltage supply to the respondents' houses was mainly normal, with 93% of respondents indicating that their voltage supply was normal. However, a significant number of respondents (22.2%) reported having a low voltage supply. This suggested that there might be some issues with the electrical infrastructure in the municipality that needed to be addressed.

According to the respondents, the possible reasons for power interruptions in the Municipality of Cawayan varied. The most common reasons cited were part of the service (41.9%) and performing maintenance (26.7%), and it contradicted the findings of Francisco (2022) that major disasters caused the main reason for power

interruption. This suggested that the electricity provider in the municipality may need to improve its infrastructure and maintenance practices. A relatively small proportion of respondents (38.4%) reported having solar-powered equipment at home, while the majority (61.6%) reported none. This suggests the potential for increasing the adoption of solar energy in the municipality. Most respondents (96.5%) agreed that using solar systems instead of power corporations or generators can save electricity bills. This suggested a positive perception of the benefits of solar energy among the respondents. However, a small proportion of respondents (3.5%) disagreed with this statement, which indicates some resistance to adopting solar energy.

Support Services Received

Table 4 presents data on the support services received by Recodo, Mahayahay, and Behia barangays residents in Cawayan, Masbate, Philippines, in case of power outages. The data was essential in assessing the impact of power interruptions on appliances. For the first variable, which asked about the support appliances received from the government or barangay during calamities, only a few residents received support in the form of solar power, flashlights, and generators. The majority (96.2%) received no support, indicating a lack of preparedness and resources in the barangays during calamities. This highlighted the need for the government and barangay officials to support their constituents during calamities, including power outages adequately.

The second variable asked if the municipality or barangay gave an alternate power supply to the constituent during a power interruption. Unfortunately, the majority (73%) of the respondents answered "no," indicating that the residents were left without any alternative power supply. This could be a cause of concern, especially for those who relied heavily on electricity for their livelihood, such as those who ran small businesses. For the last variable, which asked about the possible alternative power supply in the municipality or barangay during a power interruption, the majority (73%) answered "none," which was a cause for concern as it implied that the residents were left with no options during power outages. The rest of the respondents mentioned solar and generator power as possible alternatives, indicating that some resources were still available for those who could afford it.

Generally, the data from Table 4 suggested that there needed to be more support services and resources for the residents of Recodo, Mahayahay, and Behia barangays in Cawayan, Masbate, Philippines, in case of power outages. The low number of support appliances received and the absence of alternate power supply options highlighted the need for the government and barangay officials to provide better support to their constituents during power outages and other calamities.

Table 3. Constraints of power supply in selected barangays of Cawayan

Variable	Recodo (n=86)		Mahayahay (n=90)		Behia (n=90)		Total (n=266)	
	F	%	F	%	F	%	F	%
1. If the source of electricity is through the power grid, did you experience power interruption?								
Yes	81	94.2	89	98.9	90	100.0	260	97.7
No	5	5.8	1	1.1	0	0.0	6	2.3
1.1 If yes, how many hours would it take?								
1-2 hrs.	35	40.7	26	28.9	33	36.7	94	35.3
3-4 hrs.	40	46.5	50	55.6	46	51.1	136	51.1
5-24 hrs.	11	12.8	14	15.6	11	12.2	36	13.5
1.2. How often do power interruptions occur?								
Daily	28	32.6	26	28.9	30	33.3	84	31.6
Weekly	50	58.1	49	54.4	47	52.2	146	54.9
Monthly	8	9.3	15	16.7	13	14.4	36	13.5
1.3. What is the frequency of power interruption in a day/week/month/year?								
4-5 times/day	32	37.2	34	37.8	38	42.2	104	39.1
6-7 times /day	35	40.7	38	42.2	40	44.4	113	42.5
8-10 times/day	19	22.1	18	20.0	12	13.3	49	18.4
2. Does the power trip-off increase your electric consumption and bill?								
Yes	85	98.8	83	92.2	81	90.0	249	93.6
No	1	1.2	7	7.8	9	10.0	17	6.4
2.1 If yes, what percentage of your electric consumption and bill will increase?								
20%	0	0.0	3	3.3	2	2.2	5	1.9
15%	5	5.8	9	10.0	12	13.3	26	9.8
10%	28	32.6	29	32.2	13	14.4	70	26.3
5%	52	60.5	42	46.7	54	60.0	148	55.6
3. Are you satisfied with your electric bill when there is a power interruption?								
Yes	36	41.9	19	21.1	34	37.8	89	33.5
No	33	38.4	61	67.8	55	61.1	149	56.0
Maybe	17	19.8	10	11.1	1	1.1	28	10.5
4. In your observation, what electronic or electrical appliances consume high electricity?								
Refrigerator	32	37.2	43	47.8	24	26.7	99	37.2
Television	26	30.2	29	32.2	27	30.0	82	30.8
Aircon	16	18.6	6	6.7	3	3.3	25	9.4
Bulb	12	14.0	12	13.3	36	40.0	60	22.6
5. Does the power trip-off affect your appliances?								
Yes	79	91.9	80	88.9	62	68.9	221	83.1
No	7	8.1	10	11.1	28	31.1	45	16.9
5.1. If yes, what happened to your appliances?								
No effect	7	8.1	10	11.1	28	31.1	45	16.9
Malfunctioned	46	53.5	49	54.4	35	38.9	130	48.9
Totally damage	33	38.4	31	34.4	27	30.0	91	34.2
6. What are the appliances that can easily be damaged?								
Computers	1	1.2	2	2.2	0	0.0	3	1.1
Refrigerator	23	26.7	26	28.9	10	11.1	59	22.2
Television	27	31.4	47	52.2	34	37.8	108	40.6
Bulb	35	40.7	15	16.7	46	51.1	96	36.1
7. What is the quality of the voltage supply to your house?								
Very Low	0	0.0	25	27.8	1	1.1	26	9.8
Low	2	2.3	20	22.2	20	22.2	42	15.8
Normal	80	93.0	42	46.7	53	58.9	175	65.8
High	4	4.7	3	3.3	16	17.8	23	8.6
Very High	0	0.0	0	0.0	0	0.0	0	0.0

Table 3. Constraints of power supply in selected barangays of Cawayan *(cont'd)*

Variable	Recodo (*n*=86)		Mahayahay (*n*=90)		Behia (*n*=90)		Total (*n*=266)	
	F	%	F	%	F	%	F	%
8. What are the possible reasons for power interruptions in the Municipality of Cawayan?								
Perform maintenance	23	26.7	7	7.8	53	58.9	83	31.2
Part of the service	36	41.9	48	53.3	27	30.0	111	41.7
Installation of new electrical lines	17	19.8	3	3.3	6	6.7	26	9.8
Due to natural calamities	10	11.6	9	10.0	0	0.0	19	7.1
Human activities	0	0.0	23	25.6	4	4.4	27	10.2
9. Do you have any solar-powered equipment at home?								
Yes	33	38.4	22	24.4	15	16.7	70	26.3
No	53	61.6	68	75.6	75	83.3	196	73.7
10. Do you agree that using solar systems instead of power corporations or generators can save electricity bills?								
Yes, of course	83	96.5	76	84.4	76	84.4	235	88.3
No, it costs too much	3	3.5	13	14.4	11	12.2	27	10.2
It is a waste of time	0	0.0	1	1.1	1	1.1	2	0.8

Table 4. Support Services received from the government if the power supply is not available

Variable	Recodo (*n*=86)		Mahayahay (*n*=90)		Behia (*n*=90)		Total (*n*=266)	
	F	%	F	%	F	%	F	%
1. If there is a calamity, what support appliances have you received from the government or barangay?								
Solar Power	0	0.00	4	4.4	0	0.00	4	1.5
Flashlight	0	0.00	1	1.1	0	0.00	1	0.4
Generator	0	0.00	5	5.6	0	0.00	5	1.9
None	86	100.0	80	88.9	90	100.0	256	96.2
2. During power interruption, does the municipality or barangay give an alternate power supply to the constituent?								
Yes	0	0	0	0	0	0	3	5
No	86	100	90	100	90	100	43	73
2.1. If yes, what are the possible alternative power supply in your municipality or barangay during the power interruption?								
Solar	0	0	0	0	0	0	20	34
Generator	0	0	0	0	0	0	29	49
None	86	100	90	100	90	100	43	73

Proposed Extension Capability Training among Fishers and Farmers

Cawayan, Masbate, is an agricultural and fishing community heavily reliant on electrical appliances for farming and fishery operations. Unfortunately, the area faces frequent power outages, which disrupt daily activities and adversely affect the livelihoods of the residents. Moreover, the Philippines is committed to reducing its greenhouse gas emissions, making it essential to transition towards renewable energy sources. Based on the findings of the study, the solution offered by the researchers to the perennial problem suffered by the marginalized sectors in the municipality of Cawayan is to capacitate the farmers and fishers on harvesting the energy from renewable energy through an extension project named "Electrical and Electronic Designs using Renewable Energy that Led to Net Zero." This extension addresses the critical issue of power

outages affecting farmers and fishers in selected barangays of Cawayan, Masbate, Philippines. The proposal aims to provide a sustainable solution by introducing Electrical and Electronic Designs using Renewable Energy technologies. These technologies will not only enhance the resilience of the local community against power outages but also contribute to the broader goal of achieving a net-zero carbon footprint. The following are the topics to be delivered during capability training to the target beneficiaries:

1. *Introduction to renewable energy.* This topic will introduce the different types of renewable energy, such as solar, wind, and hydropower. It will also discuss the benefits of using renewable energy, such as reducing air pollution and climate change.
2. *Designing and building renewable energy systems.* This topic will teach farmers and fishers how to

design and build their renewable energy systems. It will cover topics such as solar panel installation.

3. *Maintenance and troubleshooting of renewable energy systems.* This topic will teach farmers and fishers how to maintain and troubleshoot their renewable energy systems. It will cover topics such as cleaning solar panels.

4. *The environmental benefits of renewable energy.* This topic will discuss the environmental benefits of using renewable energy, such as reducing air pollution and climate change. It will also discuss the importance of protecting the environment for future generations.

5. *The economic benefits of renewable energy.* This topic will discuss the benefits of using renewable energy, such as saving money on energy bills and improving productivity. It will also discuss the opportunities for job creation in the renewable energy sector.

6. *The social benefits of renewable energy.* This topic will discuss the social benefits of using renewable energy, such as improving access to electricity in rural areas and reducing poverty. It will also discuss the importance of community participation in developing and implementing renewable energy projects.

The proposed extension program is a valuable initiative that will help address the problem of power outages in Cawayan, Masbate. The program will also help to reduce air pollution and climate change and build the capacity of farmers and fishers to adapt to climate change.

CONCLUSION AND RECOMMENDATIONS

It is concluded that power outages are common in the selected barangays of Cawayan and Masbate, with almost all respondents experiencing it. The duration and frequency of the outages vary, and the most common reasons for the interruptions are part of the service and maintenance. The study also found that power interruptions increase the electric consumption and bill of the respondents and affect the appliances, with refrigerators and televisions being the most power-consuming. Low-income households are most affected by power interruptions, as they have difficulty paying high bills and may lose income due to disruptions in their livelihoods.

The study recommends that policymakers consider the affected population's economic background when addressing power interruptions. Programs and policies to improve access to reliable and affordable electricity can help alleviate the burden on low-income households and support the livelihood of those dependent on electricity. The electricity provider in the municipality may need to improve its infrastructure and maintenance practices to reduce power interruptions. Moreover, there is potential for increasing the adoption of solar energy in the municipality, given the respondents' positive perception of the benefits of solar energy. The study suggests that the Electrical and Electronic Designs using Renewable Energy that Led to Net Zero Extension proposal should be extended to all barangays concerned to capacitate the people on how to utilize the free energy from the environment.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

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Predictors of Attitude and Intention to Use E-recruitment among Human Resource Management Practitioners in the Province of Romblon

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ABSTRACT

This study determined the perceptions of the human resource management (HRM) practitioners in the province of Romblon about e-recruitment. Significant predictors of their attitude and intention to use e-recruitment were also analyzed using the Technology Acceptance Model (TAM). Variables such as age, sex, years of experience as an HRM practitioner, awareness of e-recruitment, proficiency in technology use, perceived ease of use, perceived usefulness and attitude towards e-recruitment were tested. Thirty-one HRM practitioners were surveyed online using a modified questionnaire on e-recruitment perceptions. Results revealed that the respondents have highly favorable perceptions about e-recruitment. Their attitude towards e-recruitment was mainly influenced by their perceptions of ease of use and usefulness (R^2=66.7%). On the other hand, their intention to use e-recruitment is influenced by their attitude towards this technology, their awareness of it, and their length of experience as HRM practitioners (R^2=84.9%). Findings also show that Facebook is the top platform used in e-recruitment which supports the emerging trend on what scholars dub as social recruitment. For agencies planning to automate the recruitment process, the platform must be perceived to be easy to use and useful to foster a positive attitude and better intention to use the e-recruitment technology. HRM practitioners are encouraged to keep abreast and aware of the HRM-related technologies in their field towards a better and improved HRM system in general.

Keywords: *e-recruitment, Technology Acceptance Model, perceived ease of use, perceived usefulness, attitude towards e-recruitment, intention to use e-recruitment, e-recruitment factors*

INTRODUCTION

Three times, the researcher was asked by a particular Unit in the University where she is working to help them look for applicants on an opening on a job-order basis. She posted the job vacancy on her Facebook (FB) account with 5,000 followers. She noticed that many friends shared her post. She was also told that many applicants responded to the post. Later she observed that the Unit came to life. The head of the Unit thanked her because they were able to recruit the applicants that were the best fit for the job. Other units were curious how they were able to hire those talents, and the reply was a resounding, "We asked Ma'am Sweet to post it on her FB account!"

This experience was a point of realization to the researcher about the potential of online platforms in recruiting the best applicants that can greatly contribute to the goals of an organization. This practice has never been more relevant than this time of the pandemic. Since mobility is still restricted, the hiring process has become a challenge. However, the situation also forced human resource management (HRM) practitioners to explore the potential of technologies, such as social networking sites or other online platforms that can serve as channels for recruiting employees.

However, the challenge is much greater for an archipelagic island province like Romblon. While the pandemic has forced people to rely on digital technologies to do business, many are still not receptive to the automation and digitization of organizational processes, like e-recruitment in the HRM unit of the organizations in the province.

This study operationalizes the definition of e-recruitment, also known as online recruitment,

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electronic recruitment, cyber recruitment or internet recruitment, as the use of cloud-based recruitment software, web-based resources, internet or other technology to advertise, post vacancies, provide information about the job and the organization, enable e-mail communication to take place between employers and candidates, find, attract, interview and hire new personnel.

In general, the use of technology, e-recruitment in this case, is supported by the Technology Acceptance Model (TAM), which posits that the use of technology is mainly anchored on the users' intention, which is influenced by their attitude. Their attitude is also affected by their perceptions and other variables.

E-recruitment

Different authors have different ideas about what e-recruitment entails. Electronic recruitment is also known as online recruitment, cyber recruiting, or internet recruiting. The process of looking for and hiring the best candidate qualified (from within or outside of an organization) for a job in a cost-effective and timely manner is referred to as e-recruitment (Bhupendra & Swati, 2015). The use of web-based resources for activities such as searching for, attracting, assessing, interviewing, and hiring new employees also falls under the definition of e-recruitment. According to Dokey & Abunar, 2021, e-recruitment is a process that uses the internet for advertising or posting vacancies, providing information about the jobs and the organization, and enabling e-mail communication between employers and candidates. It also refers to the process of finding, attracting, interviewing, and hiring new employees by utilizing cloud-based recruitment software, web-based resources, and other technology. The goal of e-recruitment is to make hiring processes more efficient and cost-effective (Meah & Sarwar, 2021).

Benefits of E-recruitment

The use of e-recruitment has several benefits for employers, as reported in the works of Gairola (2019), Reeshu Singh (2020), Meah and Sarwar (2021), Hosain et al. (2020) and Rahman et al. (2020). For the benefit of employers, e-recruitment covers a broader scope. It is time-saving. It also has cost-saving and advertising benefits. It makes the search easier and removes unqualified candidates in an automated way. It can provide 24/7 access to an online collection of resumes. It helps communicate the employer's image and culture better. It makes the recruitment process faster, more accountable and standardized. It increases the diversity of applicants and provides better management information on applicants. Finally, it helps find the right candidate for the job.

Technology Acceptance Model

In IT literature, the TAM is the most influential model used to measure technology acceptance. Several studies have found that TAM consistently explains a significant portion of the variance in usage intentions and behavior (around 40%). According to TAM, a person's behavioral intention to use a system is determined by two beliefs: perceived usefulness, defined as the extent to which a person believes that using a system will improve their job performance, and perceived ease of use, defined as the extent to which a person believes that using a system will be free of effort (Yusuf et al., 2021).

Intention to Use Technology

With the introduction of online recruitment tools, it appeared that people's behavior had changed. On the one hand, recruitment officers may benefit from using these tools because they can review applications in the comfort of their office 24 hours a day, seven days a week. On the other hand, job applicants, particularly Generation Y or Z, may find this a more convenient way of applying because it is less expensive.

It was proposed that the use of online recruitment tools aids in the application process while safeguarding jobseekers' sensitive information (Mahmood, & Ng, 2017). However, the recruitment office's perceptions may influence the intention and actual use of the tools. These perceptions may be based on their perceived ease of use, perceived usefulness, and attitude. According to a previous study, perceived ease of use and perceived usefulness of e-recruitment tools significantly impact willingness to use them (Ekanayaka, & Gamage, 2019).

Attitude Towards the Use of Technology

The attitude of users toward e-recruitment influences their intention to use technology (Grimaldo et al., 2020; Grimaldo & Uy, 2020; Hariwibowo, 2017). It is a motivator for technology adoption (Kahlid et al., 2020; Silva et al., 2017) and one of the factors influencing its use in e-recruitment (Grimaldo & Uy, 2020; Rathee & Bhuntel, 2018). Attitude is regarded as an important predictor of a user's willingness to engage in e-recruitment. On the contrary, it was proposed that while users may have a positive attitude, concerns about data privacy may not affect their intention to use an electronic tool (Grimaldo et al., 2020).

Perceived Ease of Use of Technology

The perception of ease of use of technology refers to a person's belief that technology is simple to use. It was proposed that online recruitment is simple to use and has a positive effect on user attitudes (Buil et al., 2020; Hosain et al., 2016). As a result, it significantly impacts a candidate's intention to apply (Grimaldo et al., 2020; Hosain et al., 2016). Furthermore, perceived ease

of use of technology influences users' intention to use e-recruitment (Ekanayaka & Gamage, 2019; Zhang et al., 2018), as it is established to be the most critical factor in its reuse.

On the contrary, researchers discovered that perceived ease of use had no effect on users' attitudes toward e-recruitment tools and had no significant impact on their behavioral intention to use the tools for job applications (Hariwibowo, 2017; Zaremohzzabieh et al., 2016). Furthermore, while perceived ease of use may positively impact user attitudes, the impact was not strong enough to influence users' adoption of technology (Silva et al., 2017).

Perceived Usefulness of Technology

Perceived usefulness of technology refers to a person's belief that using technology will improve their work performance, making them more productive. There have been studies on the acceptance of technology by users at various levels of application. According to the findings of a similar study, perceived usefulness had a positive effect and has a significant impact on one's attitude toward the use of technology (Banerjee & Gupta, 2019; Buil et al., 2020; Hafeez et al., 2018; Hariwibowo, 2017; Priyadarshini, et al., 2017).

Previous research has shown that the perceived usefulness of technology influences users' behavioral intentions (Zhang et al., 2018) and positively affects behavior intention (Selvanathan et al., 2019). It is related to their desire to use the tool specifically in E-HRM.

Hariwibowo (2017), on the other hand, discovered that perceived usefulness does not affect intention to use. Furthermore, Grimaldo et al., (2020) discovered that the perceived usefulness of the recruitment tool was not significantly related to both the attitude and intention of the recruitment officers to use such a tool.

Other Predictors of Intention to Use Technology

Gender may play an important role in determining someone's willingness to adopt new technology. It has been established that males are more technologically skilled than females (Goswami, & Dutta, 2016). As a result, male respondents may have a more positive perception of the usability and utility of technology. In contrast, it was also proposed that, when it came to technology adoption, gender did not play a role, but that it was more dependent on the respondents' perception of the benefits, usefulness and ease of use.

An awareness of the existence of technology was associated with a better intention of using the technology (Ahmed et al., 2016). An experience in the job and age were related to the intention to use the technology relevant to the job in the context of mobile learning (Chao, 2019). Razak and Rahman (2021) claimed that technical proficiency could result in continuing to use technology.

The conflicting findings of the previous studies and the inclusion of other variables associated with one's attitude and their intention to use a particular technology justified the conduct of this study in the context of Romblon province.

Objectives of the Study

This study was conducted to determine the perceptions about e-recruitment among human resource management (HRM) practitioners in the province of Romblon and to determine the factors that can significantly predict their attitude and intention to use e-recruitment. Specifically, this study aimed to determine the proficiency of HRM practitioners in using computers, laptops or desktops, internet and mobile phone technologies; their awareness of e-recruitment, its ease of use, usefulness, their attitude towards it and their intention to use it. The predicting power of age, sex, years of experience as an HRM practitioner, awareness of e-recruitment, proficiency in technology use, perceived ease of use of e-recruitment, perceived usefulness of e-recruitment, and attitude towards e-recruitment on their intention to use e-recruitment were tested. The predicting power of the first seven variables was also tested on attitude towards e-recruitment.

METHODOLOGY

Participants

The study participants were the 31 Human Resource Management practitioners in the province of Romblon. They were from the provincial government (2) and local government units such as Alcantara, Banton, Corcuera, Ferrol, Looc, Magdiwang, Odiongan, Romblon (2), San Agustin, San Fernando, San Jose, Santa Fe, and Santa Maria. Participants from the government line agencies were from the Civil Service Commission (2), Department of Agrarian Reform, Department of Trade and Industry, Land Transportation Office, Philippine Statistics Authority, and Odiongan Water District. Respondents from the academe were from Romblon State University and Erhard Systems Technological Institute. Cooperatives were from the KADBAYAN Multi-Purpose Cooperative, Saint Vincent Ferrer Parish Multi-Purpose Cooperative, and Tablas Island Electric Cooperative Inc. The respondents were predominantly female (83.9%) and married (58.1%). The mean age was 42.42 years, and the mean length of HRM experience was 1.94 years. Table 1 shows the profile of the participants.

Design and Procedure

The study is a quantitative research that uses regression analysis. In its most basic form, it is a quantitative method for testing the nature of relationships between a dependent variable and one or

Table 1. Profile of the Participants (*n*=31)

Profile	Frequency	Percent
Sex		
Male	5	16.1
Female	26	83.9
Civil Status		
Single	12	38.7
Married	18	58.1
Separated	1	3.2
Age (yrs.)		
≤ 30	6	19.4
31-40	7	22.6
41-50	11	35.5
≥46	7	22.6
Mean = 42.42; SD = 11.37; Min = 24; Max = 61		
Length of Experience as HRM Practitioner (in years)		
1	14	45.2
2	11	35.5
3	2	6.5
4	2	6.5
5	2	6.5
Mean = 1.94; SD = 1.18; Min = 1; Max = 5		

more independent variables. Relevant literature about e-recruitment was reviewed and analyzed. Instruments to measure variables like perceived ease of use, perceived usefulness, attitude towards e-recruitment and the intention to use it were modified from existing scales. The instrument's draft was face-validated by the R&D Director of the University where the researcher is employed.

The self-administered questionnaire was converted into a Google survey form to observe health safety protocols. A letter was sent to the President of the Romblon Human Resource Managers Practitioners requesting her assistance in disseminating the online survey from the association members. Participants were required to agree with the informed consent before they could proceed with the survey. Data were collected online from November 17-26, 2021. Respondents filled out the online form with their mobile phone, laptop, or desktop.

The online responses from Google Form were downloaded as an MSExcel file. Data were screened for duplicate and missing responses before the file was converted into a format compatible with the Statistical Package for Social Sciences version 25 software. Frequency count and percentage were used in describing the respondents in terms of sex and civil status. Mean and standard deviation were also used to describe the participants' age and length of experience as HRM practitioners and their responses to the perceptions about the e-recruitment questionnaire. Multiple stepwise linear regression was used in determining the significant predictors of the attitude and intention to use e-recruitment. All hypotheses were tested at the 0.05 level of significance.

Instrumentation

The researcher developed the instrument used in this study. It has two parts. Part 1 is about the respondents' demographics, self-reported proficiency in technology use, and awareness of e-recruitment. The second part was modified from Alsultanny and Alotaibi (2015) with the following components: perceived ease of use of e-recruitment, perceived usefulness of e-recruitment, attitude towards e-recruitment and intention to use it. This instrument is an expanded version of the Technology Acceptance Model, where the items were contextualized for e-recruitment technology and tools.

The measure on "proficiency on technology use" was self-reported along a five-point scale ranging from 1 = "not proficient at all" to 5 = "very proficient." Two items measured the construct on awareness of e-recruitment, "Have you heard e-recruitment before?" and "Does your agency/office use e-recruitment in scouting for prospective employees?". Every "no" response is given one point, while a "yes" gets 2 points. The mean of the two items was summed up to form the score of the construct. For the scaled items in the questionnaire, respondents were asked to agree or disagree with the statements using a five-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree." Verbal descriptors for the mean ratings were determined by obtaining the range between the highest and lowest possible ratings divided by three, which resulted in an interval of 1.33, thus, 1.00 – 2.33 (Low); 2.34-3.66 (Moderate); 3.67 – 5.00 (High).

Due to time constraints, pilot testing and reliability testing of the scale were relaxed, which is one of the limitations of this study. Instead, the questionnaire was subjected to face validation by the Director for Research of the University where the researcher is currently working. It was revised according to his comments and suggestions.

RESULTS

Perceptions about E-recruitment

Table 2 shows the respondents' perceptions of e-recruitment across six factors: proficiency in technology use, awareness of e-recruitment, perceived ease of use, perceived usefulness, and the respondents' attitude towards using e-recruitment and their intention to use it.

The respondents' perceived proficiency of technology use averaged at 4.28 (SD=0.65), with the use of mobile phone ranking first (M=4.35) and use of the internet as last (M=4.19). The sum of their awareness of e-recruitment was 3.49 (SD = 0.77), reporting that they have heard the term before (M=1.84, SD=0.77) and their agency/office is using it (M=1.65, SD=0.49). The respondents reported that the following e-recruitment tools were used by their agencies: Facebook (45%),

Table 2. Perceptions about E-recruitment (n=31)

Perceptions about E-recruitment	Mean	DR	SD	Rank
A. *Proficiency in Technology Use*				
1. Use of computer, laptop or desktop	4.29	H	0.64	2
2. Use of internet	4.19	H	0.70	3
3. Use of mobile phone	4.35	H	0.75	1
Mean	4.28	H	0.65	
B. *Awareness on E-recruitment*				
1. Have you heard of the term e-recruitment before?	1.84	N/A	0.37	1
2. Does your agency/office use e-recruitment in hiring employees?	1.65	N/A	0.49	2
Sum	3.49*	N/A	0.77	
C. *Perceived Ease of Use of E-recruitment*				
1. Using e-recruitment technology will be easy for me.	3.97	H	0.80	2
2. Using e-recruitment technology does not require a lot of effort.	3.42	M	0.89	4
3. It will be easy for me to become skillful in using e-recruitment technology.	3.87	H	0.92	3
4. E-recruitment facilitates ease in searching for applicants.	4.19	H	0.83	1
Mean	3.86	H	0.74	
D. *Perceived Usefulness of E-recruitment*				
1. E-recruitment can attract potential candidates from any part of the world.	4.45	H	0.72	1.5
2. E-recruitment can help us communicate the agency's image and culture better.	4.16	H	0.73	3
3. E-recruitment can help us find the right candidate for the job.	3.94	H	0.85	6.5
4. E-recruitment can lower costs to the organization.	3.97	H	0.80	4.5
5. E-recruitment reduces the time spent on hiring.	3.94	H	0.77	6.5
6. E-recruitment makes the job opening accessible to applicants 24/7.	4.45	H	0.72	1.5
7. E-recruitment makes the hiring process more efficient.	3.97	H	0.75	4.5
Mean	4.12	H	0.61	
E. *Attitude towards E-recruitment*				
1. I have a positive attitude towards e-recruitment.	4.10	H	0.83	1
2. I would recommend that our agency will use e-recruitment technology.	4.03	H	0.84	2
3. Compared with the traditional recruitment method, I consider e-recruitment technology as better.	3.87	H	0.85	3
Mean	4.00	H	0.79	
F. *Intention to Use E-recruitment*				
1. The likelihood that our agency will use e-recruitment is high	3.87	H	0.88	2
2. I am willing to use e-recruitment for our human resource management needs.	4.06	H	0.77	3
3. In the near future, I intend to use e-recruitment in our agency.	4.26	H	0.63	1
Mean	4.06	H	0.67	

*Sum of responses
Legend: 1.00 – 2.33 (Low); 2.34-3.66 (Moderate); 3.67 – 5.00 (High).

Agency's Own Website (36%), CSC Job Portal (26%), Jobstreet (19%), LinkedIn (6%), PESO (3%), Onlinejobs.ph (3%) and Trabaho.com (3%).

As to their perceptions of the ease of use of e-recruitment, the mean was 3.86 (SD=0.74). On top of the item indicators, was the respondents' belief that e-recruitment facilitates ease in searching for applicants (M=4.19, SD=0.83), while the last in the list was that using e-recruitment does not require a lot of effort (M=3.42; 0.89).

Concerning the perceived usefulness of e-recruitment, the mean was 4.12 (SD=0.61). The topmost agreed benefits (M=4.45, SD=0.72) were that e-recruitment could attract potential candidates from any part of the world, making the job opening accessible to applicants 24/7. Relatively, the bottom two benefits

Table 3. Model Summary for the Regression Analysis on the Predictors of HRM Practitioners' Attitude towards E-recruitment

R	R square	Adjusted R Square	Std. Error of the Estimate
0.817	0.667	0.643	0.47

Table 4. ANOVA Table for the Significance of the Regression Model

Sources of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.454	2	6.227	28.066	0.000
Residual	6.212	28	0.222		
Total	18.667	30			

Table 5. Coefficients

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-0.084	0.588		-0.142	0.888
Perceived Ease of Use	0.497	0.178	0.465	2.783	0.010
Perceived Usefulness	0.525	0.216	0.406	2.431	0.022

Dependent Variable: Attitude towards E-recruitment

Table 6. Model Summary for Regression Analysis on the Predictors of HRM Practitioners' Intention to Use E-recruitment

R	R square	Adjusted R Square	Std. Error of the Estimate
0.921	0.849	0.832	0.27

Table 7. ANOVA Table for the Significance of the Regression Model

Sources of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	11.587	3	3.862	50.581	0.000
Residual	2.062	27	0.076		
Total	13.649				

Table 8. Coefficients

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	0.099	0.365		0.270	0.790
Attitude towards E-recruitment	0.777	0.069	0.909	11. 214	0.000
Awareness of E-recruitment	0.182	0.067	0.207	2.725	0.011
Years of experience as HRM Practitioner	0.115	0.046	0.202	2.534	0.017

Dependent Variable: Intention to Use E-recruitment

were that e-recruitment could help find the right candidate for the job (M=3.94, SD=0.85), and it reduces the time spent for hiring (M=3.94, SD=0.77).

The data also show that the respondents' attitude towards using e-recruitment was favorable (M=4.0, SD=0.79), having a positive attitude towards it (M=4.10, SD=0.83), recommending it to their agency (M=4.03, SD=0.84), and considering it to be better than the traditional recruitment method (M=3.87, SD=0.85).

The intention of the participants to use e-recruitment was very likely (M=4.06; SD=0.67) as they intend to use it in their agency in the near future (M=4.06, SD=0.67), they are willing (4.06, SD=0.77) and high likelihood of using it (M=4.87; SD=0.88).

Regression Analysis on the Predictors of HRM Practitioners' Attitude towards E-recruitment

Multiple linear regression analysis, particularly the stepwise method, was used to assess the ability of the variables such as the respondents' age, sex, years of experience as HRM practitioners, awareness of e-recruitment, proficiency in technology use, perceived ease of use of e-recruitment, and its perceived usefulness to predict their attitude towards E-recruitment. The analysis resulted in two regression models, the second one is shown in Table 5 with Perceived Ease of Use (β = 0.465, p = 0.010) and Perceived Usefulness (β = 0.406, p = 0.022) recording statistically significant beta values. The regression model was significant, $F(2,28)$ = 28.066, p = 0.000 (Table 4) explaining a total variance of 66.7% (Table 3) in Attitude towards E-recruitment.

Regression Analysis on the Predictors of HRM Practitioners' Intention to Use E-recruitment

Another multiple linear regression analysis was run to determine if the respondents' age, sex, years of experience as HRM practitioners, awareness of e-recruitment, proficiency on technology use, perceived ease of use of e-recruitment, its perceived usefulness, and their attitude towards it can predict their intention to use E-recruitment. The analysis resulted in three regression models, the third one is shown in Table 8 with Attitudes towards E-recruitment ($\beta = 0.909$, $p = 0.000$), Awareness of E-recruitment ($\beta = 0.207$, $p = 0.011$) and Years of Experience as HRM Practitioner ($\beta = 0.202$, $p = 0.017$) recording statistically significant beta values. The regression model was significant, $F(3,27) = 50.581$, $p = 0.000$ (Table 7) explaining a total variance of 84.9% (Table 6) in Intention to Use E-recruitment.

DISCUSSION

Facebook as Top E-recruitment Site for Romblon HRM Practitioners

The current study's findings showed that 35% of the HRM practitioners surveyed are using Facebook (FB) as a tool for e-recruitment. The recent paper of Meah and Sarwar (2021) claimed that using social networking sites (SNS) in human resource management is a new trend. Various studies report that this study concurs that Facebook is the most popular recruitment SNS (Hosain & Liu, 2020; Kaur & Arainayagam, 2020).

Employers are resorting to Facebook because it enhances their recruitment pool. With this larger platform, they can target their audience by location, career type, interests and many other categories better because many people log into Facebook every day and the chance of reaching them is high. Employers can also establish a personal connection with potential candidates through their FB page. No other social media channel can do that, and it is an excellent channel for recruiting purposes. FB also opens the door for many referrals, such as a current employee sharing a job posting and reaching their network. Using FB recruiting tools increases brand awareness. Even if the purpose is to promote a job opening, it leverages advertising and branding. FB ads are cost-effective. It is affordable even for small companies or organizations. FB as a recruiting tool might be the next trend in e-recruitment, which is termed "social recruiting" or "Facebook recruiting" as more and more organizations are using it.

In a nutshell, the following strategic FB recruiting actions have been recommended: find potential candidates, create a Facebook page, share company culture, create a job ad, promote job ads for free, promote ads on an affordable budget, use Facebook Live, make a job tab, communicate successfully and share specialized recruiting content.

Perceived Ease of Use and Perceived Usefulness of E-recruitment as Predictors of HRM Practitioners' Attitude towards It

Using the Technology Acceptance Model, the attitude towards e-recruitment was hypothesized to be affected by age, sex, years of experience as an HRM practitioner, awareness of e-recruitment, proficiency on technology use, perceived ease of use of e-recruitment, and perceived usefulness of e-recruitment.

The study found that only two of these factors significantly predict the respondents' attitude towards e-recruitment: their perceived ease of use of the technology and the perceived usefulness of the technology.

Holding a positive or negative attitude towards e-recruitment depends on the ease of use of the e-recruitment tool. If it is easy to use, it can foster a positive attitude to the HRM practitioners; otherwise, they will shun away from it. This factor has a higher effect size than the other, meaning that if the HRM's recruitment processes were to be modernized and digitalized, the platform should be simple to use, not complex. If this is the case, they will be more welcoming to the technology. These results confirm the earlier findings of Grimaldo et al. (2020), Buil et al. (2020) and Hosain et al. (2016) but contradicted the findings of Hariwibowo (2017) and Zaremohzzabieh et al. (2016).

Likewise, the perceived usefulness of e-recruitment also affects the HRM practitioners' attitude towards this technology, whether they will be positive or negative about it. If they see that the benefits exceed the costs, e-recruitment will be a welcome innovation; otherwise, they will be negative about it. This finding confirms previous studies of Buil et al. (2020), Banerjee and Gupta (2019), Hariwibowo (2017) and Hafeez et al. (2016). However, this finding digressed from the work of Grimaldo et al. (2020), when they found out that the perceived usefulness of e-recruitment did not affect the attitude of the HRM practitioners towards it, but it did for job applicants. The researchers claimed that HRM practitioners reported that other features could be added to the e-recruitment tool to be more useful. One of the reasons this study established the link between perceived usefulness and attitude is because of intensive and exhaustive data mining on the items that would represent the perceived usefulness of e-recruitment. Other benefits of the tool have been incorporated in the scale, such as attracting potential candidates from other parts of the world, communicating the agency's image and culture better, finding the right candidate for the job, lowering the cost to the organization, reducing the time spent for hiring, making the job opening accessible to applicants 24/7 and making the hiring process more efficient.

No significant predicting power for attitude towards e-recruitment was seen among these variables:

sex and age of the respondents, their length of experience as an HRM practitioner, their self-reported proficiency in the use of technology and their awareness about it. It only shows that the attitude of the HRM practitioners towards e-recruitment mainly depends on their perceptions about their ease of use and usefulness.

Attitude, Awareness and Experience as Predictors HRM Practitioners' Intention to Use E-recruitment

Using the TAM model, the hypothesis that the intention of the HRM practitioners to use e-recruitment is affected by age, sex, years of experience as an HRM practitioner, awareness of e-recruitment, proficiency in technology use, perceived ease of use of e-recruitment, perceived usefulness of e-recruitment and their attitude towards it was tested.

Results show that three factors emerged as significant predictors of their intention to use E-recruitment: their attitude toward the technology, their awareness of the existence of technology, and their length of experience as HRM practitioners.

The most powerful among these predictors is their attitude towards e-recruitment. In other studies that did not include attitude as a variable, the respondents' perception of ease of use and usefulness dictated behavioral intention to use the technology. Previous studies supported this model (Grimaldo et al., 2020; Grimaldo & Uy, 2020; Khalid et al., 2020; Rathee & Bhuntel, 2018; Silva et al., 2017; Hariwibowo, 2017).

However, in light of the current findings of this study, the influence of these two variables on the intention to use the technology was not significant. The previous regression analysis on attitude can explain this result. It was found out that the perceived ease of use and perceived usefulness generated a high correlation with attitude towards e-recruitment, a case of multicollinearity, which the regression model offsets in favor of attitude towards the technology. Consistent with the TAM model, it is the HRM practitioners' attitude towards e-recruitment that strongly influences whether they would intend to use the technology or not. A similar trend was also seen in the works of Grimaldo et al. (2020), Ekanayaka and Gamage (2019), Selvanthan et al. (2019), Woon et al. (2019) and Zhang et al. (2018).

The respondents' awareness of the existence of the technology as a predictor of their intention to use it supports the findings of Ahmed et al. (2016), albeit it is not in the e-recruitment context. Length of experience as a significant predictor of intention to use technology was also consistent with the findings of Chao (2019) in a study about the use of mobile learning apps, which is not far too much from e-recruitment. The profile data show that most of the HRM practitioners in this study have only been in this line of work in the last two years. It can be inferred that along with that brief experience is their involvement in using e-recruitment tools, particularly at the height of the pandemic, thus making it a significant predictor of their intention, but not age. As to gender, there was a previous study that ruled it out as not affecting one's intention to use technology (Grimaldo et al., 2020), but other studies contradicted it (Goswami & Dutta, 2016; Teo et al., 2015), claiming that males are more skillful in technology than females thus the likelihood of a better intention to use the technology is high. Findings on self-reported technological proficiency as affecting intention to use e-recruitment did not support the claim of Razak et al. (2021) about it being a significant predictor of intention for continued use.

CONCLUSION

This study determined the perceptions of e-recruitment. It tested the significant factors that can potentially predict the attitude and intention of the HRM practitioners in the province of Romblon to use this technology from the lens of the Technology Acceptance Model. It was found that Facebook is the leading e-recruitment tool that the HRM practitioners in the province use. This practice is a new trend dubbed as 'social recruiting' and is eyed to revolutionize the e-recruitment system, given that around 2.89 billion people are logging into Facebook every day. The social networking site can also help employers with background checking and providing personalized recruitment strategies. Having a positive attitude towards technology and its use, especially if the recruitment process of an agency were to be automated, is a major challenge for employers. However, if the e-recruitment platform is perceived to be easy to use and useful by HRM practitioners, they will have a favorable attitude towards it. If their attitude towards it is positive, they will likely patronize and use e-recruitment technology. Therefore, HRM practitioners must be aware of the HRM-related technologies that can help improve the HRM system in general.

AUTHOR'S CONTRIBUTIONS

The author confirms sole authorship of this research.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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The Structural Relationship between Secondary School Teachers' Level of Computational Thinking Skills and Organizational Agility

Garry Vanz V. Blancia[1,2] and Philip R. Baldera[2]

ABSTRACT

With the various problems encountered by secondary school teachers, the skills to adapt to the evolving educational landscape is imperative. In this study, secondary school teachers' level of Computational Thinking Skills (CTS) and Organizational Agility (OA) was assessed, as well as the structural relationship of the two variables. Standardized CTS test and OA Test were adapted and revised based on the Philippines' secondary school setting. Convenience sampling was done among 305 secondary school teachers in the division of Romblon. The sampling size was calculated using Raosoft software. SPSS v. 25 was used to calculate the descriptive statistics. The structural relationship between variables was modelled using Smart PLS software. Results revealed that secondary school teachers CTS and OA were high and very high, respectively. It was also found out that CTS significantly predicts secondary school teachers' OA. It was recommended that activities such as problem-solving simulations be integrated in every school's in-service training program for secondary school teachers' sustained level of CTS and OA.

Keywords: *structural relationship, computational thinking skills, organizational agility, secondary school teachers*

INTRODUCTION

In the age of the Fourth Industrial Revolution, education is rapidly evolving alongside other industries and sectors. Global education demands have led countries to introduce numerous changes and innovations, requiring schools to develop adaptive skills for teachers (Miller et al., 2022). The COVID-19 pandemic further disrupted the learning process, posing unprecedented challenges for both students and teachers. The abrupt changes in teaching strategies and school operations caught everyone off guard, necessitating quick adaptation to new measures (Gross & Opalka, 2020).

In the Philippines, the Department of Education reported that 425 schools have permanently closed since 2020 (Chanco, 2023) Greater organizational agility might have prevented these closures and ensured the continuation of quality education for more Filipino learners.

As critical problems arise in education, a vital skill for school organization members is the ability to swiftly respond to challenges and adapt to changes. This skill, known as organizational agility, highlights an organization's capacity to overcome educational sector demands and innovations (Zeb-Obipi et al., 2020). Organizational agility is crucial for educational institutions to remain relevant and competitive in today's dynamic environment, enabling quick adaptation to student needs, technological advancements, and regulatory requirements (Pouravid et al., 2019). By fostering organizational agility, educational institutions can enhance their responsiveness, creativity, and resilience, improving their ability to achieve goals and fulfill missions.

Additionally, educators need strong problem-solving skills to meet global demands. Computational thinking (CT), a foundational skill, involves breaking down complex problems and creating algorithms to solve them (Martínez et al., 2023). Recognized as essential for teachers, computational thinking promotes problem-solving, logical reasoning, and creativity. This skill is increasingly important in education, where assessing secondary teachers' computational thinking

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skills is crucial for planning and implementing necessary interventions.

Studies have explored the relationship between computational thinking and organizational agility (Cutumisu et al., 2022; Li, 2022; Veiseh & Eghbali, 2015). However, there is limited literature on this relationship among secondary teachers in the Philippines, highlighting the need for further exploration.

Senin et al. (2019) discussed in their study that although teachers tend to be computational thinkers, their becoming agile in the sense of being proactive is deeply associated. Meanwhile, Bakhshi et al. (2017) revealed in their investigation that one of the key determinants of organizational agility is computational thinking skills. Grześ (2023) further supported their claim in his study about managing organizational agility which he revealed that organizational agility could be achieved through harnessing computational thinking skills. Moreover, he concluded in his investigation that organizations should provide strong grounds to harness the ability for the survival and development of an organization.

Meanwhile, in a study by Catumisu et al. (2022), the relationship between pre-service teachers' computational thinking and organizational agility was explored within the dimensions of attitudes and skills. Path analysis revealed that higher levels of computational thinking skills among pre-service teachers are associated with greater organizational agility. This suggests that as pre-service teachers develop stronger computational thinking abilities, they become better equipped to adapt and respond effectively to changes and challenges within educational organizations. Presser et al. (2023) support this finding, emphasizing the importance of integrating computational thinking into teacher training programs to create a more agile and adaptable workforce.

Yeh and Chu (2017) explored computational thinking, creativity, and organizational agility in large Chinese organizations. Their study revealed a significant relationship between computational thinking skills and organizational agility. They found that problem-solving techniques, abstraction, and algorithmic thinking foster innovation and maintain a competitive edge. Amenyo & Kpo (2023) emphasized the importance of managers investing in CT training to cultivate a more creative and agile workforce, driving sustained innovation and flexibility. Integrating CT into organizational practices is seen as pivotal for achieving long-term success and resilience in the face of digital transformation.

Further, Veiseh et al. (2015) studied the structural relationship between computational thinking, creativity, and organizational agility. Their findings showed a significant relationship between these constructs. This suggests that as employees develop their computational thinking abilities, they become more adept at problem-solving, adapting to change, and innovating. Amenyo & Kpo (2023) discussed that these skills enable organizations to design and implement interventions and simulations to anticipate challenges and identify opportunities for improvement or innovation.

In this investigation, secondary school teachers' computational thinking skills and organizational agility were assessed. Further, this analyzed if computational thinking skills predict organizational agility among secondary school teachers.

METHODOLOGY

This study employed a descriptive-correlational research design. This study was conducted among 305 secondary school teachers (Male=92, and Female=213) in the Division of Romblon, Philippines using convenience sampling. The sampling size was calculated using Raosoft software (Adekunle & Dakare, 2020).

The standardized Computational Thinking Skills test (Gurbuz & Hatunoglu, 2022) and Organizational Agility Test (Korkmaz et al., 2017) were adapted and revised based on the Philippines' secondary school setting. In the data gathering, the instruments were distributed using printed copies and Google forms (for far-flung areas) throughout Romblon province. Using SPSS v.25, descriptive statistics such as mean, percentage, and standard deviation were used. In testing the structural relationship as to how computational thinking skills predict organizational agility, Smart PLS was used.

RESULTS AND DISCUSSION

Table 1 presents the levels of creativity, algorithmic thinking, cooperativity, critical thinking, and problem-solving skills among secondary school teachers in Romblon. Teachers demonstrated high levels of creativity, as indicated by their belief in solving problems with sufficient time and effort (M = 4.33, SD = 0.81). They also showed strong algorithmic thinking, with the ability to mathematically express solutions to daily life problems (M = 3.85, SD = 0.88).

Additionally, the teachers exhibited high cooperativity, enjoying cooperative learning and believing it leads to more successful results (M = 3.71, SD = 0.85). In terms of critical thinking, teachers expressed a willingness to learn challenging things (M = 3.67, SD = 0.84). Lastly, teachers demonstrated strong problem-solving skills, producing multiple options for solving problems (M = 4.51, SD = 0.99).

Table 1. Level of Computational Thinking Skills Among Secondary School Teachers in Romblon

Component	Mean	SD	DI
Creativity			
1. I like the people who are sure of most of their decisions	3.75	0.88	M
2. I like the people who are realistic and neutral	3.58	0.84	H
3. I believe that I can solve most of the problems I face if I have sufficient amount of time and if I show effort.	4.33	0.81	VH
4. I have a belief that I can solve the problems possible to occur when I encounter with a new situation.	3.83	0.82	H
5. I trust that I can apply the plan while making it to solve a problem of mine.	3.83	0.80	H
6. Dreaming causes my most important projects to come to light.	3.67	0.85	H
7. I trust my intuitions and feelings of "trueness" and "wrongness" when I approach the solution of a problem	3.67	0.86	H
8. When I encounter with a problem, I stop before proceeding to another subject and think over that problem.	4.33	0.83	VH
Composite Mean	3.67	0.85	H
Algorithmic Thinking			
9. I can immediately establish the equity that will give the solution of a problem.	3.67	0.87	H
10. I think that I have a special interest in the mathematical processes	3.58	0.91	H
11. I think that I learn better the instructions made with the help of mathematical symbols and concepts.	3.75	0.89	H
12. I believe that I can easily catch the relation between the figures	3.75	0.87	H
13. I can mathematically express the solution ways of the problems I face in the daily life.	4.17	0.88	H
14. I can digitize a mathematical problem expressed verbally.	4.17	0.88	H
Composite Mean	**3.85**	**0.88**	**H**
Cooperativity			
15. I like experiencing cooperative learning together with my group friends.	3.92	0.85	H
16. In the cooperative learning, I think that I attain/will attain more successful results because I am working in a group.	3.92	0.82	H
17. I like solving problems related to group project together with my friends in cooperative learning.	3.50	0.88	H
18. More ideas occur in cooperative learning	3.50	0.86	H
Composite Mean	**3.71**	**0.85**	**H**
Critical Thinking	**Mean**	**SD**	**DI**
19. I am good at preparing regular plans regarding the solution of the complex problems.	3.67	0.80	H
20. It is fun to try to solve the complex problems.	4.00	0.79	H
21. I am willing to learn challenging things.	3.67	0.84	H
22. I am proud of being able to think with a great precision.	3.83	0.78	H
23. I make use of a systematic method while comparing the options at my hand and while reaching a decision.	3.75	0.82	H
Composite Mean	**3.67**	**0.91**	**H**
Problem-solving	**Mean**	**SD**	**DI**
24. I have problems in the demonstration of the solution in my mind.	3.67	0.97	H
25. I have problems in the issue of where and how I should use the variables such as X and Y in the solution of a problem.	3.42	0.96	H
26. I cannot apply the solution/ways I plan respectively and gradually.	3.33	0.99	M
27. I can produce so many options while thinking of the possible solution/ways regarding a problem.	3.67	1.03	H
28. I can develop my own ideas in the environment of cooperative learning	3.50	1.00	H
29. I try to learn something together with my group friends in group learning.	3.52	0.99	H
Composite Mean	**4.51**	**0.99**	**H**

Legend   Descriptive Interpretation (DI)
1.00 - 1.80 Very Low **(VL)**; 1.81 - 2.60 Low **(L)**; 2.61 - 3.40 Moderate **(M);** 3.41 - 4.20 High **(H)**; 4.21 - 5.00 Very High **(VH)**

These findings suggest that secondary school teachers in Romblon possess high levels of key skills necessary for effective teaching and student engagement. These skills can enhance classroom activities, promote student learning, and contribute to a more dynamic educational environment.

The results suggest that teachers in Romblon possess a strong sense of creativity and confidence in their problem-solving abilities, as discussed in the study of Catumisu et al. (2022). This bodes well for their potential to integrate computational thinking skills into their teaching, facilitating the development of creativity and problem-solving skills in their students which is also aligned with the study of Presser et al. (2023). These findings further suggest that teachers in Romblon exhibit a strong proficiency in algorithmic thinking. Their comfort with mathematical processes and ability to apply mathematical concepts to problem-solving are indicators of their readiness to integrate computational thinking skills into their teaching practices, fostering algorithmic thinking skills among students which was profoundly stressed in the study of Li (2022) and Alvarado et al. (2023)

Results further indicate that teachers in Romblon have a strong preference for and belief in the effectiveness of cooperative learning. This is a positive indicator of their potential to integrate cooperative learning strategies into their teaching practices, fostering collaboration and teamwork skills among students

(Veiseh & Eghbali, 2015). They further stressed that teachers' confidence in problem-solving, enjoyment of challenging tasks, and systematic approach to decision-making are positive indicators of their ability to integrate critical thinking into their teaching practices, potentially enhancing students' critical thinking skills as well.

On the other hand, Table 2 presents the levels of organizational agility among secondary school teachers in Romblon, focusing on proactiveness, radicalness, responsiveness, and adaptiveness. Teachers perceived their organization as highly proactive, anticipating new opportunities and seeking novel approaches to future market needs (M = 4.33, SD = 0.67, VH). They also viewed their organization as moderately radical, supporting high-risk plans and projects with uncertain returns and committing resources to radical changes (M = 4.19, SD = 0.76, H). Furthermore, teachers perceived their organization as highly responsive, rapidly reacting to emerging opportunities in customer needs, markets, and environmental factors (M = 4.28, SD = 0.71, VH).

Lastly, teachers perceived their organization as highly adaptive, adapting existing business and educational models and processes and quickly adopting best practices used by others (M = 4.28, SD = 0.72, VH). These findings suggest that teachers perceived their organization as highly agile, with a strong ability to anticipate, respond to, and adapt to change, which is

Table 2. Level of Organizational Agility Among Secondary School Teachers in Romblon

Component		Mean	SD	DI
Proactiveness				
1.	Our organization anticipates new opportunities	4.42	0.67	VH
2.	Our organization seeks new possible opportunities	4.33	0.68	VH
3.	Our organization seeks novel approaches to future market needs	4.25	0.67	VH
	Composite Mean	**4.33**	**0.67**	**VH**
Radicalness				
4.	Our organization seeks high-risk plans and projects with chances of high return.	4.17	0.72	H
5.	Our school supports organizational experimentation despite uncertain returns	4.33	0.78	VH
6.	Our organization commits resources to radical changes that can potentially transform markets and competition.	4.08	0.76	H
	Composite Mean	**4.19**	**0.76**	**H**
Responsiveness				
7.	Our organization rapidly reacts to emerging opportunities in customer needs.	4.25	0.72	VH
8.	Our organization rapidly reacts to emerging opportunities in markets.	4.33	0.74	VH
9.	Our organization rapidly reacts to emerging environmental opportunities (e.g., new regulations, globalization)	4.25	0.67	VH
	Composite Mean	**4.28**	**0.71**	**VH**
Adaptiveness				
10.	Our organization adapts existing business and educational models.	4.25	0.72	VH
11.	Our organization adapts the existing educational/business process.	4.25	0.71	VH
12.	Our organization quickly adopts best practices used by others	4.33	0.75	VH
	Composite Mean	**4.28**	**0.72**	**VH**

Legend   **Descriptive Interpretation (DI)**
1.00 - 1.80 Very Low **(VL)**; 1.81 - 2.60 Low **(L);** 2.61 - 3.40 Moderate **(M);** 3.41 - 4.20 High **(H)**; 4.21 - 5.00 Very High **(VH)**
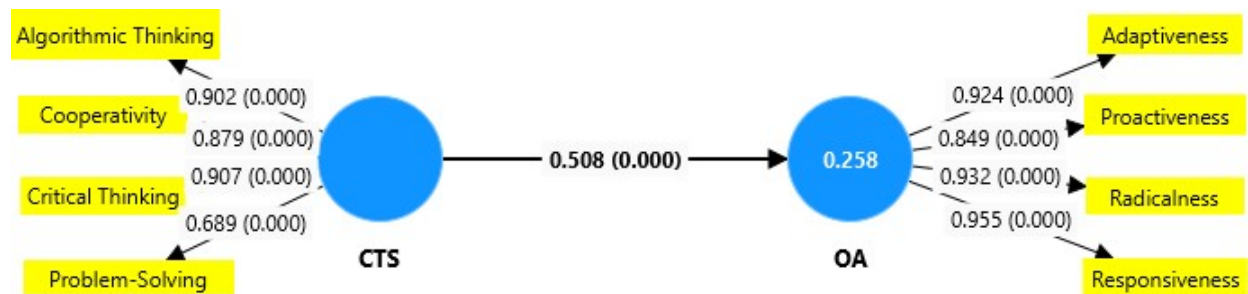
Figure 1. Structural Relationship Between Computational Thinking Skills and Organizational Agility
Among Secondary School Teachers

essential for organizational success and effectiveness in a dynamic environment. These findings could imply that teachers in Romblon perceive their organization as highly proactive and agile. This high level of proactiveness is a positive indicator of the organization's ability to adapt to change, seize opportunities, and effectively respond to challenges in the education sector as also explained by Marhraoui et al. (2022). These findings further suggest that teachers in Romblon perceive their organization as agile and willing to take risks and pursue radical changes. Chen and Lin (2014) argued that a high level of radicalness is a positive indicator of the organization's ability to innovate and adapt to new challenges and opportunities in the education sector. Grzes (2023), and Bai and Li (2019) opined that teachers who perceived their organization as highly responsive to various opportunities are crucial for adapting to the dynamic educational landscape and meeting the evolving needs of students and stakeholders, which is also consistent with the arguments raised by Grześ (2023).

The structural model above shows the relationship between the two variables, computational thinking skills predicting organizational agility. The means of the components of computational thinking skills such as algorithmic thinking, cooperativity, critical thinking, and problem-solving loaded significantly to CTS (0.689-0.907). Meanwhile, the means of the components of the construct on the right, which is organizational agility (adaptiveness, proactiveness, radicalness, responsiveness) is significantly loaded to OA (0.849-0.955). The solid arrow from CTS to OA represents the relationship between computational thinking skills and organizational agility suggesting a significantly positive beta coefficient (β=0.508, p=0.00) thereby predicting 25.8% of the variance in OA.

This implies that CTS plays a crucial role in enhancing teachers' ability to adapt and respond to new challenges and opportunities within their organizational context. These findings underscore the importance of fostering CTS among teachers to enhance OA within

educational institutions as suggested by Catumisu et al., (2022). Li (2022) further discussed that by developing CTS, schools can empower teachers to effectively navigate complex problems, embrace innovative solutions, and drive positive change in their organizations.

The findings supported the investigation of Veiseh and Eghbali (2015), who studied the structural relationship between computational thinking, creativity, and organizational agility. Educators need to become more adept at problem-solving, adapting to change, and innovating as they develop their computational thinking abilities better with these competencies. Amenyo and Kpo (2023) claimed that these skills should be developed among organizations to plan and execute interventions and simulations to anticipate challenges and identify opportunities for improvement or innovations within organizations. They further opined that Integrating CT into organizational practices is seen as pivotal for achieving long-term success and resilience in the face of digital transformation.

CONCLUSION

As educational organizations tend to evolve due to the challenging demands of time, educators must develop computational thinking skills for sustained organizational agility. In this investigation, findings suggest that secondary school teachers in Romblon possess high levels of creativity, algorithmic thinking, cooperativity, critical thinking, and problem-solving skills. These competencies are essential for effective teaching and fostering a dynamic learning environment. Additionally, the teachers perceive their organization as highly agile, and capable of anticipating and responding to new opportunities and challenges.

Based on these findings, it is recommended that educational institutions in Romblon continue to foster and enhance these key skills among teachers through professional development programs focused on creativity, algorithmic thinking, cooperativity, critical

thinking, and problem-solving. These skills could be enhanced by integrating problem-solving scenario simulations in their respective schools' in-service training programs. Emphasizing these skills will further strengthen teachers' abilities to integrate computational thinking into their teaching practices, benefiting student learning and engagement.

Moreover, schools should leverage the high organizational agility perceived by teachers to implement innovative educational practices and policies. By maintaining a proactive, radical, responsive, and adaptive organizational culture, schools can better navigate the dynamic educational landscape and effectively meet the evolving needs of students and stakeholders.

Future research could explore the direct impact of these skills on student outcomes and further investigate the relationship between computational thinking and organizational agility in different educational contexts such as in private schools. This would provide deeper insights into how these competencies can be effectively developed and utilized to enhance educational practices and organizational effectiveness.

AUTHORS' CONTRIBUTIONS

G.V.B. is the main researcher and statistician of the study, while P.B. gave advice and implications of the results.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Development and Validation of *Onhan* Supplementary Learning Module on Four Basic Operations on Integers

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ABSTRACT

Mathematics has been proven to be a difficult subject for students. At Ferrol National High School, the student proficiency in quarterly periodical test was 56.28% as against the 75% standards. This study developed an *Onhan* supplementary module on operations on integers to provide struggling learners the chance to learn operations on integers using the learners' first language as the medium which students under open high schools in other *Onhan*-speaking municipalities can also use. The developed material underwent validation from five content experts based from the DepEd's guidelines and processes for Learning Resource Management and Development System's predetermined criteria. The materials were further assessed by two *Onhan* language experts, selected intended users, and pilot tested to grade seven students. The result of the validation revealed that the developed *Onhan* supplementary learning module was very satisfactory (M=3.76). The comparison of pretest and posttest of students' scores after pilot testing showed a significant mean difference, with the post-test recording 9.6% points higher than the target of 75%. This implies that the developed supplementary module contributed to the improvement of the performance of the students in operations on integers, (t=-11.511, p=.000). Furthermore, the words and sentences used in the developed *Onhan* supplementary learning readability were found appropriate for Grade 9 and may be adjusted to fit the target users.

Keywords: *Onhan supplementary learning module, development, validation, operations on integers*

INTRODUCTION

Republic Act No. 10533, also known as the Enhanced Basic Education Act of 2013 mandates flexibility in the curriculum, enabling schools to contextualize, localize, and indigenize lessons across various subjects. The aim is to provide learners the chance to receive a globally competitive and internationally standardized quality education. The act was established to promote learner-centered education, addressing the unique needs, cognitive and cultural capacities, circumstances, and diversity of learners, schools, and communities. It emphasizes the use of suitable languages for teaching, including the mother tongue as classroom instructional material.

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Mathematics is one of the most difficult subjects in school. However, students have difficulty with negative numbers and performing operations that involve negative numbers (Alfarisi et al., 2020). Another factor that makes mathematics hard for students is the choice of teaching strategies and methods for delivering the subject (Langoban, 2020). An effective approach to address this issue involves creating learning materials tailored to the student's needs and comprehension levels.

Self-Learning modules are designed to let the students choose how they learn, what to learn, where to learn, and when to learn (Sequeira, 2012). The use of self-learning modules has been proven to help students enhance their quality of learning (Tohidi et. al., 2019). Aside from that, self-learning modules allow students to work at their own pace, promote parents' engagement in their child's learning, and suit schools and communities with poor learning resources (Cahapay et.al., 2023).

In the Philippines, instruction is conducted in English across all subjects, including mathematics. However, students face two significant challenges in learning math: the language barrier that exists between students and the subject matter, and the inherent

difficulty of understanding the content, as mathematics is widely regarded as one of the most complex subjects. This is in alignment with the study of Peng et. al. (2020), who found that using the correct language in retrieving mathematics skills is important for foundational mathematics, which further strengthens the linguistic thought processes for performing advanced mathematics tasks.

This study was conducted to address the underlying issue that involves implementing strategies such as adapting the medium of instruction for students who struggle with a slower pace to ensure that no one is left behind in mathematics discussions. The most essential learning competency, operations on integers, has been listed three school years in a row as one of the least mastered competencies in grade 7 of Ferrol National High School. The study followed Analysis, Design, Development, and Evaluation (ADDE) in developing the *Onhan* supplementary learning module on four basic operations on integers. The research objectives involved validation of the developed supplementary learning material in terms of content, format, presentation and organization, accuracy and up-to-date information, and language. Moreover, it involved testing the efficacy of the developed module on the students.

Furthermore, the study of Canilao (2018) revealed that English is the least preferred language of instruction for students learning mathematics because of the difficulty in understanding it. However, Norén (2008) found out that bilingual students who used English and their mother tongue in the instruction were able to learn more and felt secure with ways of language and learning mathematics. This was supported by Perez and Alieto (2018), who found that when students use their mother tongue when learning mathematics, their proficiency level is advanced. Furthermore, positive correlation between mathematics achievement and proficiency in the mother tongue has been established (Perez & Alieto, 2018).

A study conducted by Morales-Obod et. al. (2020) found that the use of mother tongue language is more effective than non-mother tongue language in teaching math. The study by Fernando (2020) revealed that those students who were taught several topics in mathematics such as operations on decimal numbers, operations on whole numbers, and laws of exponent using their mother tongue performed better than those students who were taught using English. This was supported by the study conducted by Pillos et. al. (2020) who found that the use of the mother tongue as a medium of instruction can improve the learners' knowledge comprehension and strategies for solving problems.

Another study conducted by Falguera (2022) showed that exposing pupils to their mother tongue can greatly influence them to improve their performance. This implies that the use of the mother tongue language

or the local language of the learners in teaching mathematics is one of the factors that can help to elevate the learning of the students and attain higher proficiency in the subject matter.

Many supplementary learning modules have been constructed over time. When the pandemic hit the world, there was shift a in education delivery modes from face-to-face to distance education or modular education. Mamun et al. (2020) highlighted the use of the model Predict, Observe, Explain, and Observe (POEE) in their study, wherein they focused on teaching children through scaffolding learners through online learning modules. In the module developed by Bandala et. al. (2023), sample activities, exercises, and pre-assessment and post-assessment were the highlights of their self-learning modules while the best feature of the said module according to their pupils were representations and connection to real life. Funa and Talaue (2021) affirmed that the module should be under the philosophy of constructivism. On the other hand, Wulandari et. al. (2016) developed a module incorporating a discovery learning approach and proved to be effective according to the evaluation of experts and students.

This study aimed to produce a developed *Onhan* supplementary learning module that will help struggling students and those in the open high school program to understand better operations on integers using their mother tongue. The supplementary learning module is written in the first language of the target students and features contextualized situations in the examples and word problems. Moreover, it has been simplified and each topic was made up of five parts. First is the *Usyan,* wherein the topic objectives are written. Second, *Dapat Usyan Nimo Ya* which gives a simplified overview of the topic. Third, *I-Try Naton* wherein the examples were provided with discussions on the side. Fourth, *Ikaw Ron,* which gives the learners the opportunity to work on their own using the acquired knowledge. Lastly, *Kaya Ron Nako* gives the students the chance to answer the worded problem.

The study provides evidence that the use of the mother tongue in supplementary modules helps improve the performance of the students in classroom instruction. This is for the curriculum planners to include the mother tongue as an option to deliver lessons in the classroom.

METHODOLOGY

The research followed a descriptive-developmental approach which was composed of two phases. Phase 1 was the development of the supplementary learning material according to the learning needs of the students in terms of content encompassing analysis, design, and development, while Phase 2 focused on the evaluation of the developed module. Before the module development process began,

the researcher analyzed the gaps and problems in teaching operations of integers.

Figure 1 shows the *Onhan* supplementary learning module development process. First, the researcher analyzed the learning needs of the students in terms of language and content. The researcher utilized the consolidated reports submitted by the math teacher to assess the difficulties of the students in terms of content. Secondly, the researcher came up with the assessed needs of learners. Lastly, the researcher used the assessed needs in developing the *Onhan* supplementary learning material using the Analyze, Design, Develop and Evaluate (ADDE) process. The developed learning material was validated by content experts, language experts, and student participants for feedback. After the validation process, the developed learning module was tested for its efficacy by administering it to the group of students using the pre-test and post-test scores.

To assess the validity of the *Onhan* supplementary learning material, the researcher utilized the evaluation tool adopted from the Department of Education Guidelines and Processes for Learning Resources Management and Development System (LRMDS) dated March 2009. The tool was also used in a master's thesis about the development and evaluation of instructional modules for special programs in journalism (Yongco & Del Valle, 2022). As for the tool used in validating the language used in the supplementary learning module, the researcher adopted the evaluation tool used by Altares (2024) in his study about the development and validation of a supplemental learning resource in chemistry in conversational Filipino.

The pre-test and post-test were administered to test the effectiveness of the developed *Onhan* supplementary module. In developing the test material used, the researcher adhered to the procedure in developing test materials. The researcher used Kuder-Richardson (KR21) to test the reliability through its internal consistency. The resulting reliability of the developed pre-test and post-test was .71, assuring that it is good for a classroom test. Hence, yielding a reliable test result.

The study's participants consisted of content and language experts in mathematics. Expert teachers as defined by Anderson and Tanner (2023) have well-developed pedagogical knowledge. With these, to identify these experts, a set of criteria such as scholastic achievements in the teaching-learning process in mathematics, contributed greatly to the field of mathematics, and long tenure as a teacher was established to validate the developed learning material in terms of content and language. The content experts were composed of two Master Teachers, a Head Teacher, an Education Program Supervisor in Mathematics, and a faculty member from the College of Education from Romblon State University. Moreover, the language experts were the director of *Sentro ng Wika at Kultura* of Romblon State University specializing in literature and Romblon languages, and an English teacher who served as a back translator from Ferrol National High School. Due to the limited number of language experts in the Division of Romblon, the researcher came up with only two language experts.

The pilot testing was conducted in a span of two days. On the first day, the researcher administered the pretest to the students and handed them out the developed *Onhan* supplementary learning material for the experimental group while DepEd's Self-Learning Module was in the control group. A continuation of the use of the developed *Onhan* supplementary learning

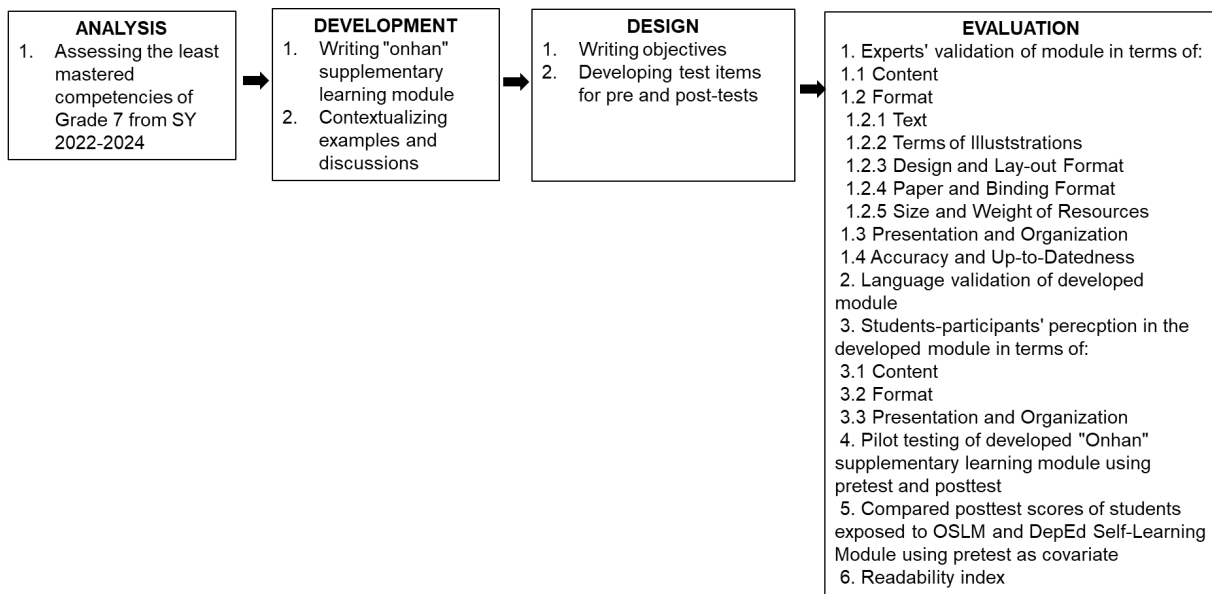| ANALYSIS	DEVELOPMENT	DESIGN	EVALUATION
1. Assessing the least mastered competencies of Grade 7 from SY 2022-2024	1. Writing "onhan" supplementary learning module 2. Contextualizing examples and discussions	1. Writing objectives 2. Developing test items for pre and post-tests	1. Experts' validation of module in terms of: 1.1 Content 1.2 Format 1.2.1 Text 1.2.2 Terms of Illuststrations 1.2.3 Design and Lay-out Format 1.2.4 Paper and Binding Format 1.2.5 Size and Weight of Resources 1.3 Presentation and Organization 1.4 Accuracy and Up-to-Datedness 2. Language validation of developed module 3. Students-participants' perecption in the developed module in terms of: 3.1 Content 3.2 Format 3.3 Presentation and Organization 4. Pilot testing of developed "Onhan" supplementary learning module using pretest and posttest 5. Compared posttest scores of students exposed to OSLM and DepEd Self-Learning Module using pretest as covariate 6. Readability index

Figure 1. *Onhan* Supplementary Learning Module Development Process

module was done on the second day before administering the posttest. The researcher utilized Grade 7 *(Mapagmahal)* as the experimental group and Grade 7 *(Mapagpakumbaba)* as the control group in pilot testing and soliciting feedback about the developed *Onhan* supplementary learning material. Furthermore, the researcher utilized the pretest and posttest that were incorporated in the developed *Onhan* supplementary learning module.

RESULTS AND DISCUSSION

Analysis

In the analysis stage, the researcher analyzed and assessed the consolidated least mastered competencies for grade 7 for the past three years from 2022 to 2024. Based on this submitted report, the most frequent and least mastered competency for the past three years was about the operations of integers. This finding is consistent with that of Gabriel et al. (2022), wherein they listed performing operations on integers as one of the compromised most essential learning competencies. A prior study by Ereño and Benavides (2022) revealed that these are due to several factors that hamper the process of learning the competencies such as student-related factors, home-related factors, and subject-related factors which was supported by results found by the study conducted by Ganal and Guiab (2014) adding teachers' lack of creativity in adapting to the learners' capability.

Design

In the design stage, the researcher unpacked the least mastered competency and crafted the lesson objectives per subtopic based on the most essential learning competencies released from the Department of Education. The supplementary learning material was designed to enhance the skills of the students in the number sense and intensify the learning of the learners through contextualization and culture. Table 1 displays what the students will be able to do upon successful completion of the *Onhan* supplementary Module.

Development

In the development phase, the researcher crafted and structured the module meticulously. This supplementary learning module was specifically tailored to instruct students on the four fundamental operations of integers, employing *Onhan* as the instructional medium. It incorporated various contextualized examples to ensure that students could readily grasp and apply the lessons to real-life situations. Table 2 below exhibits the different contextualization across the four operations of integers.

Table 1. Lesson objectives per topic

Topic	Objectives
Addition of Integers	• model addition of integers using a number line • add two positive or negative integers • add two integers with one is positive and the other is negative • solve real-world problems that involve addition of integers
Subtraction of Integers	• state the rules for subtracting integers • subtract integers using the rules • solve real-world problems that involve subtraction of integers
Multiplication of Integers	• state the rules in multiplying integers • multiply integers using the rules • solve real-world problems that involve multiplication of integers
Division of Integers	• state the rules in division of integers • divide integers using the rules • solve real-world problems that involve division of integers

Table 2. Contextualization across four topics on operation on integers

Topic	Contextualized Examples
Addition of Integers	• The concept of "*kwarta*" as positive integer and "*utang*" as negative integer. • Used addition of integers to integrate financial literacy on the students.
Subtraction of Integers	• marketplace setting in worded problem • rules in addition of integers
Multiplication of Integers	• financial literacy for a student using daily allowance • business math
Division of Integers	• finance and banking • rules of multiplication

Evaluation

According to Sidek & Jamaluddin (2015) as cited by Abdelmohsen (2020), module development encompasses validation by experts and students. The module was evaluated by five content experts and one *Onhan* language expert who is qualified and with appropriate expertise in content and *Onhan* language. A checklist was adapted from the evaluation tool prescribed by the Learning Resources Management and Development System (LRMDS) manual to test the content validity of the module. As to language validity, the researcher adapted a checklist with a five-point Likert scale from 1 (to no extent) and 5 (to a very large extent).

Table 3 shows the overall validity of the *Onhan* supplementary learning module in four basic operations on integers. The mean score obtained as regards content was 3.63 with adjectival description very satisfactory. Moreover, as regards format, it obtained a mean score of 3.60 with an adjectival description of very satisfactory. The mean score obtained as regards presentation and organization was 3.80 with adjectival description of very satisfactory. As regards accuracy and up-to-date, the supplementary learning module obtained a mean

Table 3. Overall validity of *Onhan* supplementary learning module in four basic operations of integers

Factor	Mean	DI
1. Content	3.63	VS
2. Format	3.60	VS
3. Presentation and Organization	3.80	VS
4. Accuracy and Up-to-Datedness of Information	4.00	VS
Overall Mean	**3.76**	**VS**

Table 4. Summary of students' perceptions on *Onhan* supplementary learning module

Factor	Mean	DI
1. Content	3.66	VS
2. Format	3.78	VS
3. Presentation and Organization	3.76	VS
Overall Mean	**3.73**	**VS**

Table 5. Content validity of the *Onhan* supplementary learning module

Content Indicator	Mean	DI
1. Content is suitable to the students' level of development.	4.00	VS
2. Material contributes to the achievement of specific objectives of the subject area and grade/year level for which it is intended.	4.00	VS
3. Material provides for the development of higher cognitive skills such as critical thinking, creativity, learning by doing, inquiry, problem-solving, etc.	3.20	S
4. Material is free of ideological, cultural, religious, racial, and gender biases, and prejudices.	3.80	VS
5. Material enhances the development of desirable values and traits.	3.20	S
6. Material has the potential to arouse the interest of the target reader.	3.80	VS
7. Adequate warning/symbols are provided in topics and activities where safety and health are concern.	3.40	S
Overall Mean	**3.63**	**VS**

Legend for Descriptive Interpretation (DI):
3.6-4 Very Satisfactory (VS); 2.6-3.5: Satisfactory (S); 1.6-2.5 Fair (F); 1-1.5 Poor (P)

score of 4.00 with a description very satisfactory. The overall validity of the *Onhan* supplementary learning module is 3.76 with a description, very satisfactory. One of the content validators expressed "I do not see any

incorrect content about the material. The material is good." This means that the supplementary module passed all the criteria and was deemed valid. This supports the claim of Samuel (2009) that through validated instructional materials, the learning of the students becomes meaningful.

After the validation from content experts and language experts, the supplementary module samples were administered to the students to get their feedback regarding the developed supplementary module using the same evaluation tool, and revisions were made according to the students' feedback.

The student's perception of the developed *Onhan* supplementary learning module exhibited in Table 4 revealed that the module passed the three factors: content, format, presentation, and organization with mean of 3.66, 3.78, and 3.76 respectively. The overall perception of the students in the developed module is 3.73 with an adjectival rating of Very Satisfactory. This implies that the module passed according to the student's perception.

It can be observed in Table 5 that content indicators 1 and 2 obtained the highest mean 4.00 with adjectival description very satisfactory, indicators 4 & 6 obtained 3.80 with adjectival description very satisfactory, indicator 7 obtained 3.40 with adjectival

Table 6. Language validation of *Onhan* supplementary learning module

Criteria	Mean	DI
1. Instructions to students are clear, unambiguous, and easy to follow.	4.5	To a large extent
2. The words, grammar, and mechanics are correct and accurate.	4	To a large extent
3. The vocabulary used is suitable to the reading and understanding level of students to whom the learning resource is intended.	4.5	To a large extent
4. The vocabulary and grammar used in the learning resource are contextualized.	5	To a very large extent
5. The use of mathematical terms and jargon are appropriately retained in the learning resource.	5	To a very large extent
6. The learning resource uses a great and accurate command of language (Onhan) and native to the intended users.	4.5	To a large extent
7. The language used in the learning resource is truly a reflection of a conversational type of discussion.	4.5	To a large extent
Overall Mean	**4.57**	**To a large extent**

description satisfactory, and lastly, indicators 3 and 5 obtained the lowest mean 3.20 with adjectival description satisfactory. This means that as regards content the supplementary learning module can be of help in honing the higher order thinking skills, appropriate to students' development stage, free of biases, and has the potential to arouse the interest of the students. This is to support the claim of Hassan et.al. (2023), wherein they claimed that teachers need modules to develop the higher-order thinking skills of the students.

In the aspect of language validation of the developed *Onhan* supplementary learning module as shown in Table 6, indicator 2 obtained a mean of 4 with an adjectival rating of "To a large extent", indicators 1, 3, 6, & 7 obtained a mean of 4.5 with an adjectival rating of "To a large extent", and indicators 4 & 5 obtained a mean of 5 with an adjectival rating of "To a very large extent". The overall mean score is 4.57 with an adjectival rating of "To a large extent". This means that the vocabulary and grammar used are contextualized, mathematical terms and jargon are retained in the learning resource, the module uses a conversational type of language, and instructions are clear, unambiguous, and easy to follow. Hence, the module passed the criteria in terms of language.

Table 7.1 shows the validity of the *Onhan* supplementary learning module as regards format. It revealed that indicator 1 obtained the highest mean of 3.85 with a description of very satisfactory, indicators 4 & 5 obtained 3.6 with a description of very satisfactory, indicator 2 obtained 3.57 with a description of very satisfactory, indicator 3 obtained 3.4 with a description satisfactory, and overall mean 3.60 and description very satisfactory as regard to format. This means that the material passed the criterion.

Table 7.2 shows the validity of the text format of the supplementary learning module. The data revealed that indicator 3 obtained a mean of 4.00 with a description very satisfactory, and indicators 1, 2, & 4 obtained a mean score of 3.80 with a description very satisfactory. The overall validity of the text format is 3.85 with description, very satisfactory. This indicates that the typeface is readable, the printing is of high quality, the letter sizes are suitable for the intended user, and the gaps between words and letters make reading easier.

The results of the validation of the supplementary learning module in terms of illustration format, as shown in Table 7.3, revealed that indicator 1 obtained a mean of 4 with description very satisfactory, indicator 2 obtained a mean of 3.80 with description very satisfactory, indicator 6 obtained a mean of 3.60 with description very satisfactory, indicators 3 & 4 obtained a mean of 3.40 with description satisfactory, and indicator 5 obtained a mean of 3.20 with description

Table 7.1. Validity of the *Onhan* supplementary learning module in terms of format

Format Criteria		Mean	DI
1.	Text	3.85	VS
2.	Illustration	3.57	VS
3.	Design and lay-out	3.4	S
4.	Paper and Binding	3.6	VS
5.	Size and weight of resources	3.6	VS
Overall Mean		**3.60**	**VS**

Table 7.2. Validity of the *Onhan* supplementary learning module in terms of text format

Criteria		M	DI
1.	Size of letters is appropriate to the intended user.	3.80	VS
2.	Spaces between letters and words facilitate reading	3.80	VS
3.	Font is easy to read	4.00	VS
4.	Printing is of good quality	3.80	VS
Overall Mean		**3.85**	**VS**

Table 7.3. Validity of the *Onhan* supplementary learning module in terms of illustrations format

Criteria		Mean	DI
1.	Simple and easy recognizable	4.00	VS
2.	Clarify and supplement the text	3.80	VS
3.	Properly labelled or captioned (if applicable)	3.40	S
4.	Realistic / appropriate colors	3.40	S
5.	Attractive and appealing	3.20	S
6.	Culturally relevant	3.60	VS
Overall Mean		**3.57**	**VS**

Table 7.4. Validity of the *Onhan* supplementary learning module in terms of design and lay-out format

Criteria		Mean	DI
1.	Attractive and pleasing to look at	3.40	S
2.	Simple (i.e. does not distract the attention of the reader)	3.60	VS
3.	Adequate illustration in relation to text	3.20	S
4.	Harmonious blending of elements (e.g. illustrations and text)	3.40	S
Overall Mean		**3.40**	**S**

Table 7.5. Validity of the *Onhan* supplementary learning module in terms of paper and binding format

Criteria		Mean	DI
1.	Paper used contributes to easy reading	3.60	VS
2.	Durable binding to withstand frequent use	3.60	VS
Overall Mean Score		**3.60**	**VS**

Table 7.6. Validity of the *Onhan* supplementary learning module in terms of size and weight of resources format

Criteria		Mean	DI
1.	Easy to handle	3.60	VS
2.	Relatively light	3.60	VS
Overall Mean		**3.60**	**VS**

Legend for Descriptive Interpretation (DI):
3.6-4 Very Satisfactory (VS); 2.6-3.5: Satisfactory (S); 1.6-2.5 Fair (F); 1-1.5 Poor (P)

satisfactory. The overall validity of the illustration format is 3.57 with description, very satisfactory. This means that the illustrations in the supplementary module are simple and easily recognizable, properly labeled, realistic, attractive and appealing, culturally relevant, and able to supplement the text. Hence, passing the criterion.

Further, Table 7.4 shows the validity of the *Onhan* supplementary learning module in terms of design and layout. It revealed that indicator 2 obtained a mean of 3.60 with a description very satisfactory, indicators 1 and 4 obtained a mean of 3.40 with a description satisfactory, and indicator 3 obtained a mean of 3.20 with a description satisfactory. The overall design and layout validity is 3.40, with a satisfactory description, thus passing the criterion.

Likewise, Table 7.5 shows the paper and binding validity of the developed supplementary learning module. Data revealed that indicators 1 and 2 obtained a mean of 3.60 with a description of very satisfactory. The overall paper and binding validity are 3.60 with the description very satisfactory. This means that the developed supplementary learning module has a durable binding to withstand frequent use, and the paper used contributes to easy reading. Hence, it passed this criterion.

Furthermore, Table 7.6 shows the validity of the *Onhan* supplementary learning module concerning the size and weight of resources. Data revealed that indicators 1 & 3 obtained a mean of 3.60 with a description of very satisfactory. The overall size and weight of resources validity is 3.60 with a description of very satisfactory. This means that the developed supplementary module is easy to handle and relatively light. Hence, the material passed the criterion.

The data in Tables 7.1-7.6 are comparable to the research of De Guia & Reyes (2015) in terms of the assessment approach that was used in validating printed instructional material. This method was utilized to gauge the module's validity.

Additionally, Table 8 shows the validity of the developed supplementary learning module concerning presentation and organization. Data revealed that indicator 4 obtained a mean of 4.0 with a description of very satisfactory, indicators 1, 2 and 3 obtained a mean of 3.80 with a description of very satisfactory, and indicator 5 obtained a mean of 3.60 with a description of very satisfactory. The overall presentation and organization validity is 3.80, with a very satisfactory description. This means that the developed learning material is logical and has a smooth flow, the presentation is engaging, the vocabulary level is tailored to the comprehension level of the target reader, the length of sentences is appropriate, and the sentences and paragraph structures are intriguing and varied.

Hence, the developed supplementary material passed the criterion. Selga (2011) asserts that a worktext's well-designed and ordered structure aids in the development of higher cognitive skills and helps students meet the subject's specific objectives.

Also, Table 9 exhibits the validity of the *Onhan* supplementary learning module in terms of accuracy and up-to-dateness. Results revealed that indicators 1, 2, 3, 4, 5, and 6 obtained a perfect mean of 4.00 with a description of very satisfactory. The overall accuracy and up-to-date validity of the developed supplementary learning module is 4.00 with a description of very satisfactory. This means that the material has minor to no conceptual errors, factual errors, grammatical errors, computational errors, and typographical errors. Hence, the material passed the criterion.

Likewise, Table 10 shows the perception of student participants in the content of the developed supplementary learning module. Results revealed that indicators 1, 2, 3, 4, and 7 obtained the highest mean score of 3.80 with an adjectival rating of very Satisfactory. In addition, indicator 6 obtained a mean score of Very Satisfactory while indicator 5 obtained a mean score of 3 with an adjectival rating of Satisfactory. The overall mean score of the content factor is 3.66 with an adjectival rating of Very Satisfactory.

Moreover, Table 11 shows the perception of the student participants in terms of the format of the developed *Onhan* supplementary learning module. It revealed that indicator 5 obtained the highest mean score of 3.90 with an adjectival rating of very Satisfactory. Indicators 2, 3, and 4 obtained an adjectival rating of Very Satisfactory with mean scores of 3.83, 3.85, and 3.70, respectively. The lowest mean score of 3.60 was obtained by indicator 1 with an adjectival rating of Very Satisfactory. To sum it up, the overall mean score obtained in terms of format is 3.78 with an adjectival rating of Very Satisfactory. Hence, the developed supplementary learning module passed in terms of the format and perception of the student participants.

The validation of the supplementary learning module in terms of presentation and organization exhibited in Table 12 data revealed that indicators 1, 3, 4, and 5 obtained the same mean score of 3.80 and adjectival rating of Very Satisfactory. Meanwhile, indicator 2 obtained a mean score of 3.60 with an adjectival rating of Very Satisfactory. The overall perception of participants in the developed *Onhan* supplementary learning module in terms of presentation and organization is 3.76, Very Satisfactory. Hence, the developed supplementary learning module passed in terms of presentation and organization in the perception of the student participants.

Following the pilot testing of the developed supplementary learning module, Table 13 presents the Descriptive Statistics of Pre-test Mean Scores of Grade

Table 8. Presentation and organization validity of the *Onhan* supplementary learning module

Criteria	Mean	DI
1. Presentation is engaging, interesting, and understandable.	3.80	VS
2. There is logical and smooth flow of ideas	3.80	VS
3. Vocabulary level is adapted to target reader's likely experience and level of understanding	3.80	VS
4. Length of sentences is suited to the comprehension level of the target reader	4.0	VS
5. Sentences and paragraphs structures are varied and interesting to the target reader	3.60	VS
Overall Mean	**3.80**	**VS**

Table 9. Accuracy and up-to-datedness of information validity of *Onhan* supplementary learning module

Factor	Mean	DI
1. Conceptual errors	4.00	VS
2. Factual errors	4.00	VS
3. Grammatical errors	4.00	VS
4. Computational errors	4.00	VS
5. Obsolete information	4.00	VS
6. Typographical and other minor errors (e.g. inappropriate or unclear illustrations, missing, labels, wrong captions, etc)	4.00	VS
Overall Mean	**4.0**	**VS**

Table 10. Students-participants perception in content factor of the developed *Onhan* supplementary learning module

Content Indicators	Mean	DI
1. Content is suitable to the students' level of development.	3.8	VS
2. Material contributes to the achievement of specific objectives of the subject area and grade/year level for which it is intended.	3.8	VS
3. Material provides for the development of higher cognitive skills such as critical thinking, creativity, learning by doing, inquiry, problem solving, etc.	3.8	VS
4. Material is free of ideological, cultural, religious, racial, and gender biases, and prejudices.	3.8	VS
5. Material enhances the development of desirable values and traits.	3	S
6. Material has potential to arouse interest of target reader.	3.6	VS
7. Adequate warning/symbols are provided in topics and activities where safety and health are concern.	3.8	VS
Overall Mean	**3.66**	**VS**

Table 11. Students-participants perception in format factor of the developed *Onhan* supplementary learning module

Factor Indicators	Mean	DI
1. Text	3.60	VS
2. Illustrations	3.83	VS
3. Design and Lay-out	3.85	VS
4. Paper and Binding	3.70	VS
5. Size and Weight of Resources	3.90	VS
Overall Mean	**3.78**	**VS**

Legend for Descriptive Interpretation (DI):
3.6-4 Very Satisfactory (VS); 2.6-3.5: Satisfactory (S); 1.6-2.5 Fair (F); 1-1.5 Poor (P)

7 learners exposed to *Onhan* Supplementary Learning Module (Experimental) and DepEd Self-Learning Module (Control). Results revealed the pre-test mean scores of Grade 7 learners exposed to *Onhan* Supplementary Learning Module and DepEd Self-Learning Module in Four Operations on Integers. The OSLM group (M = 6.96, SD = 2.32) comprised 26 learners, while the Control group (M = 3.50, SD = 1.58) comprised 26 learners. The total sample size was 52 learners, with an overall mean pretest score of 5.23 (SD = 1.95) across both groups. These results suggest a slight difference in mean pretest scores between the two groups, with the OSLM group showing a slightly higher mean score. However, the variability in scores within each group indicates that individual learner performance varied.

While this difference in mean scores may not be statistically significant, further analysis is needed to determine the practical significance of these findings. Consequently, considering Tohidi et. al. (2019) claim that the use of learning modules has been proven to help students enhance their quality of learning, exploring the integration of mother tongue in crafting a supplementary module appears to be encouraging based on the observed mean score differences and principles of contextualization.

Furthermore, Table 14 presents descriptive statistics for the post-test mean scores of Grade 7 learners exposed to *Onhan* Supplementary Learning Module and DepEd Self-Learning Module in Four Basic Operations on Integers. The OSLM group had a mean post-test score of 12.69 with a standard deviation of 2.04, based on a sample of 26 learners. In comparison, the control group had a lower mean score of 6.88 with a standard deviation of 3.65, based on a sample of 26 learners. The total mean posttest score across both groups was 9.79, with a standard deviation of 2.85, based on a total sample size of 52 learners. The mean percentage score (MPS) of the OSLM group is 84.6%. This is almost 10% percentage points higher than the

Table 12. Students-participants perception in presentation and organization factor of the developed *Onhan* supplementary learning module

Presentation and Organization Indicators	Mean	DI
1. Presentation is engaging, interesting, and understandable.	3.80	VS
2. There are logical and smooth flows of ideas	3.60	VS
3. Vocabulary level is adapted to target reader's likely experience and level of understanding	3.80	VS
4. Length of sentences is suited to the comprehension level of the target reader.	3.80	VS
5. Sentences and paragraphs structures are varied and interesting to the target reader	3.80	VS
Overall Mean	**3.76**	**VS**

Legend for Descriptive Interpretation (DI):
3.6-4 Very Satisfactory (VS); 2.6-3.5: Satisfactory (S); 1.6-2.5 Fair (F); 1-1.5 Poor (P)

Table 13. Descriptive statistics of pretest mean scores of grade 7 learners exposed to *Onhan* supplementary learning module (OSLM) and deped self-learning module (Control) in four basic operations on integers

Group	Mean	Std. Deviation	Minimum	Maximum	N
OSLM	6.96	2.323	2	12	26
Control	3.50	1.581	0	6	26
Total	5.23	1.952			52

Table 14. Descriptive statistics of post-test mean scores of grade 7 learners exposed to *Onhan* supplementary learning module (OSLM) and DepEd self-learning module in four basic operations on integers (Control)

Group	Mean	Std. Deviation	Minimum	Maximum	N
OSLM	12.69	2.04	8	15	26
Control	6.88	3.65	1	13	26
Total	9.79	2.85			52

Table 15. Comparison of pretest and posttest scores of students-participants on developed *Onhan* supplementary learning module

	Paired Differences		t	df	Sig (2-tailed)
	Mean	Std. Deviation			
Pretest-Posttest	-5.731	2.539	-11.511	25	.000*

*significant at $\rho < .05$

Table 16. Test of significant difference between posttest mean scores of grade 7 learners exposed to OSLM and Control group using pretest mean scores as covariates

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Era Squared
Corrected Model	449.574a	2	224.787	25.911	.000	.514
Intercept	547.212	1	547.212	63.076	.000	.563
Pre	11.093	1	11.093	1.279	.264	.025
Var00002	49.639	1	49.639	5.691	.021	.104
Error	425.100	49	8.676			
Total	5857.000	52				
Corrected Total	874.673	51				

Table 17. Readability index of the *Onhan* supplementary learning module

Number of words	Number of Sentences	Flesch Reading Ease Level	Flesch-Kincaid Grade Level
2 164	168	44.1	9

target of 75%. These findings suggest a notable difference in mean post-test scores between the two groups, with the OSLM group showing a higher mean score. However, as indicated by the standard deviations, there was variability in scores within each group, indicating differing levels of individual student performance.

This suggests a notable difference in mean post-test scores after implementing OSLM, the treatment group, showed a higher mean score. These findings support the effectiveness of the use of the mother tongue in learning mathematics, as highlighted in Perez and Alieto's study (2018). Moreover, this was supported by Pillos et. al. (2020) who highlighted that the use of the mother tongue as a medium of instruction improves the learners' comprehension and strategies for solving problems.

In addition, Table 15 presents the comparison of the pretest and posttest scores of students-participants in

the developed *Onhan* supplementary learning module. Using a paired sample t-test, the comparison between the pretest and posttest is displayed in the table. According to the data, the mean posttest is higher than the mean pretest. This suggests that students' exposure to the specially designed *Onhan* supplemental learning module improved their understanding of the four fundamental operations on integers. This is consistent with Ricablanca's (2014) results that learning mathematics in one's mother tongue facilitates easier and better learning. Moreover, Englis and Boholano (2021) corroborated these results by stating that using the learners' mother tongue during mathematics instruction enhances their performance and memory abilities. The findings of Villaruz and Perez (2020) support these results by stating that the use of learner's mother tongue greatly influences their performance in mathematics. The module is, hence, efficient.

Also, Table 16 presents the results of a test of significant difference between the post-test mean scores of Grade 7 students exposed to OSLM and the Control group, using pre-test mean scores as covariates. The focus is on the significance value and the partial eta squared as an effect size measure.

The analysis reveals that the corrected model, which includes the factors being tested, is statistically significant ($F(2, 49) = 25.911$, $p = .000$). This indicates that there is a significant difference in post-test mean scores between the OSLM and Control groups when controlling for pretest scores.

The partial eta squared value of .514 indicates a medium effect size. This suggests that approximately 51.4% of the variance in posttest scores can be explained by the difference between the OSLM and Control groups, after controlling for pretest scores.

The findings suggest that the OSLM group has a statistically significant effect on the post-test mean scores of Grade 7 learners in four basic operations on integers compared to the Control group, even when controlling for pre-test scores. The medium effect size indicates that the OSLM has a meaningful impact on learners' performance. These results highlight the potential effectiveness of using the mother tongue in enhancing learner's learning outcomes in Mathematics and support the continued use and development of the program in educational settings. This supports the findings of Perez and Alieto (2018) that the student's proficiency level is more advanced when exposed to instruction using their mother tongue. Furthermore, this supports the claim of Morales-Obod et. al. (2020) that the use of mother tongue language is more effective than non-mother tongue language in teaching mathematics.

Lastly, table 17 shows the readability index of the developed *Onhan* supplementary learning module. The data revealed that the material has 2,164 words, 168 sentences, 44.1 Flesch reading ease score which means that the developed learning material is easy for the adult to read and 9 at Flesch-Kincaid grade level. This means that the developed supplementary learning material is suitable for grade 9 students, two grades higher than the target readers. However, a study by Solnyshkina et. al. (2017) states that cohesion components of text and complexity of texts do not correlate with the Flesch-Kincaid Grade Level score.

CONCLUSION

The study was intended to develop and validate *Onhan* supplementary learning module in four basic operations on integers. The developed *Onhan* supplementary learning module was validated by five content experts as very satisfactory in overall content, format, presentation and organization, and accuracy, and up-to-date information. This implied that the *Onhan*

supplementary learning module is valid. The noteworthy improvement observed in the pretest and posttest results of the students after their exposure to the *Onhan* supplementary learning module suggests that the developed supplementary learning module resulted in some degree of improvement in their understanding of the four fundamental operations on integers. Therefore, the developed *Onhan* supplementary learning module is a valid instructional material that can effectively improve students' performance in four operations on integers.

In light of these findings, more supplementary learning modules are suggested to be made for other identified least mastered competencies. Also, to ensure the quality of the material, designers and developers of instructional materials should always adhere to a set of guidelines and procedures. Additionally, the developed *Onhan* supplementary learning module should be tried out more to establish its efficacy over time. Lastly, the words and sentences used in the developed *Onhan* supplementary learning module should be adapted to an appropriate Flesch-Kincaid Grade Level Score.

AUTHORS' CONTRIBUTIONS

S.R. is the lead researcher who conceptualized and led the study. B.S. is the researcher's adviser who helped and guided him throughout the study.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Emergence of an Adaptive Leadership Model from the Collective Practices of Public Secondary School Principals during COVID-19 Education Crisis

Andrew M. Famero

ABSTRACT

This qualitative study generates an adaptive leadership model based on the emerging school leadership practices among public secondary school principals during COVID-19 pandemic. Utilizing Colaizzi's method (1978) of thematic analysis, this study investigated the lived experiences of principals in managing their respective schools at the peak of Covid-19 pandemic. Using an instrument based on the leadership domains mandated in the Philippine Professional Standards for School Heads (PPSSH), data were gathered through a semi-structured in-depth individual interview and focus group discussions (FGD) from nine school principals in Tablas Island, province of Romblon. Results showed that nine themes emerged as adaptive leadership practices namely: leadership style, stakeholder involvement, monitoring and evaluation, resource management, data management, health protocols, curriculum review and contextualization, quality teaching and assessment, and teacher support. Moreover, during Covid-19 pandemic, the secondary principals did not deviate from the PPSSH legally mandated leadership domains but in congruence with these, they strategized and devised ways utilizing the nine adaptive leadership practices in successfully running their respective schools during the education crisis.

Keywords: *education crisis, educational leadership, adaptive leadership practices*

INTRODUCTION

The COVID-19 pandemic brought an unexpected crisis in the field of education. Everyone was caught unaware of how to handle this education crisis properly. As a major consequence, principals around the world were prompted to implement adaptive leadership practices to normally run their schools. Operationally defined in this study, adaptive leadership refers to the various individual and collective leadership practices, styles, and attributes employed by the public secondary school principals in Tablas Island, province of Romblon during the COVID-19 educational crisis. After the World Health Organization (WHO) declared the outbreak of the coronavirus SARS-COV-2 a pandemic on March 11, 2020, the usual educational routines, plans, and processes were abruptly challenged and replaced by uncertainty.

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The studies of Panunciar (2022), Pagdilao, and Paguyo (2023), focused on the application of an adaptive leadership framework in public schools during the pandemic. Their studies showed that there should be systematic school plans, that curriculum should be modified, and that there should be established partnership with the community in sharing common goals towards achieving quality education for the learners. Also, there is a need to maximize and outsource funds to provide enough resources to address the needs (e.g. printing materials, COVID-19 virus equipment prevention, etc.) of the school and community. Implemented plans should be based on the context of the school, and concerns of the community. Local and national government involvement, parents' active participation, telecommunication devices, and literacy in social media are significant adaptive leadership approaches during the COVID-19 crisis (Panunciar, 2022). Their study recommends that school leaders must enhance their communication skills in disseminating information, listening to concerns, giving feedback, and immersing themselves in the status quo of their teachers, learners, parents, and community. Very importantly, principals should have skills in Information Communication Technology (ICT) for facilitating and monitoring distance learning modalities of the school.

Their adaptive leadership model showed that principals demonstrated strategic leadership abilities, efficiently managed school operations and resources, and supported remote teaching and learning with the help of teachers and parents who served as learning facilitators, using printed modular learning and supplemental materials (Pagdilao & Paguyo, 2023).

At the peak of the pandemic, principals experienced a crisis in implementing leadership practices. As an immediate approach, principals applied various emergency response measures by connecting to health officials, local chief executives, education authorities, teachers, students, and communities. According to Dykstra-Lathrop (2022), the pandemic was hard for leaders, teachers, parents, students, and the community. It was described as dark days because of fear and anxiety brought about by the virus. There was no fixed academic program because school authorities can't predict what's going to happen next (Harris, 2020). The research findings in Norway by Lien et al. (2023), indicated that school principals experienced the pandemic as a significant stress test applied to the educational system. One great impact is in the digital world. The pandemic brought a kind of quantum leap that revealed significant differences in digital competency among teaching staff. Working remotely and using digital workspaces was, to a large extent, a new and unfamiliar experience.

Before the COVID-19 crisis, the Philippine government in its aim to provide quality leadership and management to all schools nationwide, had already implemented a standardized leadership program. The Department of Education (DepEd) enacted the Principal Empowerment Act in 2012, empowering school principals to be more effective and efficient in implementing their educational leadership practices to address challenges that come along the way. Aside from this, PPSSH (Fig. 1) was also issued by the Department of Education as the mandated set of rules for school leadership quality in the Philippines (Deped, 2020). The Standards contain five domains that define what is expected of school heads' gaining of pedagogical approaches, practice, and professional engagement. The leadership domains stipulated have been the tool as a basis for quality leadership and management by school principals around the country. It was embraced by the Department of Education (DepEd) through its issuance of DepEd Order No. 024, series 2020. The Standards allow for school heads' widening understanding, applied with increasing sophistication across a broader and more complex range of leadership and management situations.

This study exploratively unearthed the phenomenon of leading the school amidst the COVID-19 education crisis and uncertainty. Specifically, this study sought answers to the following questions: (1)

Figure 1. The Philippine Professional Standards for School Heads (PPSSH)

What are the leadership practices individually and collectively performed by the public secondary school principals during the education crisis?; (2) What themes and insights can be generated from their individual and collective practices?; and (3) What adaptive leadership model can emerge or can be derived from the themes? This study also sought to determine whether the secondary school principals implemented the PPSSH or if they deviated from it and strategized ways to run their schools successfully. Did the principals still adopt the legally mandated PPSSH, or did they come up with adapted new leadership strategies?

METHODOLOGY

Phenomenology and ethnographic research designs were used. The rationale behind this is to describe the principal's common individual and collective lived experiences, to grasp the very nature or essence, interpretation, and meaning of the COVID-19 phenomenon. Ethnographic research design immersed the researcher in a group of principals sharing common beliefs, cultures, and geographic characteristics in real time to gather first-hand information and high-quality data that is accurate, legitimate, and realistic about the experiences of the group.

Locale, Population, and Time of Study

This study was conducted in the four municipalities in Tablas Island, Division of Romblon namely: Odiongan, San Andres, Looc, Sta. Fe, and San Jose comprising of nine (9) secondary public-school principals for the period from December 2020 to January 2021 amid the peak COVID-19 pandemic.

Instrument Used

The research instrument was a standardized Interview Questionnaire used with permission from Pagdilao and Paguyo (2023). It was made based on the five leadership domains and strands set by PPSSH. Questions were taken from leadership domains which are competence skills turned into interview guide questions namely: leading strategically, managing school operations and resources, focusing on teaching and learning, developing self and others, and building connections.

Samples of the Study

Purposive sampling was used in the study. The criteria for qualified participants were as follows: permanently appointed principals of DepEd public secondary school with plantilla positions ranging from Principal I to Principal IV who have actual leadership experience from December 2020 to January 2021 COVID-19 crisis regardless of their age and gender; at least 3 years in service as school leader in the institution he/she is in; must not be affected or quarantined due to COVID-19 pandemic; and must be in an active status.

Data Gathering Procedure

Two in-depth interviews were conducted to gather data: the individual interview stage and the collective or group interview stage (Fig. 2). The first stage was the individual interview, which explored themes using a phenomenology approach to nine principals, which totaled nine interview sessions. This uncovered themes from individual participant's lived experiences during the COVID-19 crisis. The second stage was the collective interview stage using Focus Group Discussion (FGD) sessions to look and confirm for similarities and occurring themes of their collective leadership practices using ethnography. The ethnographic research interview immersed the researcher in the group of principals in real time to gather first-hand information and high-quality data that is accurate, legitimate, and realistic experiences of the group. This stage was arranged into two FGD sessions comprising three principals for the FGD 1 session and another three principals for the FGD 2 session. Two sessions were conducted to give an equal chance for all participants to share their leadership practices and prevent the monopoly of discussion and the sharing of ideas by a single participant.

Data Analysis

The individual and group interviews were transcribed, coded, thematically analyzed, and synthesized to arrive at the emerging adaptive leadership themes. Specifically, Colaizzi's method of thematic analysis (1978) was adopted which consists of
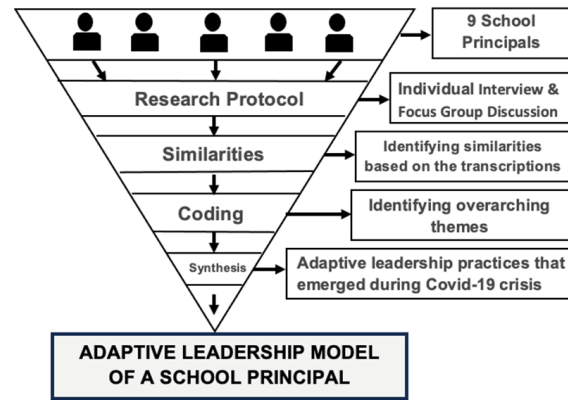

Figure 2. Methodological Framework

developmental steps as follows: acquiring a sense of each transcript; extracting significant statements; formulating meanings; organizing the meanings into themes; describing the phenomenon; describing the fundamental structure; and returning to the participants (Creswell, 2007). This method presents a cogent process through which the fundamental structure of the educational adaptive leadership practices of school principals in the context of the COVID-19 crisis was explored. Interviews or statements were confirmed during face-to-face and online focus group discussions using Google Meet and Zoom meetings, affirming that the participants employed or adapted the generated leadership practices and experiences during the COVID-19 pandemic.

RESULTS AND DISCUSSION

Results showed that nine themes emerged as adaptive leadership practices: leadership style, stakeholder involvement, monitoring and evaluation, resource management, data management, health protocols, curriculum review and contextualization, quality teaching and assessment, and teacher support.

Leadership Style

Based on the key findings of the interview conducted during the COVID-19 crisis, the principals demonstrated strong leadership styles by adapting to the challenges of the pandemic and ensuring that the school continued to provide quality education to its students. The principal's leadership style was crucial in guiding the school through the challenges of the pandemic. By adopting a democratic approach, they involved stakeholders in decision-making, fostering a sense of ownership and collaboration. As one participant responded:

"I used a democratic leadership style to consult with teachers and other stakeholders in making decisions. I was resourceful in finding ways to print and distribute modules, even with limited resources. I used technology to stay connected with teachers and students and to provide support for remote learning."

According to the study of J. Szempruch et al. (2023), heads of schools during the COVID-19 pandemic employed a more democratic management style, shared power, and decision-making, creating an environment that fostered the development of new ideas and inspired teachers to be more independent. The Adaptive Leadership Theory, developed by Ronald Heifetz (2001), also supported the findings of this study which asserts that leaders must mobilize individuals to tackle challenging problems, including adapting to change and crisis.

Adam et al.'s (2021) study of principals' leadership in Southeast Asia during COVID-19 is quite similar to the leadership strategies employed by principals in Tablas Island. They found that principals demonstrated strong leadership and perseverance during the COVID-19 crisis.

Stakeholder Involvement

The principals actively engaged their stakeholders in the implementation of the PPSSH program. They consulted with parents, barangay officials, and other community members to get their input and feedback. They also worked with the LGU to secure funding and resources for the program. The principal's emphasis on stakeholder involvement was instrumental in ensuring that the PPSSH program aligned with the needs and expectations of the school community. One participant revealed:

"I used a variety of methods to communicate with stakeholders, including face-to-face meetings, online platforms, and home visits. I was able to build strong relationships with stakeholders and gain their support for the program."

The study of Pagdilao and Paguyo (2023) proved that during the COVID-19 education crisis, stakeholder involvement, especially the Local Government Unit (LGU), has a crucial role in the success of school leadership. Parents, barangay officials, LGU, and national agencies were vital partners in the implementation of school programs especially the domains stated in the PPSSH. Their proactive communication strategies, including face-to-face meetings, online platforms, and home visits, effectively engaged parents, barangay officials, and other stakeholders. Open dialogue with stakeholders was always conducted to incorporate valuable feedback and strengthen the program's relevance and acceptability.

Monitoring and Evaluation

The principals developed a comprehensive system for monitoring and evaluating the implementation of the PPSSH program. They collected data from teachers, students, and parents to assess the effectiveness of the program and identify areas for improvement. The principal's commitment to data-driven decision-making was evident in their comprehensive monitoring and evaluation processes. By collecting and analyzing data from various sources, they gained insights into the program's effectiveness, identifying areas for improvement and making informed adjustments. During the interview with one principal, she said:

"I developed a comprehensive system for monitoring and evaluating the implementation of the PPSSH program. I collected data from teachers, students, and parents to assess the effectiveness of the program and identify areas for improvement."

The principal's comprehensive system for monitoring and evaluating the PPSSH program provided a clear picture of the program's effectiveness and areas for improvement. This data-driven approach ensured that the program was continuously refined and improved. The principals' commitment to accountability was evident in their transparency and willingness to share data with stakeholders. The principal's data-driven decision-making ensured that adjustments to the PPSSH program were based on evidence rather than assumptions. They used data to identify trends, patterns, and areas for improvement, guiding their decision-making process.

Resource Management

The principals effectively managed the school's resources to support the implementation of the PPSSH program. They secured funding from a variety of sources, including the LGU, private donors, and alumni. Their ability to secure funding from various sources, including the LGU, private donors, and alumni, demonstrated their strong networking and fundraising skills. A principal responded during the interview:

"I allocated budget for the PPSSH program and tracked expenses carefully. I was resourceful in finding ways to stretch their resources, such as asking for donations and using technology to reduce printing costs."

Pagdilao and Paguyo's (2023) study revealed that to succeed during the pandemic, careful planning and budgeting should be implemented to obtain efficiency, effectiveness, and transparency in matters of financial and material resources. School heads should exercise careful planning and budgeting in the utilization of the school maintenance and other operating expenses

(MOOE) fund, align their Annual Implementation Plan (AIP) and their Annual Procurement Plan-Procurement Planning and Management Plan (APP-PPMP) with the Basic Education-Learning Continuity Plan (BE-LCP).

Data Management

The principal maintained accurate and up-to-date records to track the progress of the PPSSH program. They used data to inform their decision-making and to communicate with stakeholders. By establishing a system for collecting, storing, and analyzing data, they ensured that the PPSSH program had a strong evidence base. Their ability to identify trends and patterns from the data allowed for informed decision-making and enhanced the program's effectiveness. One participant responded:

> "I developed a system for collecting, storing, and analyzing data. I used data to identify trends and patterns and to make informed decisions about the program."

The principal's data management efforts helped to ensure that the PPSSH program was evidence-based. The principal's establishment of a data management system ensured that data was organized, accessible, and utilized effectively to inform decision-making. Cahapay (2022) revealed that principals must "manage through the machines" meaning digital tools must be considered in managing data.

Health Protocol

The principals took steps to ensure that the school was a safe and healthy environment for students and staff during the pandemic. They implemented strict health protocols, such as wearing masks, social distancing, and frequent handwashing. One principal replied:

> "I followed the guidelines set by the DOH and DepEd for safe school operations. I worked with the LGU to secure supplies and equipment for the school."

The principal's efforts helped to protect the health and safety of the school community. The principal's implementation of strict health protocols created a safe and healthy learning environment for students and staff during the pandemic. They followed guidelines set by the DOH and DepEd and collaborated with the LGU to ensure compliance with health protocols.

Curriculum Review and Contextualization

The principals ensured that the school's curriculum was aligned with the Most Essential Learning Competencies (MELCs) and was relevant to the needs of the students. They conducted curriculum reviews and involved stakeholders in the process. A secondary principal expressed strongly this idea during the interview:

> "I used a variety of methods to gather feedback from stakeholders on the curriculum. They made changes to the curriculum based on the feedback they received."

The principal's efforts helped to ensure that the school's curriculum was of high quality and met the needs of the students. According to Adams (2021), school principals should be instructional leaders. In his study in Southeast Asia during the COVID-19 crisis, principals played an important role in planning and developing the curriculum and provided a clear curriculum direction, devised an immediate school mission and vision, and developed remedial plans to ensure students' learning albeit remotely.

Quality Teaching and Assessment

The principal provided support to teachers to help them improve their teaching and assessment practices. They conducted training sessions, provided resources, and observed teachers in the classroom. By providing training sessions, offering online resources, and conducting classroom observations, they equipped teachers with the skills and knowledge necessary to deliver effective remote learning. A principal responded during the interview:

> "I used a variety of methods to support teachers, including face-to-face training, online resources, and observation. I focused on helping teachers to develop their ICT skills and to use technology effectively in their teaching."

The studies of Panunciar et al. (2022) and Lien et al. (2023) about COVID-19's effect on the digital aspect of learning revealed that "we took a quantum leap into the digital world to address digital education," as verbalized by one principal in Norway. Pagdilao and Paguyo's (2023) study emerged a theme that ICT is crucial in school. Their research stressed on continuous updating of school data and information.

Teacher Support

The principals provided ongoing support to teachers during the pandemic. The results are congruent with those of Lien et al. (2023) in Norway, who suggested that principals should support the needs of the teachers and students, especially during lockdowns and quarantine. The principal checked in with teachers regularly, offered them resources, and celebrated their accomplishments. In an interview, one principal said:

> "I tried my best to be available to help, though at one point in time, it is impossible during the pandemic, especially

Table 1. Comparison between "Adoptive" PPSSH Leadership Domains and Emerging "Adaptive" Leadership Practice during COVID-19 crisis.

"Adoptive Practices" (PPSSH Leadership Domains)	"Adaptive Practices" (Emerging Leadership Themes)
Leading Strategically	Leadership Style
Managing School Operations and Resources	Resource Management, Data Management, Health Protocols, and Monitoring and Evaluation
Focusing on Teaching and Learning	Curriculum Review and Contextualization, Quality Teaching and Assessment
Developing Self and Others	Teacher Support
Building connections	Stakeholder Involvement

during lockdowns. I made sure that all teachers were given health protection and health rehabilitations like emotional counseling in times of fear and anxiety about uncertainties brought about by the pandemic. Vaccinations and other preventive health support were provided too especially when my teachers were diagnosed to be positive with the virus and were required to isolate and undergo quarantine for 15 days."

Comparison Between Adoptive vs. Adaptive Leadership Practices

The PPSSH's five "adoptive" domains can be compared with the nine "adaptive" emerging themes of this study (Table 1). The "adoptive" PPSSH leadership domains were still implemented by the secondary principals in congruence with the emerging "adaptive" leadership themes. This means that the principals flexed and strategized or adapted, defying the legal aspect of the DepEd PPSSH's mandatory command to adopt the memorandum order but to a lesser extent. In other words, the domains were still implemented but not all. To a certain extent, the secondary school principals in Tablas Island adapted and defied some domains in the PPSSH to "adjust" or "adapt" to the current crisis.

The Emerging Adaptive Leadership Model During Education Crisis

The adaptive model (Fig. 3) shows the nine emerging themes that were implemented by the public secondary school principals in Tablas Island during the COVID-19 pandemic. The themes that emerged, as seen in the model, comprise the suited adapted leadership practices represented by nine circles pointing towards the central circle, which is the principal during the crisis.

The circles were the lived "adaptive" leadership experiences that were proven to have contributed to the success of the secondary school principal's management approaches not to compromise the PPSSH's mandate during the COVID-19 pandemic. Discussing further, the principals did not depart in implementing the required PPSSH domains as legally mandated by DepEd. The model depicts the different forms of school leadership styles and practices that were implemented and different

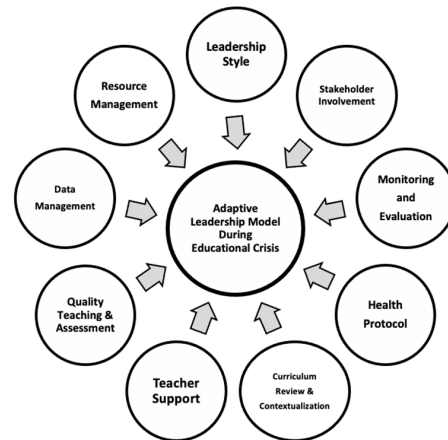approaches to teaching that were strategized or "adapted".

Figure 3. The Emerging Adaptive Leadership Model During COVID-19 Education Crisis

CONCLUSION

The adaptive leadership practices modeled by the emerging themes in this investigation were strategically employed by the secondary public school principals in their respective schools along with the PPSSH during the education crisis. The principal's leadership styles, stakeholder engagement, monitoring and evaluation, resource management, data management, health protocols, curriculum review, quality teaching and assessment, and teacher support were all key factors contributing to the success of school operations in Tablas Island in the Division of Romblon during COVID-19 educational crisis.

This adaptive leadership model was the principal's management prerogative and leadership experiences that did not deviate, neither depart nor go away from the legally "adopted" or mandated PPSSH. The model proved to be effective in managing schools during education crises such as the COVID-19 pandemic as confirmed by the principals. During the crisis, the principals "adapted" and demonstrated strong leadership

skills by adapting to the challenges of the pandemic and ensuring that their respective schools continued to provide quality education by involving stakeholders, mobilizing resources, timely monitoring and evaluating, data management, abiding with the health protocols, maintaining quality teaching and teacher support.

In light of the conclusion, this emerging adaptive leadership model is strongly recommended to all academic institutions around the world in the context of uncertainty like the COVID-19 pandemic. The implications of this study are to improve the preparedness and resiliency program of every educational institution, thereby instituting, sustaining, and maintaining the quality of teaching and learning even if faced with unknown challenges.

AUTHOR'S CONTRIBUTIONS

The author confirms sole authorship of this study.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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Strategic Management Plans of Public School Principals in Basic Education: Unpacking Thoughts, Actions and Outcomes

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ABSTRACT

This study explored the strategic management plans of public school principals in primary education, focusing on their theoretical underpinnings, alignment with legal mandates, appropriateness, financial support, implementation, and evaluation. The research used documentary content analysis to examine strategic management plans from diverse public schools in the Schools Division of Romblon. Semi-structured interviews with principals provided additional insights. The study revealed that educational theories and models, such as SWOT Analysis, Balanced Scorecard, and Theory of Change, are effective in guiding decision-making. Strong alignment with legal and curricular mandates was observed, though challenges related to resource constraints and rapid policy changes were noted. The appropriateness of objectives, activities, and assessment tools was evident, with clear linkages to the school vision. However, disparities in financial support posed implementation challenges. Successes included improved student outcomes and community engagement, while lessons emphasized flexibility and stakeholder involvement. The evaluation employed diverse methods and criteria, informing future planning. The findings highlight the critical role of comprehensive strategic management in enhancing educational quality and principals' leadership. Recommendations include ongoing professional development, increased financial support, stakeholder engagement, and adoption of comprehensive evaluation frameworks.

Keywords: *content analysis, educational planning, educational quality, evaluation, strategic management, school principals, primary education, leadership*

INTRODUCTION

Strategic management plans are pivotal in guiding public schools toward achieving their goals and improving student outcomes. School principals, as leaders of educational institutions, are responsible for developing and implementing these plans, which outline the school's vision, mission, goals, and strategies for success (Bryson, 2018; Poister et al., 2013).

The importance of strategic management in education has been increasingly recognized in recent years. Effective strategic planning has been linked to improved educational outcomes, optimized resource allocation, and enhanced organizational performance

(Hanushek, 2006; Hargreaves & Fullan, 2020). However, the specific context of primary education presents unique challenges and considerations. Principals must navigate a complex web of legal regulations, curricular mandates, and resource constraints while striving to create an inclusive and equitable learning environment for all students (Cohen-Vogel & McLendon, 2009; Elmore, 2004).

A comprehensive literature review revealed that strategic management in education has been the subject of significant scholarly attention. Researchers have explored various aspects of strategic planning, including the theoretical models and frameworks that underpin these plans, such as the SWOT Analysis (Chermack & Kasshanna, 2019; Gürel & Tat, 2017), Balanced Scorecard (Decramer et al., 2022; Kaplan & Norton, 1992), and Theory of Change (Weiss, 1995). The importance of aligning plans with legal and curricular mandates has also been highlighted (Fullan & Quinn, 2016; Spillane, 2018), as well as the role of financial resources in implementing strategic initiatives (Baker, 2018; Grubb & Hyman, 2020).

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The literature also emphasized the significance of leadership theories and educational philosophies in shaping strategic management practices. Transformational leadership, which focuses on inspiring and empowering followers to achieve their full potential, has been identified as a critical driver of effective strategic planning (Bass & Avolio, 1994; Leithwood & Sun, 2020). Constructivist and progressive educational philosophies, which emphasize student-centered learning and critical thinking, have also been shown to influence the design and implementation of strategic initiatives (Brooks & Brooks, 1999; Dewey, 1938; Piaget, 1973).

Despite the wealth of research on strategic management in education, there needs to be more literature regarding the specific context of public school principals in primary education. While some studies have touched on this area (Clarke & Wildy, 2011; Spillane et al., 2004), there is a need for a more comprehensive and in-depth examination of how principals in this setting develop, implement, and evaluate their strategic management plans. This study aims to address this gap by pursuing the following objectives:

1. To identify the educational theories, models, and philosophies that serve as the foundation for the strategic management plans of public school principals in primary education and to understand how these theoretical underpinnings guide decision-making and planning.

2. To determine the extent to which the strategic management plans align with legal regulations and curricular mandates at different levels of the education system and to identify any discrepancies or areas of non-compliance.

3. To evaluate how well the objectives, program of activities, strategies of implementation, and assessment tools within the strategic management plans align with the overall intention and vision of the school and to assess if there are clear linkages and coherence in the plans.

4. To investigate if there is sufficient financial support and budget allocation to implement strategic management plans effectively and to determine if the allocated resources are commensurate with the strategic priorities outlined in the plans.

5. To uncover insights from implementing the plans, including challenges, successes, and lessons that can be drawn from the practical execution of the strategic management plans by school principals and their teams.

6. To examine how school principals evaluate the outcomes and impact of their strategic management plans, including the criteria and assessment tools used, and to understand how these evaluations inform future planning and decision-making.

The conceptual framework for this study is grounded in integrating strategic management theories, leadership models, and educational philosophies. The SWOT Analysis, Balanced Scorecard, and Theory of Change provide the theoretical foundation for understanding how principals assess their school's internal and external environment, align strategic objectives with performance metrics, and map the causal pathways from initiatives to desired outcomes (Chermack & Kasshanna, 2019; Decramer et al., 2022; Weiss, 1995).

Transformational leadership theory informs the study's exploration of how principals inspire and empower their staff and students to achieve the school's strategic goals (Bass & Avolio, 1994; Leithwood & Sun, 2020). Constructivist and progressive educational philosophies shape the examination of how principals design student-centered learning experiences and foster critical thinking skills (Brooks & Brooks, 1999; Dewey, 1938; Piaget, 1973).

The framework also incorporates the legal and regulatory context within which schools operate, recognizing the importance of compliance with educational laws and policies (Cohen-Vogel & McLendon, 2009; Elmore, 2004; Fullan & Quinn, 2016; Spillane, 2018). The allocation and management of financial resources are critical factors in successfully implementing strategic initiatives (Baker, 2018; Grubb & Hyman, 2020; Hanushek, 2006).

Finally, the framework emphasizes the role of comprehensive evaluation in assessing the impact of strategic management plans and informing continuous improvement efforts. Using diverse evaluation methods and criteria is crucial for capturing the complexity of educational interventions and outcomes (Fitzpatrick et al., 2011; Mertens & Wilson, 2018; Stufflebeam & Zhang, 2017).

This study holds significant implications for both theory and practice in educational management. By providing a comprehensive examination of the strategic management plans of public school principals in primary education, this research contributes to the scholarly understanding of how these plans are developed, implemented, and evaluated in this specific context. The findings can inform the refinement of theoretical models and frameworks for strategic planning in education, considering primary schools' unique challenges and considerations (Bryson, 2018; Poister et al., 2013).

From a practical standpoint, the insights generated by this study can guide principals, policymakers, and educational authorities in designing more effective strategic management practices. By identifying best practices, common challenges, and successful strategies, this research can help principals optimize their strategic planning processes, align their initiatives with legal and

curricular requirements, and allocate resources in a way that maximizes educational outcomes (Hargreaves & Fullan, 2020; Leithwood & Sun, 2020).

Moreover, by shedding light on the importance of continuous evaluation and data-driven decision-making, this study can encourage principals to adopt more robust assessment practices and use the insights gained to inform future planning efforts (Datnow et al., 2007; Mertens & Wilson, 2018). This can foster a culture of continuous improvement in schools, enhancing educational quality and student success (Bredeson, 2000; Day & Gu, 2014).

This study on the strategic management plans of public school principals in primary education represents a significant contribution to educational management. By unpacking the thoughts, actions, and outcomes associated with these plans, this research provides a comprehensive understanding of how principals navigate the complexities of strategic planning in pursuing educational excellence. The findings can inform theory, guide practice, and ultimately enhance the quality of education for students in primary schools.

METHODOLOGY

This study employed a qualitative research design using documentary content analysis to explore the strategic management plans of public school principals. The methodology was carefully designed to provide comprehensive insights into the planning processes, theoretical underpinnings, and outcomes associated with these plans. Data collection involved gathering strategic management plans and supplementary documents from public schools across various S.B.M. levels, ensuring a representative sample. Semi-structured interviews with principals complemented the document analysis, providing deeper insights into their thoughts, actions, and reflections. The data analysis protocol involved a systematic coding process, beginning with open coding. Researchers performed a detailed, line-by-line coding of the documents and interview transcripts to identify significant phrases, concepts, and actions related to strategic management. Qualitative data analysis NVivo software facilitated the organization and management of initial codes. This initial coding was followed by axial coding, where the initial codes were grouped into broader categories to understand the relationships between different aspects of strategic management. Axial coding involved the use of coding matrices or conceptual diagrams to explore how codes connected and formed cohesive themes, resulting in categories. The final stage, selective coding, involved integrating the core categories into central themes that captured the essence of the data and addressed the study's research questions. This process included creating narrative summaries and thematic maps to illustrate the

integration of categories into broader themes. An iterative approach using the constant comparative method was employed throughout the coding process to continuously compare data within and across documents and interviews, allowing for the refinement of codes and categories and ensuring that emerging themes were accurately represented and validated by the data. Validation and reliability were ensured through triangulation, member checking, and peer debriefing. Ethical considerations included obtaining informed consent, protecting participant confidentiality and anonymity, and adhering to ethical standards.

RESULTS AND DISCUSSION

The study yielded a wealth of data from the documentary content analysis and semi-structured interviews. This section presents the analyzed data in descriptive texts, discussing the connections and differences between the findings. The results and discussion are organized into subsections corresponding to the research objectives and key themes that emerged during the analysis.

Theoretical Underpinnings of Strategic Management Plans

Analyzing the strategic management plans and interview transcripts revealed that public school principals drew upon various educational theories, models, and philosophies to guide their decision-making and planning processes. Principals' most prominent theoretical frameworks included SWOT Analysis, Balanced Scorecard, and Theory of Change.

SWOT Analysis was consistently mentioned as a foundational model across all S.B.M. levels. Principals used this framework to assess their schools' strengths, weaknesses, opportunities, and threats, enabling them to develop strategic initiatives responsive to their specific contexts. As Principal 7 (S.B.M. Level 3) remarked, "One critical framework I utilize is the SWOT Analysis. This involves thoroughly examining our school's strengths, weaknesses, opportunities, and threats."

The Balanced Scorecard was particularly prevalent among principals in S.B.M. levels 2 and 3. This model helped align strategic objectives with performance metrics across various domains, such as academics, student well-being, community engagement, and resource management. Principal 9 (S.B.M. Level 3) stated, "One central model is the Balanced Scorecard, which helps us align our strategic objectives with performance metrics across various dimensions."

The Theory of Change was another significant framework employed by principals, especially in S.B.M. levels 2 and 3. This model assisted in articulating the causal pathways linking initiatives to desired outcomes.

Table 1. Frequency of the Theoretical Frameworks Mentioned in the Strategic Management Plans and Interviews Across Different S.B.M. Levels.

Theoretical Framework	S.B.M. Level 1	S.B.M. Level 2	S.B.M. Level 3
SWOT Analysis	3	2	3
Balanced Scorecard	0	3	3
Theory of Change	0	3	2

This model assisted in articulating the causal pathways linking initiatives to desired outcomes. Principal 4 (S.B.M. Level 2) explained, "The Theory of Change framework helps us articulate the causal pathways through which our activities lead to desired outcomes. By clearly defining our inputs, activities, outputs, outcomes, and impacts, we can ensure that our strategic initiatives are aligned with our overarching goals and mission."

In addition to these frameworks, principals also drew upon leadership theories and educational philosophies. Transformational leadership was a recurring theme, emphasizing the importance of inspiring and empowering staff and students to achieve their full potential. Constructivist and progressive educational philosophies were also integrated into the strategic management plans, particularly in S.B.M. level 3, shaping the principals' approach to curriculum development and teaching methodologies. This aligns with recent studies by Chermack and Kasshanna (2019), who emphasized the effectiveness of SWOT Analysis in strategic planning, and by Decramer et al. (2022), who underscore the utility of the Balanced Scorecard in educational settings. Table 1 presents the frequency of the theoretical frameworks mentioned in the strategic management plans and interviews across different S.B.M. levels.

Alignment with Legal and Curricular Mandates

The strategic management plans demonstrated a strong alignment with legal regulations and curricular mandates at different levels of the education system. Principals across all S.B.M. levels emphasized ensuring compliance with national and regional education laws and policies. As Principal 5 (S.B.M. Level 2) explained, "We align our strategic plans with the legal mandates to ensure we operate within the legal framework. This includes adhering to student rights, teacher qualifications, and school operations policies."

Similarly, the strategic management plans were closely aligned with the prescribed curricular standards and guidelines. Principals ensured their educational programs and activities met the required academic benchmarks and objectives. Principal 1 (S.B.M. Level 1) mentioned, "We align our curriculum with the Department of Education's standards. This ensures our students receive a high-quality education meeting national benchmark."

However, some principals reported challenges in meeting specific legal requirements, particularly those related to resource constraints and administrative support. Principal 4 (S.B.M. Level 2) noted, "One of the challenges we face is meeting all legal requirements due to limited resources. For example, we sometimes struggle to comply with teacher-student ratio mandates because of a shortage of qualified teachers."

The analysis also revealed some areas of non-compliance related to curricular alignment, often linked to the rapid changes in educational policies and the challenges of keeping curriculum materials and teaching methods up-to-date. Principal 7 (S.B.M. Level 3) mentioned, "There are times when we lag in updating our curriculum to reflect new policies. This can result in temporary misalignment with national standards." This is supported by recent research from Fullan and Quinn (2016), which highlights the importance of aligning school strategies with educational policies, and Spillane (2018), which underscores the need for coherence between school practices and legal mandates.

Appropriateness and Coherence of Strategic Management Plans

The study found that the objectives, program of activities, strategies of implementation, and assessment tools within the strategic management plans were generally well-aligned with the overall intention and vision of the schools. Principals across all S.B.M. levels emphasized ensuring that all aspects of their strategic management plans were interconnected and aligned with the school's core values and long-term goals.

Principal 2 (S.B.M. Level 1) stated, "We ensure that all aspects of our strategic management plan are interconnected and aligned with our vision. This coherence is crucial for the success of our initiatives." Similarly, Principal 7 (S.B.M. Level 3) explained, "We ensure that our objectives, activities, strategies, and assessment tools are all aligned and interconnected. This coherence enhances the effectiveness of our strategic management plan."

The strategic management plans demonstrated clear linkages and coherence between the various components. The objectives were directly derived from

the school's vision and mission, ensuring that all initiatives were focused on achieving the long-term goals. The program of activities and strategies of implementation were designed to be mutually supportive and contribute to the overall objectives. Assessment tools were aligned with the strategic objectives, enabling principals to measure progress and effectiveness accurately. Research by Fullan and Quinn (2016) highlighted the critical role of aligning school strategies with educational policies to ensure coherence and compliance, supporting the necessity of grounding strategic plans in legal and curricular mandates.

Sufficiency of Financial Support and Resource Allocation

The sufficiency of financial support and budget allocation for implementing strategic management plans varied among schools. While some principals reported adequate financial resources, others faced significant challenges securing sufficient funding for their strategic initiatives.

Principal 2 (S.B.M. Level 1) stated, "We have sufficient financial support to implement our strategic management plan effectively. Our budget allocations are well-aligned with our strategic priorities, allowing us to achieve our goals." In contrast, Principal 5 (S.B.M. Level 2) highlighted the challenges: "Financial support is one of our major concerns. We often struggle to secure enough funding to implement our strategic plans fully."

Despite these challenges, principals demonstrated efforts to align their budget allocations with strategic priorities, ensuring that financial resources were allocated to support their strategic goals. Principal 6 (S.B.M. Level 2) emphasized, "We make sure that our financial resources are allocated in a way that supports our strategic goals. This helps us maximize the impact of our budget."

To address the challenges related to financial constraints, principals employed various strategies, such as seeking external funding sources, prioritizing key initiatives, and optimizing resource utilization. Principal 7 (S.B.M. Level 3) remarked, "We prioritize our key initiatives to ensure our most important goals are funded. This involves careful planning and strategic decision-making." Baker (2018) emphasizes the crucial role of financial resources in school improvement, while Grubb and Hyman (2020) discussed the necessity of aligning budget allocations with strategic priorities to ensure the successful implementation of school initiatives.

Implementation Challenges and Successes

The practical execution of the strategic management plans revealed both challenges and successes. Principals reported several challenges during the implementation process, including resource constraints, resistance to change, and logistical issues.

Principal 4 (S.B.M. Level 2) described, "One of the biggest challenges we face is limited resources. This affects our ability to fully implement all aspects of our strategic plan." Principal 6 (S.B.M. Level 2) noted, "Resistance to change is another significant challenge. Some staff members hesitate to adopt new methods and strategies, slowing the implementation process."

Despite these challenges, principals also reported several successes in implementing their strategic management plans. These successes included improved student outcomes, enhanced staff collaboration, and increased community engagement.

Principal 1 (S.B.M. Level 1) mentioned, "One of our biggest successes has been improving student outcomes. Our strategic initiatives have led to higher test scores and better overall performance." Principal 6 (S.B.M. Level 2) stated, "We have seen a significant increase in community engagement. Our initiatives have encouraged more parents and community members to get involved in school activities."

The implementation process also provided valuable lessons for the principals and their teams. These lessons included the importance of flexibility, continuous monitoring and evaluation, and the value of stakeholder involvement. Principal 2 (S.B.M. Level 1) stated, "One of the key lessons we have learned is the importance of flexibility. We need to be able to adapt our plans as needed to address unexpected challenges." This aligns with the findings of Leithwood and Sun (2020), who noted the positive effects of transformational leadership on student achievement and teacher satisfaction, and Hargreaves and Fullan (2020), who emphasized the importance of continuous improvement and adaptability in educational change.

Evaluation Methods and Impact on Future Planning

School principals employed various evaluation methods to assess the outcomes and impact of their strategic management plans. These methods included both qualitative and quantitative approaches to provide a comprehensive assessment of their initiatives.

Principal 2 (S.B.M. Level 1) stated, "We use qualitative and quantitative methods to evaluate our strategic management plans. This helps us get a complete picture of our progress and impact." The evaluation criteria used by principals focused on key performance indicators related to academic achievement, student well-being, and organizational effectiveness, which were aligned with the strategic objectives outlined in their management plans.

The evaluation tools used were diverse, including standardized tests, surveys, performance appraisals, classroom observations, and stakeholder feedback. Principal 5 (S.B.M. Level 2) explained, "We employ

several assessment tools, such as academic performance tests, classroom observations, and stakeholder surveys. These tools help us gather comprehensive data on our initiatives."

The evaluations conducted by the school principals played a crucial role in informing future planning and decision-making. The insights gained from the evaluations helped principals identify areas for improvement, refine their strategies, and make data-driven decisions. Principal 4 (S.B.M. Level 2) noted, "Our evaluations provide valuable feedback that informs our planning process. We use this information to refine our strategies and set new goals."

The study's findings highlight the significance of comprehensive evaluations in strategic management, providing valuable insights that enhance the effectiveness of initiatives and contribute to achieving the school's strategic goals. By using diverse evaluation methods and criteria, principals can ensure that their strategic management plans are effectively implemented and continuously improved, ultimately enhancing the quality of education provided to students. Mertens and Wilson (2018) highlighted the importance of comprehensive evaluation practices in improving educational outcomes, and Stufflebeam and Zhang (2017) advocated for the use of multiple evaluation methods to capture the complexity of educational interventions, underscoring the significance of thorough evaluation in strategic management.

CONCLUSION

This study provided a comprehensive understanding of the strategic management practices of public school principals across theoretical underpinnings, alignment with legal and curricular mandates, appropriateness and coherence of plans, sufficiency of financial support, implementation challenges and successes, and principal evaluation methods.

The study highlighted the importance of grounding strategic management plans in well-established theoretical frameworks, such as SWOT Analysis, Balanced Scorecard, and Theory of Change, as well as leadership theories and educational philosophies. Despite some challenges, aligning plans with legal and curricular mandates demonstrated the principals' commitment to compliance and educational standards.

The appropriateness and coherence of the strategic management plans, with clear linkages between objectives, activities, strategies, and assessment tools, enhanced the effectiveness of initiatives and contributed to achieving the school's vision and mission. However, financial support and resource allocation disparities posed challenges for some principals in fully implementing their strategic plans.

The practical execution of the plans revealed challenges and successes, with principals demonstrating resilience and adaptability in overcoming obstacles. The successes reported, such as improved student outcomes and increased community engagement, highlight the positive impact of well-implemented strategic plans.

The evaluation methods employed by principals, using diverse approaches and aligned criteria, provide critical insights that inform future planning and decision-making. The continuous improvement cycle, driven by comprehensive evaluations, ensures that strategic management plans remain effective and responsive to the evolving needs of schools and students.

This study underscored the pivotal role of strategic management in public school leadership, emphasizing the importance of grounding plans in theory, aligning with legal and curricular mandates, ensuring appropriateness and coherence, securing sufficient financial support, effectively implementing initiatives, and conducting comprehensive evaluations. By addressing these essential aspects, public school principals can enhance the quality of education provided to students and drive positive change in their schools.

To enhance the strategic management capacities of public school principals, a comprehensive and multifaceted approach is essential. Firstly, targeted training and professional development opportunities should be provided to deepen their understanding of strategic management theories, models, and philosophies. Principals should be encouraged to critically examine and apply frameworks like SWOT Analysis, Balanced Scorecard, and Theory of Change in their strategic planning processes. This approach fosters a culture of reflective practice, enabling principals to assess the alignment between their strategic decisions and theoretical principles continually.

Additionally, a comprehensive resource kit or guide should be developed to assist principals in navigating the complex landscape of legal regulations and curricular mandates relevant to their specific context. Collaboration between principals and educational authorities is crucial to ensure that strategic management plans comply with legal requirements and align with curricular standards. Implementing a periodic review process will help assess the ongoing alignment of these plans with evolving frameworks, providing support for necessary adaptations.

To ensure coherence and appropriateness, principals should be provided with guidance and tools to align their strategic objectives, program activities, implementation strategies, and assessment methods effectively. Regular reviews and refinements of strategic plans are essential to maintain coherence in light of changing school contexts and emerging needs. Engaging stakeholders, including teachers, students, parents, and

the wider school community, is crucial for the development and implementation of these plans.

Advocating for equitable and sufficient financial support is vital for the effective implementation of strategic management plans. Principals should receive training on strategic budgeting, resource allocation, and financial management to optimize available funds. Exploring innovative partnerships and collaborations can help leverage additional resources and expertise to support strategic initiatives.

Facilitating the sharing of best practices, success stories, and lessons learned among public school principals fosters continuous improvement in implementing strategic management plans. Targeted support and mentoring for principals facing specific challenges, drawing on successful peers' experiences, can be highly beneficial. Encouraging a flexible and adaptive approach to implementation allows for necessary adjustments based on ongoing monitoring and feedback.

Effective evaluation and impact assessment are essential for understanding the outcomes of strategic initiatives. Comprehensive training and resources on evaluation methodologies should be provided, encouraging the use of diverse data sources and assessment tools for a holistic understanding. A culture of data-driven decision-making should be fostered, enabling principals to use evaluation insights to inform future planning and continuous improvement efforts.

Finally, establishing platforms and networks for principals to share their strategic management experiences, insights, and innovations with the wider educational community is crucial. Disseminating research findings and best practices through professional conferences, workshops, and publications will foster collective learning and improvement. Collaborating with educational institutions and policymakers will help integrate the lessons learned into future policy development and support mechanisms for strategic management in basic education.

AUTHORS' CONTRIBUTIONS

A.V.R. conducted the literature review, collected and analyzed, and drafted the manuscript. P.R.B. provided significant guidance and support throughout the research process, development of the research framework, revision of the manuscript, and expert advice on the methodology and interpretation of results.

CONFLICT OF INTEREST

The authors declare no financial, personal, or professional conflicts of interest that could have influenced this dissertation's research, analysis, or findings.

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Encounters of Teachers and Students in the National Learning Camp Using the Lens of the Generative Change Model: An Ethnography and Discourse Analysis

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ABSTRACT

This paper aimed to investigate the experiences of teachers and students during the National Learning Camp (NLC) and determined if it captures the students' needing intervention, and builds the capacity of the teachers using the generative change model. The unstructured questionnaire was used in Focus Group Discussions (FGD) to explore the experiences of teachers and students in the National Learning Camp. Ethnography and discourse analysis were employed in this study through the different encounters such as teacher to teacher, student to student, and teacher to student. The results of the study found that the NLC is a significant educational initiative that aimed to foster professional growth, collaboration, and positive student interactions among teachers and students, introducing new perspectives on student-centered approaches, collaborative learnings, and innovative teaching methods, leading to a shift towards interactive and student-engaging teaching practices. NLC also resulted in enhancing student engagement, collaborative learning experiences, and a supportive classroom environment conducive to academic success. The study concluded and highlighted the transformative impact of the NLC on teachers' professional development, student-centered approaches, student engagement, inclusive classroom environments, promoting positive interactions, deeper learning experiences, and academic success. Findings of this research may serve as a baseline of information for developing a well-structured plan, incorporating gamified instruction, designing classrooms for creativity and experiential learning, providing comprehensive support services, and exploring the impact of NLC on teaching and learning practices.

Keywords: *encounters, ethnography, discourse analysis, generative change model, National Learning Camp*

INTRODUCTION

Learning camps like the National Learning Camp (NLC) are vital for addressing learning loss and promoting comprehensive student growth. Originating from the Department of Education (DepEd) Philippines' proposal, NLC aims to counter learning loss and elevate teacher competence (DepEd, 2024). DepEd introduced NLC as part of the National Learning Recovery Program (NLRP) during the 2022–2023 End-of-School Year (EOSY) break, aligning with the MATATAG Basic Education Agenda, thereby reinforcing the importance of these camps in educational recovery and development. These camps offer platforms to accelerate social-emotional and academic learning among young learners. Within the NLC framework, students were assigned to Enhancement, Consolidation, or Intervention Camps based on their individual needs, fostering socio-emotional skills, personal growth, and character development in a camp-like environment. Moreover, participation in the NLC was voluntary for teachers eligible for vacation service credits and recognition for their contributions. Despite its voluntary nature, the NLC required teachers to commit additional hours outside regular school hours, highlighting the dedication and effort needed to make the program successful.

Luckner and Pianta (2007) explored teacher-student interactions in the NLC, emphasizing their

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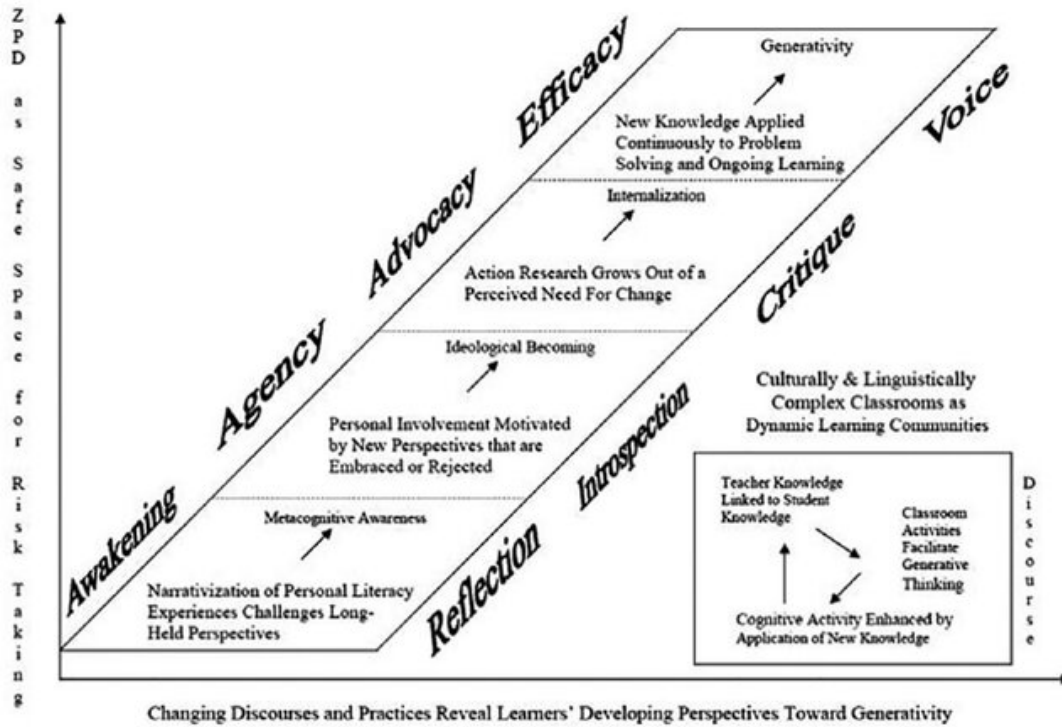[2]Emirates American School Sharjah, United Arab Emirates

Figure 1. Ball's (2008) Model of Generative Change

significant impact on student engagement, learning outcomes, and social development. Through ethnographic methods and conversational analysis, their study underscored the pivotal role of positive teacher-student relationships in enhancing the overall educational experience and fostering students' academic success.

Subsequently, David et al., (2024) studied the NLC, uncovering favorable experiences among teacher volunteers and the challenges encountered during its implementation. Using qualitative methods, they delved into teacher experiences and student engagement, stressing the importance of numeracy skills for informed decision-making. Such findings paralleled the study of Ozier (2018), highlighting the critical role of learning camps in addressing learning loss and emphasizing their significance in fostering holistic student development.

Within the discourse on NLC, Cooper et al. (2000) introduced a novel perspective by applying the Generative Change Model to analyze teacher-student interactions. This integration bridged educational practice with a theoretical foundation, highlighting the transformative potential inherent in collaborative learning environments. Unlike traditional change models that often rely on top-down directives and hierarchical structures, the Generative Change Model stands out from other change models' distinctive focus on broad participation and self-organizing qualities. This inclusive approach fosters a sense of ownership and empowerment among participants, leading to more

significant commitment and buy-in to the change initiatives.

Upon using the generative change model by Ball (2008), this study went through the dimensions of awakening, agency, advocacy, and efficacy (Figure 1). Awakening helps to understand why teachers and students join the NLC. At the same time, agency focuses on the perspectives developed at NLC, which were embraced or rejected by the teachers and students. Moreover, advocacy tries to identify the actions undertaken based on the new perspectives the teachers and students welcomed as part of the change initiatives in implementing the NLC. Lastly, efficacy discovers the new knowledge drawn and applied in the classroom after voluntarily joining the NLC.

Research by Bushe (2021) underscores the significance of this participatory element in driving successful change within the NLC, where diverse stakeholders play crucial roles in shaping the learning environment. Indeed, the model is pivotal for facilitating rapid and transformative change within contexts like the National Learning Camp (NLC).

As this paper provides valuable insights into teacher-student interactions within educational camps, gaps in the existing knowledge suggest avenues for future research. One such area is exploring the long-term impact of teacher-student interactions facilitated by the Generative Change Model within the NLC. Understanding how these encounters influence immediate learning outcomes, long-term academic

performance, and personal development could provide invaluable insights for educational practitioners and policymakers. Moreover, leveraging the existing body of knowledge, future research could delve deeper into the specific strategies and techniques teachers employ to enhance student engagement and learning within the NLC.

Utilizing methodologies such as the Generative Change Model, ethnography, and discourse analysis offers a robust framework to delve into these dynamic connections and their implications for teaching, learning, and addressing the problem. The NLC, with its diverse educational setting, provides a rich context for investigating the nuanced interactions between teachers and students. By employing tools like the Generative Change Model, researchers can uncover more profound insights into how these interactions shape the learning experiences of both teachers and students. Ethnographic approaches allow for an in-depth understanding of the cultural dynamics within the camp. At the same time, discourse analysis offers a lens through which to examine the communicative aspects of teacher-student interactions. By closely examining these interactions, this study aimed to investigate the experiences of teachers and students during the NLC by looking into their personal needs that make them voluntarily involved, new perspectives developed, new actions undertaken from these new perspectives; and new
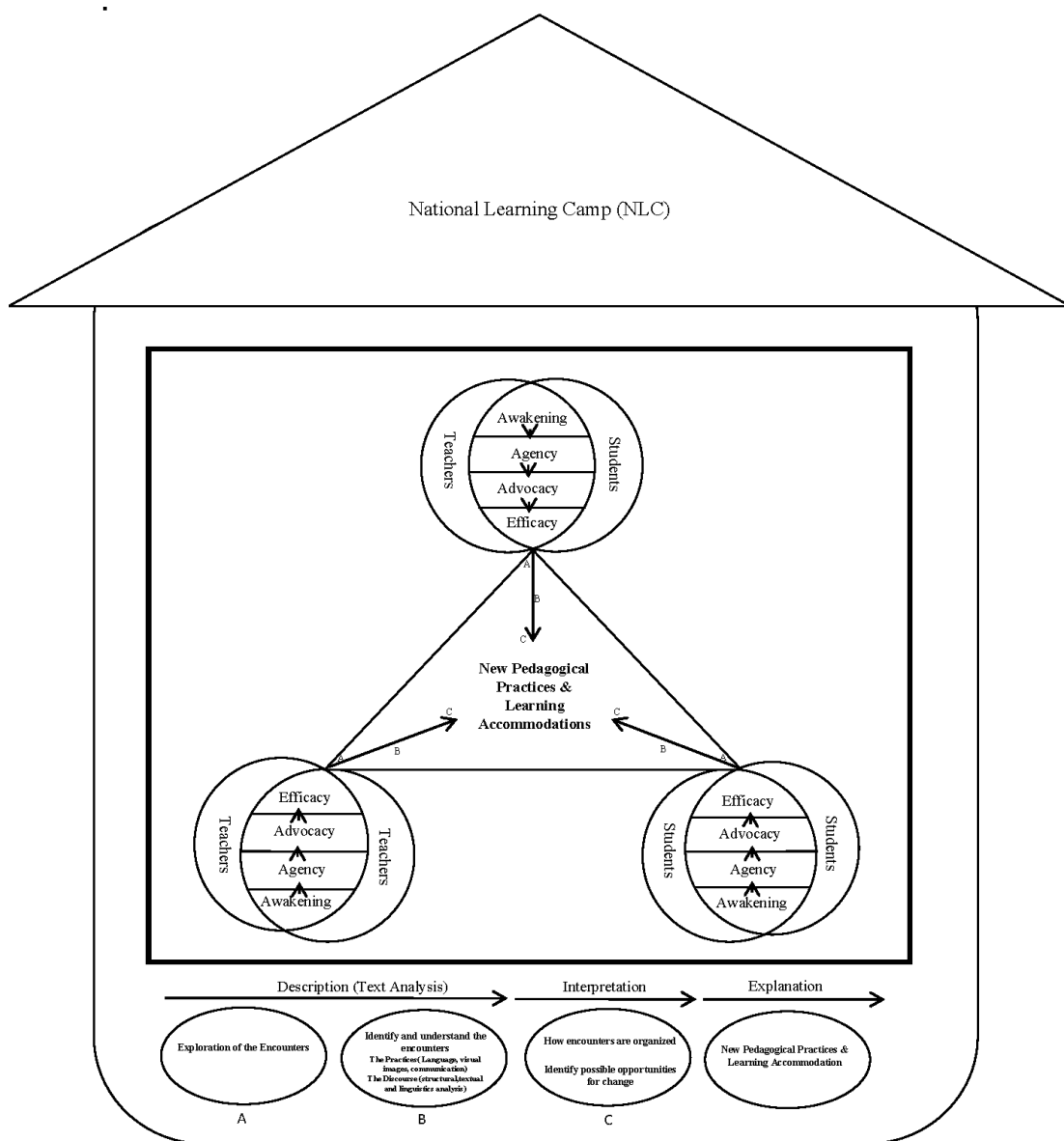

Figure 2. Methodological Framework of the Study

knowledge drawn from the perspectives are applied in the classroom setting. The findings are expected to inform the development of more inclusive and effective learning environments, enhancing educational outcomes for all participants.

METHODOLOGY

Figure 2 illustrates the methodological framework of this study. The house represents the NLC, the program explored in this study. The Venn diagrams depict the three encounters: student-teacher encounter, teacher-teacher encounter, and teacher-student encounter. These three encounters were examined using the lenses of the generative change model to a) awakening that will help to understand the reasons of the participants in joining the NLC; b) agency that will identify the perspectives developed in the NLC that were embraced and rejected by the participants; c) advocacy that will identify the actions undertaken based from the new perspectives that the participants embraced as part of the change initiatives in the implementation of the NLC; and d) efficacy that will find out the new knowledge drawn and applied in the classroom setting after voluntarily joining the NLC.

The data gathered through Focus Group Discussion (FGD) was analyzed using discourse analysis. Discourse analysis systematically studies language use in social contexts to uncover underlying meanings, power dynamics, and social structures embedded within discourse (Gee, 2014). By analyzing the lexico-grammatical and discoursal levels of communication among teachers and students in the NLC, researchers can elucidate how language shapes their interactions, perceptions, and identities within the camp setting.

The three arrows pointing to the new perspectives and learning accommodations represent Fairclough's (1992) discourse analysis processes, such as description or text analysis and interpretation. Analyzing the text involves the exploration of the encounters, which is defined by the letter A, followed by identifying and understanding the encounters through the practices and discourse, which is represented by the letter B. Letter C represents the interpretation of how encounters are organized and if there are possible opportunities for change.

Lastly, the framework delves into the genesis of conceptual change in scientific thinking through a sociocultural lens, emphasizing the significance of conversation analysis in elucidating shared cognition and conceptual evolution (Pea, 1993). These methods promote systematic efforts to dissect communication dynamics, laying the groundwork for a deeper exploration of teacher-student interactions within the unique milieu of the national learning camp. The study also underscores the value of incorporating ethnographic methods and discourse analysis to explore the complexities of teacher-student interactions and their impact on learning outcomes.

RESULTS AND DISCUSSION

Participants' Personal Needs that Make Them Voluntarily Involved in the NLC Program

The first phase of exploring the NLC is awakening. According to Ball (2008), this phase deals with the metacognitive awareness that goes beyond individual cognition to encompass an understanding of the broader social forces that influence learning, decision-making, and problem-solving. In this study, awakening deals with the participants' personal needs, which makes them voluntarily join the NLC. Using the lens of awakening, the researcher discovered the following:

Teacher-to-Teacher Encounters. Table 1A illustrates two prominent themes regarding the personal needs that drive voluntary involvement in the NLC Program, explicitly focusing on Teacher-to-Teacher Encounters. These themes are personal reward and behavioral reward.

Personal reward encompasses lexicon terms such as service credits, great deal, new program, promotion, points, national certificate, and self-satisfaction, as reflected in the statements provided by the participants. As stated by the teachers, "*NLC offers volunteer teachers service credits,*" "*it is a great deal for me considering that I only have four days service credit balances,*" and "*as a volunteer teacher would be a big help for the points.*" On the other hand, behavioral rewards include offering opportunities to engage with learners, share knowledge, gain other learning, need intervention, teach the students, and provide service for learners. The participants expressed sentiments like "it offers an opportunity to engage with a diverse group of learners," "gaining another learning about different strategies to teach more effectively," and "they need intervention *po talaga."*

Student-to-Student Encounters. Table 1B reveals two emerging themes regarding the personal needs driving voluntary involvement in the NLC Program, specifically on Student-to-Student Encounters. These themes are individual academic growth and academic figures.

As expressed in the participants ' statements, individual academic growth is characterized by lexicon terms such as advanced knowledge, additional knowledge, self-improvement, self-discovery, new experiences, and new materials. Examples include "mas na advanced knowledge ko about dun sa lesson," "*madagdagan yung... Kaalaman o knowledge ko,*" and

Table 1. Results of Personal Needs that Make them Voluntarily Involved in the NLC Program

Themes of Encounter	Lexicon Words/Phrases	Type of Generative Change
A. Teacher-to-Teacher		
Personal Reward	service credits, great deal, new program, promotion, points, national certificate, self-satisfaction	Awakening
Behavioral Reward	offers opportunity, engage with learners, share knowledge, gaining another learning, need intervention	
B. Student-to-Student		
Individual Academic Growth	advance knowledge, additional knowledge, self-improvement, self-discovery, new experiences	Awakening
Academic Figures	mother, teacher, classmates	
C. Teacher-to-Student		
Embracing Innovation and Change Desire	new program, new learning, learning materials, learners, learning activities	Awakening
Professional Incentives	meal allowance, service credits	

"*para daw mas ma-improve ko yung sarili ko or makilala ko sa sarili ko*." Subsequently, academic figures who motivated the participants to join the NLC program include lexicon terms such as mother and teacher. Participants mentioned individuals like "*si Mama po*" and "*yung teacher ko po*" as significant influences.

Teacher-to-Student Encounters. Table 1C presents two themes concerning the personal needs driving voluntary involvement in the NLC Program, focusing on Teacher-to-Student Encounters. These themes are embracing innovation and change, as well as professional incentives.

Embracing innovation and change is characterized by lexicon terms: new program, new learning, learning materials, learners, learning activities, and desire, as articulated in the participants' statements. Examples include "*Siyempre, new program, new learning. Lahat ng new ay may learning,*" and "*itong mga learning materials na mas makakapag-enhance sa learning activities namin.*" Conversely, the professional incentive is represented by meal allowance and service credit lexicons. Participants mentioned benefits like "*yung*

service credit na inooffer ni NLC" and "*syempre yung 250 na meal allowance na binibigay nila sa amin.*"

New Perspectives Developed in the Program that Were Embraced or Rejected

The second phase of exploration focused on the agency. This dimension is the capacity of individuals to take purposeful action to effect transformative change within educational settings and beyond and is described as ideological becoming. In exploring the National Learning Camp, the agency deals with the new perspectives developed and either embraced or rejected by the participants. The following was discovered from the results:

Teacher-to-Teacher Encounters. Table 2A illustrates new perspectives developed in the program, embraced or rejected in Terms of Teacher-to-Teacher Encounters, namely learner-centric pedagogies and unfavorable practices. Learner-centric pedagogies, represented by lexicon terms such as learning enlightenment, different techniques, strategy, skills, fun, engaging, game-based approach, idea, candy or badge, simple starts, collaboration, participation, activities, and team building, were evident in participants' statements. For instance, participants expressed sentiments like "will be sending home these students with so much learning and enlightenment" and "*dahil sa fun and engaging activities na inooffer ni NLC.*" Corollary, and unfavorable practices were identified through phrases and words such as expensive to implement, limited number of participants, and abrupt. Participants cited challenges such as "magastos nga lang po," and "limited number of participants lang ang negative."

Student-to-Student Encounters. Table 2B presents new perspectives developed in the program, embraced or rejected in terms of Student-to-Student Encounters, namely cutting-edge learning experiences and communal learning experiences.

Cutting-edge learning was evident in participants' statements, exemplified by terms such as more interactive, improved skills, advanced knowledge, the introduction of activities, morning exercises, activities, props, improved grades, and easy to learn. For instance, participants expressed sentiments like "*mas naenjoy ko po talaga yong interaction naming magkaklase,*" and "*kaya advance yung knowledge ko*". On the other hand, the communal learning experience was identified through lexicons like cooperation, groupings, and bonding of friends. Participants cited factors such as "*yung cooperation, pag may activities at groupings,*" and "*mas nag-bobonding 'yong mga magbe-best friend*".

Teacher-to-Student Encounters. Table 2C reveals the dimensions of agency within the NLC as evident through three emerging themes: holistic

Table 2. New Perspectives Developed in the Program that were Embraced or Rejected

Themes of Encounter	Lexicon Words/Phrases	Type of Generative Change
A. Teacher-to-Teacher		
Learner-centric Pedagogies	learning enlightenment, different techniques, strategy, skills, fun, engaging, game-based approach, idea, candy or badge, simple stars, collaboration, participate, activities, team building	Agency
Unfavorable Practice	expensive to implement, limited number of participants, abrupt	
B. Student-to-Student		
Cutting-Edge Learning Experience	more interactive, improved skills, advanced knowledge, introduction of activities, morning exercises, activities, props, improved grades	Agency
Communal Learning Experience	cooperation, groupings, bonding of friends	
C. Teacher-to-Student		
Holistic Teaching and Learning Experience	varied activities, motivations, teachers' positive outlook, positive effect, impact	Agency
Solidarity in Learning	group activities, cooperation, close, exercise, yells	

teaching-and-learning experience, solidarity in learning, and non-traditional classroom environment.

The holistic teaching-and-learning experience is represented by words such as varied activities, motivations, teachers' positive outlook, positive effect, and impact. Teachers like Teacher 1 embrace new programs and learning opportunities, demonstrating a positive outlook toward innovation and adaptation. They recognize the value of introducing diverse activities to motivate students and facilitate deeper learning. As Teacher 1 emphasized, "*Nag-motivate sa akin... Siyempre, new program, new learning*".

Furthermore, solidarity in learning is fostered through lexicons, including group activities, cooperation, closeness, exercise, and yells. Engaging in exercises and chants, students express enjoyment and camaraderie, reflecting a shared sense of experience and belonging. This solidarity contributes to a supportive learning environment where students feel comfortable interacting and collaborating with their peers. As Student 1 mentioned, "*Like kunwari may mga group activities, like atong cooperation po, tapos like nakikipag-close ka sa mga hindi mo ka-close before*."

The NLC challenges traditional classroom norms by providing a non-traditional environment, which was described by lexicon words such as classroom set-up, tent, fairyland, butterflies, tables, and pillows. These unconventional setups stimulate students' imagination and curiosity, encouraging them to explore and engage with their surroundings actively. The NLC creates an atmosphere conducive to creativity, exploration, and experiential learning by breaking away from traditional classroom structures. As Teacher 1 described, "*Yun yung maganda, yun yung mas nagustuhan ninyo, mas nagustuhan ninyo yung design ng ganon kesa sa regular*."

New Actions Undertaken from These New Perspectives

Advocacy is the third phase in the exploration. Ball described this as the internalization phase, which refers to the process by which individuals and communities internalize and embody the principles, values, and goals of transformative change and social justice. In the context of NLC, advocacy is the new actions that have been undertaken from these new perspectives that were embraced as part of the change initiatives. The following discussions introduced the results for this phase:

Teacher-to-Teacher Encounters. Table 3A presents the context of advocacy in generative change in teaching, revolving around the theme of igniting the passion for education among teachers and learners. It involved phrases such as providing reading/learning materials, considering the competencies, adjusting according to the learners' needs, sparking the learners' interest, developing a positive attitude of learners, changing the classroom setting, setting up a park/garden, tent, relaxing area in a classroom, bonding, possessing positive energy, became more dedicated, encouraging learners to recite and developing confidence.

Teachers voiced their commitment to providing reading and learning materials, ensuring access to educational resources that support students' learning journeys. As one teacher expressed, "*Yung mga bata na engaged doon sa NLC. Parang nagkaroon na sila ng self-confidence na mag-interact and mag-cooperate*". Moreover, changing the classroom setting to include parks, gardens, tents, and relaxing areas promotes a welcoming and inspiring atmosphere where students feel valued and encouraged to participate actively. As another teacher noted, "*Kasi nga, yung set-up namin, halimbawa, mag-picture-picture sila. Iba-iba yung setting namin*". This demonstrates educators' innovative

Table 3. Results of New Actions Undertaken from These New Perspectives that were Embraced as Part of the Change Initiatives

Themes of Encounter	Lexicon Words/Phrases	Type of Generative Change
A. Teacher-to-Teacher		
Igniting the Passion for Teaching	providing reading/ learning materials, considering the competencies, adjusting according to the learners' needs, sparking the learners' interest, developing positive attitude of learners, changing the classroom setting, setting up a park/ garden, tent, relaxing area in a classroom, bonding, possessing positive energy, became more dedicated, encouraging learners to recite, developing confidence	Advocacy
B. Student-to-Student		
Undergoing Transformative Learning	recites more, less pressured, less stressful, improve, impact, change, advance	Advocacy
Bringing Authentic Learning	life lesson, self-improvement, abilities, future	
C. Teacher-to-Student		
Unleashing Learners Potential	adapt, helpful, motivate, participate, self-improvement, interest, focus	Advocacy

approaches to creating environments that promote engagement and enthusiasm for learning.

Student-to-Student Encounters. Table 3B highlights a shift towards a more empowered and less pressured learning experience. Students recite more, less pressured, less stressed, improve, impact, change, and advance are the lexicon words that consist of the emerging theme of undergoing transformative learning. As one student expressed, "*Opo, kasi, like, mas lalong nag-less yung pressure kasi mas lalong nakaclose namin yung mga teachers sa NLC.*" Bringing authentic learning experiences into the classroom emphasizes the importance of lexicon words such as life lessons, fostering self-improvement, abilities, and future. As one teacher noted, "*Magkakaroon sila ng more interest,*

focus, at yung kanilang engagement sa learning ay mas ma-improve."

Teacher-to-Student Encounters. Table 3C presents advocacy as a generative change initiative centered on unleashing learners' potential by fostering an environment conducive to growth and development. This emerging theme involves lexicons like adapt, helpful, motivate, participate, self-improvement, interest, and focus. One teacher mentioned, "*Kasi nga po dahil sa positive po yung effect and impact ng NLC, kaya embrace ko siya sa aking mga regular class para po ma-feel din nila*". Furthermore, by creating a supportive and stimulating environment, educators empower students to channel their interests and energies toward meaningful learning experiences. As one student expressed, "*Mas lalong nag-less yung pressure kasi mas lalong nakaclose namin yung mga teachers sa NLC*".

New Knowledge Drawn from the Perspectives Applied in the Classroom Setting

Lastly, efficacy is the final phase in the generative change model. Ball defined this phase as the generativity phase, where individuals and communities can apply their newfound knowledge, skills, and values creatively and innovatively to address complex educational challenges and promote transformative change. However, in the context of NLC, efficacy deals with the new actions undertaken by the participants from the new perspectives embraced as part of the change initiatives. The following are the discussions of the results:

Teacher-to-Teacher Encounters. Table 4A focuses on enhancing the effectiveness of instruction through various strategies aimed at maximizing student learning outcomes. One key theme is the integration of gamified instruction, which involves incorporating elements of game-based learning into the curriculum to make learning more engaging and interactive. This theme includes lexicon words such as more varied activities, readiness of learning materials, game-based learning, more vocabulary exercises, group activities, experiential learning, award system, badge of points, positive change, and collaborative expertise. As one teacher mentioned, "*Iba-ibang classroom settings namin*". Such a statement shows students' diverse learning preferences and abilities. Additionally, ensuring the readiness of learning materials is crucial for facilitating gamified instruction, as stated by another teacher, "*Kasi masyadong marami pong reading activities doon na hindi namin natatapos in one session.*" Moreover, fostering well-rounded instruction involves phrases like implementing psychosocial strategies, developing reading skills and comprehension, setting the students' mood, beaming positive energy, developing students' confidence, and sharing of knowledge. Setting the students' mood and

Table 4. Results of New Knowledge Drawn from the Perspectives are Applied in the Classroom Setting

Themes of Encounter	Lexicon Words/Phrases	Type of Generative Change
A. Teacher-to-Teacher		
Integrating Gamified Instruction	more varied activities, readiness of learning materials, game-based learning, more vocabulary, exercises, group activities, experiential learning, award system, badge of points, positive change, collaborative expertise	Efficacy
Fostering Well-rounded Instruction	implementing psycho-social, developing reading skill and comprehension, setting the students' mood, beaming positive energy, developing students' confidence	
B. Student-to-Student		
Valuing Basic Mathematical and Proficiency Skill	higher grade, enhancement of comprehension, additional knowledge, improve communication skill, problem solving, advance	Efficacy
Looking Forward to Collaborative Experience	close, classmates, group activities	
C. Teacher-to-Student		
Fostering Cooperative Learning	groupings, cooperate, friendship, bonding moment, close, interact	Efficacy
Strengthening Deep Learning	Less pressured, varied activities, advanced learning, more interested, more motivated, goal-oriented, opportunity, game-based learning, competencies, enhanced comprehension, better understanding, advanced teaching, engage	
Enriching Psychosocial Aspect	self-enhancement, self-improvement, classroom atmosphere, comfortable with students, self-confidence, comfortable with teacher	

beaming positive energy into the classroom is essential to fostering a conducive learning atmosphere. One teacher highlighted the importance of a positive outlook, "*So, wala na talaga ang interest na matuto pa sila. So, kailangan talaga ang teacher magiging masaya.*"

Furthermore, developing students' confidence and promoting knowledge sharing are critical components of efficacy-driven instruction. These factors involve implementing collaborative expertise among teachers to exchange ideas and best practices for enhancing student learning outcomes. As one student expressed*, "Mas lalong naging active, Sir. Kasi like, comfortable na kami sa mga teachers na tumuro sa NLC."* This comfort and trust in teachers contribute to a positive learning environment where students feel empowered to take ownership of their learning and actively engage in classroom activities.

Student-to-Student Encounters. Table 4B emphasizes the importance of valuing basic mathematical and proficiency skills, aiming for a deeper understanding and application of fundamental concepts. This theme involves phrases and terms like striving for higher grades, enhancement of comprehension, additional knowledge, improving communication skills, problem-solving, and advancement, as mentioned by a student who expressed, "*Mas lalong nag-improve ang aming sarili,*" indicating an enhancement in academic performance. Furthermore, the development of problem-solving abilities and advancement in mathematical proficiency are critical outcomes of efficacy-driven instruction, as highlighted by another student who noted, "*Mas naging madali yung solving ko kasi advanced ko yung pag-tuturo ni ma'am Glo.*"

Looking forward to collaborative experiences is another theme yielded from the data analysis. Students engage closely with their classmates through group activities and cooperative learning opportunities represented by the lexicons such as close, classmates, and group activities. One student mentioned, "*Mas lalong naging active, Sir. Kasi like, comfortable na kami sa mga teachers na tumuro sa NLC,*" indicating a positive shift in student engagement and participation facilitated by collaborative experiences.

Teacher-to-Student Encounters. Table 4C presents the theme of fostering cooperative learning environments, emphasizing collaborative learning experiences where students work together in groups, cooperate, form friendships, and bonding moments, representing the six lexicon words, including close and interact. These interactions facilitate meaningful connections among students and create bonding moments that result in a positive classroom atmosphere. As one student mentioned, "*Mas lalong naging active, Sir. Kasi like, comfortable na kami sa mga teachers na tumuro sa NLC*", suggesting the positive impact of

cooperative learning on student engagement and social dynamics.

Another significant theme is the strengthening of deep learning experiences. Words like less pressure, varied activities, advanced learning, more interested, more motivated, goal-oriented, opportunity, game-based learning, competencies, enhanced comprehension, better understanding, advanced teaching, and engagement represent the unfolded theme. Through efficacy-driven instruction, students experience less pressure and engage in varied activities that promote advanced learning. They become more interested and motivated, with a clear focus on goal-oriented learning. Opportunities for game-based learning and the consideration of competencies lead to enhanced comprehension and a better understanding of the subject matter. As one student expressed, "*Mas lalong nag-improve aming sarili. Makipag-communicate sa iba lalo po during discussion*", highlighting the positive impact of deep learning on student academic performance and self-enhancement.

Furthermore, NLC prioritizes enriching psychosocial aspects that create a comfortable classroom atmosphere for both teachers and students, fosters self-enhancement and self-improvement, and self-confidence, represented by the lexicon words including classroom atmosphere, comfortable with students and comfortable with the teacher. This comfort level encourages students to express themselves more freely and share their thoughts and ideas, contributing to their overall well-being and academic growth. As one student mentioned, "*Mas naging madali yung solving ko kasi advanced ko yung pag-tuturo ni ma'am Glo*," indicating the positive impact of a supportive classroom environment on student confidence and academic success.

Personal needs refer to why they joined the NLC, such as personal rewards, behavioral rewards, individual academic growth, academic figures, embracing innovation and change, and professional incentives under awakening. Participants join the NLC for various reasons. These include personal rewards like service credits and national certificates crucial for career advancement and behavioral rewards from engaging with students and sharing knowledge, reinforcing teachers' passion for education. Students seek individual academic growth, pursuing advanced knowledge and skills for self-improvement. The encouragement from key figures such as mothers, teachers, and classmates, also motivates their participation. Additionally, the NLC's embrace of innovation and new methodologies supports personal and professional growth, while practical incentives like meal allowances and additional service credits further attract teachers to the program. This stage reflects the foundational aspirations that

propel individuals to engage in the NLC, setting the stage for subsequent transformations.

Subsequently, participants navigate the stage of agency that shows the perspectives that have been developed in NLC were embraced or rejected by the teachers and students. It shows that the learner-centric pedagogies, unfavorable practice, cutting-edge learning experience, communal learning experience, holistic teaching and learning experience, solidarity in education, and non-traditional environment are the new perspectives developed and embraced by the participants of NLC, all of which enhance personalization, collaboration, and overall development. However, some unfavorable practices were rejected, such as abrupt implementation and financial burdens on teachers. While the NLC fosters progressive educational perspectives, these challenges highlight the need for improvements to ensure a more supportive and sustainable learning environment. These signal a shift towards more student-centered and innovative practices. Several key themes emerged in the efficacy stage within the NLC study, reflecting the program's impact on teaching and learning practices. These themes include integrating gamified instruction to enhance engagement, fostering well-rounded instruction that nurtures emotional, social, and physical development, and valuing basic mathematical proficiency skills to build a solid foundational understanding. Collaborative and cooperative learning emphasizes teamwork and communication, while deep learning promotes critical thinking and knowledge application. Enriching psychosocial aspects focuses on emotional and social well-being. Collectively, these themes illustrate the NLC's commitment to creating an engaging, holistic, and effective educational environment that prepares students for future success.

Lastly, new actions were undertaken in the advocacy to promote positive change in educational contexts, focusing on key initiatives. These include igniting the passion for teaching by inspiring educators through professional growth and collaboration, undergoing transformative learning to reshape mindsets and practices, bringing authentic learning into classrooms by connecting lessons to real-world contexts, and unleashing learners' potential by nurturing their unique abilities in a supportive environment. These initiatives demonstrate a commitment to enhancing the educational experience, fostering meaningful learning, and supporting the growth of both teachers and students. The advocacy and efficacy stages are switched based on the participants' responses. The perceived need for change emerged after they applied their new knowledge via the NLC program. This application was based on their newly developed perspectives, leading them to recognize the need for change. As observed, teachers needed to experience the effectiveness of the NLC first.

Once they recognized its effectiveness, their passion for teaching was reignited.

Consequently, the generative change process concluded with advocacy, while efficacy, or the application of new knowledge, came before the perceived need for change. Thus, the responses indicate that the end of the generative change process is marked by advocacy, with efficacy preceding the perceived need for change. As per the encounter among participants in this study, generative change in the last two stages shifts differently.

CONCLUSION

The study focused on identifying the meaningful experiences that teachers and students derived from voluntarily engaging in NLC, examining personal needs for involvement, developing new perspectives, undertaking new actions, and applying new knowledge in various teacher-student, teacher-teacher, and student-student encounters. Throughout the FGD, there was a sense of enthusiasm and commitment among both teachers and students to share their experiences towards voluntarily participating in the NLC. Teachers expressed a desire for professional growth and collaboration, while students appreciated the NL camp's interactive and supportive learning environment.

The NLC catalyzed change, encouraging teachers to adopt student-centered approaches, collaborative learning strategies, and innovative teaching methods. These shifts in practice enhanced student engagement and learning outcomes and contributed to the development of a supportive classroom environment. However, there are claims that the NLC does not capture the students needing intervention and deprives teachers of their time to rest. It also plays a crucial role in addressing teachers' personal and professional needs, fostering collaboration, and promoting innovative teaching and learning practices. The camp serves as a platform for developing new perspectives and actions, which are applied in the classroom setting to enhance teacher-student, teacher-teacher, and student-student encounters. The NLC offers the students an intervention, and teachers benefit from joining the NLC even though they are deprived of time to rest.

It is suggested that one may continue exploring the impact of the NLC on teaching and learning practices in the following implementation, as well as identify ways to sustain and scale the positive outcomes observed in the study. Further research could focus on examining the long-term effects of the NLC on teacher and student outcomes and the potential for adapting similar models in other educational contexts.

AUTHORS' CONTRIBUTIONS

R.V. is the lead researcher who conceptualized and led the study. R.P. is the researcher's adviser who helped and guided him throughout the study.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Master Teachers in Public Secondary Schools: Their Journey Towards Integration and Contextualization of Global Citizenship into *Araling Panlipunan* Curriculum and Instruction

Jonathan C. Lilang

ABSTRACT

This comprehensive mixed-methods study investigated the integration and contextualization of Global Citizenship Education (GCED) using Understanding by Design (UBD) as a guiding principle within the *Araling Panlipunan* (AP) curriculum and instruction. Data collection involved a variety of approaches, including semi-structured interviews, focus group discussions, classroom observations, and document analysis. These methods allowed for a thorough exploration of educators' perceptions, instructional strategies, and challenges related to GCED integration. The findings of this study revealed a spectrum of GCED incorporation across different educational settings, influenced by a myriad of factors such as institutional support, teacher training initiatives, and the structure of the curriculum itself. Despite encountering challenges inherent to qualitative data collection, such as subjectivity and potential sample bias, rigorous efforts were made to mitigate these issues through triangulation of data sources and careful sampling strategies, thus enhancing the validity and reliability of the study. The integration of qualitative and quantitative methods facilitated a comprehensive understanding of GCED integration within the AP curriculum and instruction, enabling the formulation of evidence-based recommendations for curriculum development, teacher professional development, and policy implementation. These recommendations are aimed at fostering a more robust integration of GCED principles and practices, ultimately equipping students with the necessary competencies to become responsible global citizens. This research contributes valuable insights to the field of education research, informing decision-making processes and advocating for the promotion of global citizenship education within the Philippine education system.

Keywords: *GCED, ubd, Araling Panlipunan, curriculum, instruction*

INTRODUCTION

In 2012, the United Nations launched the 2012 Global Education First Initiative. This initiative paved the way for the global environment to construct a curriculum highlighting global competencies. UNESCO also included Global Citizenship in its Sustainable Development Goal (SGD) for 2014-2021. Unfortunately, while other countries are steadily adopting the competencies formally, the Philippines is still defining the framework and the curriculum for

GCED that will be utilized by education institutions in the country.

Though the country is still in the process of constructing its global citizenship curriculum, there are limited studies conducted to understand how global competencies are integrated into existing curricula (Hibanada et al., 2020), and Social Studies and Values Education are the subjects that have been identified to possess the dimensions of the global citizenship. Given that some global citizenship competencies are already articulated in the current curriculum, there is a need to examine the extent of the concept of global citizenship in the existing curriculum guide and teachers' experience in contextualizing the Social Studies curriculum emphasizing the dimensions of global citizenship.

Integrating global citizenship with educational institutions has a significant contribution to developing the core elements of active and responsible global

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citizenship (Oxfam, 2006). One of the areas in which global citizenship education can effectively be implemented is schoolteachers. One of the primary responsibilities of teachers is to create awareness of the world so that future generations, do not break ties with a globalized world. For this purpose, instructors should provide environments that allow learners to participate in active discussions in class and thus develop their critical thinking skills (Garii, 2000).

Today's learners are graduating into an interconnected world as never before. Citizens in the 21st century must be aware and be able to develop a sense of responsibility and responsiveness to local and global problems and issues, whether in health, environment, peace, or economic security. This changing global context demands that learners today develop knowledge, skills, attributes, and commitment to global citizenship through the educational process.

Global Citizenship by UNICEF

The United Nations has defined a global citizen as one who understands the need for interconnectedness, can value and respect others' opinions and diversity, can raise a voice against injustice, and can take action personally (UNICEF, 2013). Therefore, students are equipped with the knowledge, and understanding of how to exercise their human rights to help and support one another in any part of the world.

Attributes of a Global Citizen

In their study, Affandi & Somantri (2020) defined a Global Citizen as an individual who possesses several key attributes. Firstly, they emphasized that a Global Citizen is someone who possesses knowledge about the broader world and recognizes their role as a citizen of the globe. Additionally, they highlighted the importance of valuing and respecting diversity, understanding the functioning of the world, and actively discouraging social injustice. Furthermore, a Global Citizen is characterized by their sense of belonging and involvement in various communities, spanning from local to global levels. They are committed to striving towards making the world a fairer and more sustainable place, and they willingly take responsibility for their actions. Overall, these characteristics collectively define the essence of a Global Citizen (Affandi & Somantri, 2020).

Global Citizenship: A Concern for Educational Institutions

Due to the present reality of global needs and demands evolving now and then, younger generation needs to equip themselves beyond the national limit, as global citizens (Estellés & Fischman, 2020). To stay up to date with the fast pace of globalization, there must be a concern that endeavors in education ought to focus on expanding their attention to worldwide improvement and asking them to accept their obligations as natives of their local or regional, national, and worldwide communities (Pasha, 2015). In this manner, how to actualize and strengthen the component of worldwide citizenship education in-school educational programs has turned into a vital educational issue.

Characteristics of Global Citizenship Education

In their study, Pais and Costa (2020) outlined the key features of Global citizenship education. They emphasized the importance of providing students with comprehensive knowledge about world political frameworks and world monetary systems. Additionally, they stressed the development of critical thinking skills that transcend boundaries, as well as the cultivation of cross-cultural communication skills. Furthermore, Global citizenship education aims to encourage active engagement and dynamic participation among students. Importantly, it also seeks to foster empathy by empowering students to personalize their understanding of the world and to forge connections with individuals living in distant corners of the globe (Pais & Costa, 2020). These features collectively underscore the multifaceted nature of Global citizenship education, highlighting its role in preparing students to navigate and contribute to an interconnected global society.

Goals and Objectives of Global Citizenship Education

In their research, Jamil et al. (2021) outlined the objectives of global citizenship education, emphasizing its multifaceted goals. Firstly, they emphasized the need to promote recognition and appreciation of the diverse nations and cultures that constitute the global community. This objective underscores the importance of fostering cultural awareness and sensitivity to facilitate mutual understanding and respect among individuals from varying backgrounds. Secondly, global citizenship education aims to raise awareness of critical global issues and challenges, as well as to develop an understanding of the role and objectives of the United Nations in addressing them. This includes fostering a sense of responsibility and active engagement in addressing issues such as poverty, climate change, and social inequality at a global level. Thirdly, the objectives include promoting awareness and comprehension of human rights issues, emphasizing the significance of advocating for and upholding the fundamental rights and freedoms of individuals worldwide. Lastly, global citizenship education seeks to foster an understanding of the interconnectedness between humans and their environment, emphasizing the acknowledgment of the complex relationships and interdependencies within the global ecosystem. Collectively, these objectives

highlight the holistic nature of global citizenship education, aiming to equip individuals with the requisite knowledge, skills, and attitudes to navigate and contribute positively to an increasingly interconnected world.

Study Objectives

This study aimed to gather information on the Master Teachers' journey along the integration and contextualization of Global Citizenship Education in the AP curriculum and instruction. Specifically, the study aimed to unravel the depth of GCED integration and contextualization in the AP curriculum and instruction, evaluate teacher feedback on these elements, identify the facilitators and barriers to GCED contextualization in AP, and gather teacher recommendations for enhancing GCED integration.

Theoretical Frameworks

Global Citizenship Education Framework. The Global Citizenship Education (GCED) Framework, as promoted by organizations like UNESCO, is an educational approach aimed at increasing awareness and understanding of global issues among learners. It seeks to equip them with the skills, values, and attitudes necessary to foster a sustainable world. The framework typically revolves around three core dimensions:

1. *Cognitive Dimension:* This dimension focuses on developing knowledge and understanding of global issues and interdependencies. It includes an awareness of the interconnectedness of local and global issues, an understanding of the process of globalization, and knowledge about global issues such as climate change, human rights, global economies, cultural diversity, and sustainable development.

2. *Socio-Emotional Dimension:* This aspect is centered on developing values, attitudes, and soft skills that are crucial for living in a globally interconnected world. It includes fostering a sense of belonging to a common humanity and promoting values like empathy, solidarity, and respect for diversity. The socio-emotional dimension also emphasizes the development of skills such as critical thinking, communication, and the ability to resolve conflicts in a non-violent manner.

3. *Behavioral Dimension:* This dimension involves empowering learners to act effectively and responsibly at both the local and global levels for a more peaceful and sustainable world. It includes the development of skills for active citizenship and involvement in society, encouraging learners to engage in activities that promote social justice, environmental stewardship, and intercultural understanding.

The GCED Framework aims to create a holistic educational experience that prepares learners not just academically, but also socially and ethically, to meet the challenges of a rapidly changing and increasingly interconnected world. It seeks to inspire a commitment to building a just, peaceful, tolerant, inclusive, secure, and sustainable world.

Understanding by Design (UbD) Framework. The Understanding by Design (UbD) framework is an educational planning approach developed by Wiggins & McTighe (2005). It focuses on designing curriculum, assessment, and instruction with the end goal in mind — also called "backward design." The framework is structured into three stages:

1. *Stage 1: Identify Desired Results:* This stage involves determining what students should know, understand, and be able to do at the end of the learning process. Educators are encouraged to identify big ideas, essential questions, and key knowledge and skills that are central to the subject. This stage is about setting clear goals and learning objectives.

2. *Stage 2: Determine Acceptable Evidence (Assessment):* In this stage, educators decide how they will measure student learning. This involves designing assessments that will provide evidence of students' understanding and proficiency. The focus is on performance tasks, projects, quizzes, tests, observations, and other means to assess understanding, not just rote memorization.

3. *Stage 3: Plan Learning Experiences and Instruction:* The final stage is where the actual planning of instruction happens. Educators design learning activities, lessons, and instructional strategies that will help students achieve the desired results. This stage requires thoughtful planning to ensure that the learning experiences lead students toward a deeper understanding and mastery of the skills and knowledge identified in Stage 1.

The UbD framework emphasizes the importance of aligning curriculum, assessment, and instruction with the desired learning outcomes. It encourages educators to think critically about the purpose of education and to design learning experiences that foster genuine understanding and long-term retention of knowledge. The framework is widely used for its effectiveness in promoting student-centered learning and deep understanding of content.

METHODOLOGY

This research employs a mixed methods approach, specifically convergent parallel design, to scrutinize the multifaceted aspects of GCED integration and

Table 1. Extent of Integration of the Concept of Global Citizenship in Araling Panlipunan in terms of Curriculum

Dimensions	Mean	SD	DI
Dimension 1: Understanding Global Issues and Interconnectedness	3.43	0.47	MI
Dimension 2: Skills for Global Citizenship	3.31	0.48	MI
Dimension 3: Values and Attitudes towards Global Citizenship	3.56	0.47	HI
Dimension 4: Pedagogical Approaches for Global Citizenship Education	3.21	0.39	MI
Overall Mean	**3.38**		**MI**

Table 2. Extent of Integration of the Concept of Global Citizenship in Araling Panlipunan in terms of Instruction

Dimensions	Mean	SD	DI
Dimension 1: Cognitive (Knowledge and Understanding)	3.26	0.27	MI
Dimension 2: Socio-emotional (Skills and Competencies)	3.24	0.30	MI
Dimension 3: Behavioral (Values and Attitudes)	3.53	0.40	HI
Dimension 4: Pedagogical Approaches	3.53	0.30	HI
Overall Mean	**3.39**		**MI**

contextualization within the Social Studies curriculum and instruction, particularly in the context of AP.

The study was conducted within carefully selected secondary education institutions situated in Romblon. Nine schools were chosen based on their demonstrated commitment to integrating Global Citizenship Education (GCED) within the AP curriculum and instruction. The selection ensured that the study encompassed diverse educational contexts across varied socio-cultural backgrounds in the province.

A set of qualitative and quantitative instruments was meticulously developed to comprehensively study the integration of GCED within the AP curriculum and instruction. These instruments went through a rigorous content validation procedure to ensure that the indicators and questions were pertinent, understandable, and sufficiently addressed the essential concepts associated with integration and contextualization. Experts in the domains of curriculum development, as well as Master Teachers, were the content validators.

Quantitative data in this study were analyzed using descriptive statistics, and for the qualitative portion of the study, thematic analysis was utilized. The study carefully observed several ethical considerations to ensure that the research was conducted with integrity and respect for all participants. Prioritizing informed consent was fundamental and participants were provided comprehensive information regarding the purpose of the study, methods, potential hazards, and advantages. Participation was purely voluntary, and participants had the opportunity to quit at any point without confronting any negative consequences. Ensuring confidentiality and anonymity were of utmost importance, and rigorous steps were implemented to safeguard the identity and personal information of the

Master Teachers and the teachers as well. This involved securely storing the data and restricting access.

RESULTS AND DISCUSSION

Integration of the Concept of Global Citizenship in Araling Panlipunan

Curriculum. In terms of curriculum, the study identifies four dimensions (Table 1). Understanding global issues and interconnectedness (M=3.43) indicated a moderate level of integration. For skills for global citizenship (M=3.31), the level of integration was also moderate. However, values and attitudes towards global citizenship (M=3.56) indicated a high level of integration. Finally, pedagogical approaches to global citizenship education (M=3.21), showed a moderate level of integration. The four dimensions under the curriculum (M=3.38) collectively indicated a moderate integration of global citizenship concepts in the Araling Panlipunan curriculum.

Instruction. The cognitive aspect of instruction (M=3.26), as well as the socio-emotional (M=3.24) indicated a moderate level of integration. However, for behavioral and pedagogical approaches (M=3.53), the level of integration was high. Overall, GCED's integration in AP instruction was moderate (M=3.39).

Master Teachers' Feedback

Curriculum. The study also explored the integration of GCED and UbD frameworks within the AP curriculum (Table 3). The research focused on how these frameworks can enhance teaching and learning, particularly in developing knowledge and thinking skills related to global citizenship. Master Teachers' feedback highlighted the curriculum's strong points in promoting

Table 3. Master Teacher's Feedback on Curriculum

Dimensions	Themes
A.1 Cognitive Dimension (Knowledge and Thinking Skills)	• Reflective and Empathetic Learning • Integration and Application of Global Citizenship • Critical Thinking and Analytical Skills • Curriculum and Instructional Adaptation • Assessment and Evaluation • Social Responsibility and Global Engagement
A.2. Socio-Emotional Dimension (Values, Attitudes, and Social Skills)	• Emotional Intelligence and Empathy Development • Collaborative Learning for Socio-Emotional Growth • Experiential Learning and Personal Growth • Values Integration and Social Responsibility • Cultural Appreciation and Global Awareness
A.3. Behavioral Dimension (Active Participation and Engagement)	• Engagement Through Active Learning and Community Involvement • Challenges and Solutions in Engagement • Impact Measurement and Feedback • Promoting Global Citizenship and Responsibility

Table 4. Master Teacher's Feedback on Instruction

Stages	Themes
Stage 1: Desired Results (Focus on Global Citizenship in Araling Panlipunan)	• Integration of Global Citizenship and Local Contexts • Curriculum Design and Learning Objectives • Inclusivity and Diversity in Learning • Engagement Strategies for Global Citizenship • Curriculum Development Challenges and Adjustments
Stage 2: Assessment Evidence (Evaluating Understanding of Global Citizenship)	• Assessment Strategies and Tools • Utilization of Student-Created Content • Challenges in Global Citizenship Assessment • Assessment Adaptation and Feedback
Stage 3: Learning Plan (Instructional Strategies for Global Citizenship)	• Instructional Design and Engagement • Challenges and Implementation • Instructional Strategies and Methods

reflective and empathetic learning, critical thinking, and analytical skills through various pedagogical strategies such as debates, case studies, and collaborative learning. These methods helped students connect learning with real-world contexts, fostering an understanding of global issues.

The curriculum's dynamic adaptation to global trends and the integration of engaging activities demonstrated its responsiveness and effectiveness in embedding global citizenship concepts deeply into students' learning experiences. Moreover, diversified assessment methods and the emphasis on real-world application underscored the curriculum's commitment to comprehensive evaluation and practical education. Respondents also noted the curriculum's role in fostering social responsibility and global engagement, emphasizing the importance of practical applications in enhancing students' commitment to addressing global issues. The feedback collectively underscored a curriculum that is both reflective of global education standards and effective in preparing students to engage with global challenges actively.

Instruction. Master teachers skillfully balanced global and local contexts, ensuring that students appreciate their cultural identities while engaging with global citizenship concepts (Table 4). The design and learning objectives of the curriculum were crafted to be inclusive and responsive to the diverse needs and interests of students, fostering personal connections to the material and promoting active participation.

The instruction phase emphasized inclusivity and diversity, utilizing various engagement strategies to deepen students' understanding of global citizenship. Essential questions and activities that promote critical thinking and volunteerism were instrumental in this process. However, the curriculum faced challenges such as resource limitations and the integration of global perspectives, necessitating continuous adaptation and innovation in instructional practices.

Assessment strategies were varied, incorporating reflective activities, written essays, and performance tasks to gauge students' grasp of global issues and their analytical skills. Despite challenges in assessing complex global citizenship topics due to material or tool

Table 5. Facilitators and Constraints in the Contextualization of Global Citizenship in *Araling Panlipunan*

Area	Themes
Curriculum	• Curricular and Pedagogical Constraints • External Influences on Curriculum Integration • Professional Development and Collaborative Efforts • Teacher and Learner Dynamics • Conceptual and Philosophical Foundations
Instruction	• Instructional Strategies and Practices • Resources and Technological Integration • Policy, Standards, and Institutional Support • Community and Collaboration • Diverse Perspectives and Social Engagement

inadequacies, master teachers adapted assessments to align with learning goals, ensuring they reflect the educational objectives of GCED effectively.

The instruction phase was characterized by a dynamic and reflective approach to teaching, with a strong emphasis on technology integration, real-world application, and continuous adaptation to maintain relevance and engagement in a rapidly changing global landscape. This comprehensive approach ensured that students are not only well-informed about global issues but are also prepared to act as responsible global citizens.

Facilitators and Constraints in Contextualizing Global Citizenship

The study highlighted several key areas of concern and interest: First, it identified significant curricular and pedagogical constraints that inhibit the seamless incorporation of GCED, including curricular limitations, pacing issues, and structural constraints (Table 5). These challenges were compounded by disparities in resource availability, especially technological resources, and gaps in teacher training.

External factors such as community beliefs, political climates, and student engagement levels also played a crucial role in the contextualization process. The research noted that while rural challenges and broader community impacts present difficulties, positive community engagement can substantially enhance global awareness.

Professional development and collaborative efforts were emphasized as critical tools for teachers. The research pointed out a notable lack of focused training opportunities, which adversely affected the effective integration of GCED. The dynamics between teachers and learners were also crucial, with the preparedness of teachers and the engagement of learners playing pivotal roles in the educational process.

The research further delved into the conceptual and philosophical foundations of GCED, discussing how these underpinnings influenced curriculum design and pedagogical approaches. Additionally, it examined instructional strategies and practices, noting a dichotomy where some strategies are well-adapted while others fail to effectively engage students. The role of resources and technology was discussed as both a facilitator and a barrier, dependent on availability and connectivity.

The study addressed policy, standards, and institutional support, noting variability in their impact on educational practices. Community collaboration and the inclusion of diverse perspectives were highlighted as essential for enriching the curriculum and enhancing social engagement in the classroom.

Description of Master Teachers Journey on the Contextualization of GCED Curriculum

The findings uncovered how Master Teachers enhance curriculum and instructional practices to foster a profound understanding of global citizenship among students. Master teachers employed a suite of pedagogical strategies—such as debates, case studies, and collaborative learning—that not only aim to enhance critical thinking and analytical skills but also closely tie these skills to real-world contexts. This approach helped students develop an understanding of global issues and their responsibilities as global citizens. The curriculum has been continuously adapted to incorporate global trends and engaging activities, making the learning experience relevant and effective. This dynamic curriculum has been supported by diversified assessment methods that emphasize practical applications, preparing students to actively and responsibly engage with global challenges.

In the instruction phase, the curriculum thoughtfully balanced global and local contexts, ensuring students value their own cultural identities while engaging with broader global citizenship concepts. Instruction was designed to be inclusive, resonating with the diverse needs and interests of students, which fosters a personal connection to the material and promotes active participation. However,

the implementation of such a curriculum faced challenges, including resource limitations and the need to integrate a global perspective, which requires ongoing adaptation and innovative instructional practices.

The journey of Master Teachers in contextualizing GCED within the Araling Panlipunan curriculum has been marked by a strategic and reflective approach to teaching that not only aligns with global educational standards but also effectively prepares students to navigate and influence the global community as informed and responsible citizens.

CONCLUSION

For the curriculum, global citizenship concepts were moderately integrated into Araling Panlipunan, and this was also evident within instruction. The study demonstrated how the integration GCED and UbD frameworks enhanced the Araling Panlipunan curriculum. The findings imply that the curriculum successfully cultivates critical thinking, analytical skills, and a deep understanding of global issues through reflective and empathetic learning approaches.

The instructional methods utilized were active engagement, critical thinking, and reflective learning, which are vital for students to develop an understanding of global issues. These methods were supported by a range of assessment strategies that ensure a comprehensive understanding of global citizenship principles. However, the execution of these strategies faced challenges like resource limitations and the need for continuous curriculum adaptation, reflecting the dynamic nature of global education.

Among the primary hurdles were curricular and pedagogical constraints, such as limited space in the curriculum, structural barriers, pacing issues, and technological disparities. These were further compounded by inadequate teacher training, highlighting a pressing need for enhanced professional development programs. External factors, including community beliefs, political climates, and student engagement levels, influenced the success of GCED integration. Conceptual and philosophical foundations also played a significant role; a deep understanding of these aspects is crucial for designing effective instructional strategies and curricula. Resource and technological integration were highlighted as both a facilitator and a barrier. Moreover, policy and institutional support varied, with some policies enhanced instructional methods while others have minimal impact.

Master teachers used an array of pedagogical techniques, including debates, case studies, and collaborative learning, which are specifically designed to enhance students' critical thinking and analytical skills while connecting these skills to real-world contexts. In terms of instructional design, the curriculum maintained a thoughtful balance between global and local contexts, which helps students appreciate their own cultural identities while engaging with broader global citizenship concepts. The instruction was crafted to be inclusive, catering to the diverse needs and interests of students, which not only fosters a personal connection to the material but also promotes active participation. The journey of master teachers in contextualizing GCED within the Araling Panlipunan curriculum was characterized by strategic and reflective teaching approaches. These approaches not only comply with global educational standards but also effectively prepare students to navigate and contribute to the global community as informed and responsible citizens.

To further strengthen the integration and contextualization endeavors, this study suggests the enhancement of digital literacy and leadership skills in global citizenship education. These include developing modules focused on digital literacy, incorporating leadership training through project-based learning, using interactive teaching methods, investing in technological infrastructure, providing teachers with access to resources, organizing comprehensive professional development, establishing partnerships with NGOs and international organizations, and promoting community and global engagement. The curriculum should also be continuously evaluated and adapted to ensure it remains relevant and effective. Further studies are recommended such as the exploring the balance between globalization and localization, integration of Global Citizenship into lesson plans from Grade 7 to Grade 10, and analysis of the extent of GCED's integration into the MATATAG Curriculum. These recommendations aim to foster well-rounded, globally aware citizens.

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Table 3. Master Teacher's Feedback on Curriculum

Dimensions	Themes
A.1 Cognitive Dimension (Knowledge and Thinking Skills)	• Reflective and Empathetic Learning • Integration and Application of Global Citizenship • Critical Thinking and Analytical Skills • Curriculum and Instructional Adaptation • Assessment and Evaluation • Social Responsibility and Global Engagement
A.2. Socio-Emotional Dimension (Values, Attitudes, and Social Skills)	• Emotional Intelligence and Empathy Development • Collaborative Learning for Socio-Emotional Growth • Experiential Learning and Personal Growth • Values Integration and Social Responsibility • Cultural Appreciation and Global Awareness
A.3. Behavioral Dimension (Active Participation and Engagement)	• Engagement Through Active Learning and Community Involvement • Challenges and Solutions in Engagement • Impact Measurement and Feedback • Promoting Global Citizenship and Responsibility

Table 4. Master Teacher's Feedback on Instruction

Stages	Themes
Stage 1: Desired Results (Focus on Global Citizenship in Araling Panlipunan)	• Integration of Global Citizenship and Local Contexts • Curriculum Design and Learning Objectives • Inclusivity and Diversity in Learning • Engagement Strategies for Global Citizenship • Curriculum Development Challenges and Adjustments
Stage 2: Assessment Evidence (Evaluating Understanding of Global Citizenship)	• Assessment Strategies and Tools • Utilization of Student-Created Content • Challenges in Global Citizenship Assessment • Assessment Adaptation and Feedback
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Inclusive Education: The Strategic Catalyst of Internationalization at a Philippine State University

Carlo Joseph M. Juanzo

ABSTRACT

This research explored the practices of inclusive higher education toward achieving internationalization at a state university in Romblon, Philippines. The study utilized a qualitative research design, specifically a case study, to delve deep into the subjective experiences of academic managers involved in the internationalization process. The study was conducted at a state university in the MIMAROPA Region, Philippines during AY 2022-2023, focusing on inclusiveness, interconnectedness, and internationalization within education. The key stakeholders in this research were the academic managers and the dean of instruction, who provided a multifaceted perspective on the university's practices. A purposive sampling strategy was used to select participants. Data collection included the use of in-depth interviews. Following data collection, the data was organized before implementing a rigorous thematic analysis process consisting of steps like familiarization, coding, theme development, reviewing, defining, mapping, and finalizing themes. The study emphasized the importance of inclusive higher education practices across multiple components within the university system. It aimed to offer valuable insights into the experiences of academic managers and faculty. The study hopes to contribute to the understanding and development of more effective policies and practices for inclusiveness, interconnectedness, and internationalization in higher education.

Keywords: *case study, inclusive education, internationalization*

INTRODUCTION

The UN Convention on the Rights of Persons with Disabilities (UNCRPD), ratified by the Philippines in 2008, marks a crucial shift towards recognizing the rights of persons with disabilities as equal members of society. This Convention emphasizes inclusive education as a fundamental right, necessitating accommodations and support within higher education institutions to ensure equal access. Complementing this rights-based approach, UNESCO's Inclusive Higher Education Project aligns with Sustainable Development Goal 4, aiming to dismantle barriers through policy reforms, inclusive curriculum development, staff training, and the promotion of accessible digital learning solutions. These global and national initiatives

collectively establish a robust framework for creating equitable educational environments.

In the Philippines, the push toward inclusive education faces challenges such as limited resources, inadequate facilities, and insufficient teacher training (Calizo & Agudo, 2023). Despite positive attitudes and supportive cultural values (Santos & Bautista, 2020), effective implementation requires collaboration among parents, teachers, and administrators, alongside rigorous policy monitoring (Torres, 2023) and innovative technological practices (Navarro & Tan, 2022).

Internationalizing higher education in the Philippines is critical for preparing students for a globalized world. Policies and institutional efforts have led to increased international student enrollment and collaborations, enhancing the appeal of Philippine education (Altbach & Knight, 2007; Deardorff, 2011a). However, challenges such as cultural and linguistic barriers and the need for robust quality assurance mechanisms persist. Ethical considerations and curricula that explore global perspectives and intercultural competence are crucial for fostering an internationalized educational environment. Initiatives like Collaborative Online International Learning (COIL)

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and faculty/student mobility programs are essential (Altbach & Knight, 2007; Deardorff, 2011a).

Inclusive education and internationalization are intertwined, with inclusivity ensuring equal opportunities for all students and reducing segregation (UNESCO, 1994; Ainscow & Miles, 2008). While the challenges of internationalization are complex, aligning education with global standards will significantly enhance the educational landscape in the Philippines and beyond, contributing to a more equitable and modern society.

Educational globalization in the 21st century has significantly impacted practices and philosophies within higher education, enriching classrooms through the increased mobility of international students. In the Philippines, the Universal Access to Quality Education Act demonstrates a commitment to inclusive education, aligning with the internationalization efforts emphasized by the Philippine Commission on Higher Education (CHED).

This study investigated the alignment of inclusive education with internationalization at Romblon State University, focusing on administrators' perspectives. The relationship between inclusivity and internationalization was also explored. Furthermore, inclusivity, interconnectedness, and internationalization function were examined from a non-Western perspective employing the Congruence Model of the Nadler-Tushman Framework, which highlighted the importance of aligning organizational components—environment, people, tasks, and culture—to enhance effectiveness in inclusive education and internationalization. The study also underscored the need for cultural competency among faculty and staff and the alignment of internal strategies with external factors like government policies and market demands. Through this comprehensive approach, the research provides actionable recommendations for internationalizing higher education in non-Western settings, contributing fresh perspectives to the global educational discussion and informing better internationalization strategies.

METHODOLOGY

A qualitative case study approach was used to examine inclusive education practices within an internationalization framework to understand how inclusivity and connectedness are integrated into the internationalization strategies of a state university in the MIMAROPA Region, Philippines. In-depth interviews with academic managers were conducted to gather rich insights into their experiences and perspectives. Data were collected during the second semester of the AY 2022-2023. Key stakeholders, specifically academic managers and the dean of instruction, were purposefully sampled for their relevant roles. Carefully designed and expert-validated email interview guides were used to collect comprehensive data. Thematic analysis (following Braun and Clarke's framework) was applied to interview transcripts to extract insights into the experiences of academic managers and reveal inclusivity and internationalization practices within the university.

RESULTS AND DISCUSSION

Inclusive higher education practices across multiple dimensions such as strategy, environment, task, people, and culture in the goal of internationalization at RSU generated five themes.

Strategy: Inclusive Education as a Strategic Catalyst for Internationalization

The themes extracted from this qualitative research encapsulate the profound impact of inclusive education on internationalization efforts within a state university. Inclusive education is a core principle and a powerful driving force in shaping strategic planning and decision-making (P1, P2, P3). Participants recognized that a commitment to inclusivity nurtures an environment welcoming an international perspective (P1). Universities are urged to integrate inclusive strategies, such as ongoing training, diversity appreciation, international student support, and diverse perspectives into the curriculum (P2). Inclusive education influences strategic planning by driving the university to expand its global concept (P3). This expansion includes attracting and supporting international students, developing a globalized curriculum, organizing international activities, and facilitating study-abroad partnerships (P3). Inclusive education necessitates comprehensive decision-making (P4), and institutions are advised to measure the impact of these efforts (P5) while ensuring inclusive recruitment and admissions practices (P6). Policy development centering on inclusivity and diversity is vital for embedding these values within the university's long-term goals (P7). Finally, inclusive education influences an organization's strategic direction, prioritizing equity, accessibility, and diversity (P8). These findings support the scholarly emphasis on inclusivity in university strategic plans for effective Internationalization (Hudzik, 2011; Hauschildt et al., 2015; Deardorff et al., 2012). However, the success of these initiatives hinges on linking policy to outcomes; otherwise, the potential of inclusive education to drive internationalization is lost (Arnesen et al., 2017). Strategic planning that prioritizes inclusivity is essential for aligning actions with goals and enhancing global recognition. Translating plans into practice demands a

focus on where policy and implementation meet (Arnesen et al., 2017; Ainscow et al., 2006).

Institutions must continually adapt their strategies to meet global inclusivity standards (Acedo & Hughes, 2014). Collaboration among stakeholders is vital for successfully implementing inclusive strategies (Mitchell, 2005), ensuring effective integration and promotion of inclusivity and internationalization within the university.

Task: Transformative Influence of Inclusive Education on Institutional Effectiveness and Global Competence

The themes extracted from this research highlight the transformative impact of inclusive education on a university's operations, global competence development, and overall institutional culture. Inclusive practices directly shape task execution (P1), strategic planning (P1), and organizational decision-making (P2), promoting student success and driving the university toward effective globalization strategies. Inclusive education is significant for nurturing global competence, ensuring graduates are well-equipped to navigate a complex world (P3, P5). It facilitates the development of intercultural skills, adaptable mindsets, and the critical thinking and innovation required for graduates to excel (P5). Moreover, inclusive education transforms institutions by nurturing inclusive environments (P5), celebrating cross-cultural understanding (P7), and promoting equality and equitable internationalization processes (P8). While challenges exist in measuring the full impact of inclusive education (P8) and a genuine commitment to resources is essential (P8), universities are actively measuring international involvement (P2), aligning with international standards (P3), and using feedback to assess the impact of inclusive education on internationalization efforts (P6).

Inclusive education transforms institutions from teaching to assessment and support services (Booth et al., 2015). It builds global competence by promoting multilingualism, cultural understanding, and critical thinking in a globalized world (Hunter et al., 2016; Mansilla & Jackson, 2011). Inclusive education aligns strategic objectives with internationalization, attracting international students and partners (Knight, 2012; Altbach & Knight, 2007). However, challenges like limited resources, resistance to change, and staff skill gaps exist (Ainscow et al., 2006). Implementation requires ongoing commitment, evaluation, and adaptation.

People: Empowerment and Enrichment through Inclusive Education in Higher Learning Institutions

Inclusive education empowers various members of the university community. It benefits students by improving access, engagement, and academic performance while also creating a more welcoming campus environment (P1). Faculty and staff experience professional growth opportunities as they develop the skills needed for inclusive teaching and working environments (P7). Moreover, inclusive education provides a platform for individuals to showcase unique talents and skills, leading to personal development and a stronger sense of community (P5).

Beyond individual empowerment, inclusive education enriches the entire university environment. It promotes a more profound understanding and acceptance of diverse perspectives, breaking societal barriers (P2). Exposure to different cultures and viewpoints enhances knowledge, leading to innovation in teaching and learning (P2). A diverse student body is crucial, allowing students to learn from one another and prepare for life in a multicultural world (P3). Inclusive education promotes a collaborative and dynamic environment, leading to better problem-solving and positive institutional growth (P8).

Proper inclusive education is both democratic and experiential. It embodies a collective decision-making process that values all voices, ensuring that initiatives genuinely reflect the community's needs (P8). Additionally, inclusive education emphasizes active participation and learning by doing. This hands-on approach ensures that everyone involved develops a deep understanding of diversity and inclusion (P8).

While inclusive education goes hand-in-hand with internationalization, it is essential to consider how these concepts impact faculty. Inclusive classrooms, led by faculty, prepare students for global realities. A diverse student body enriches this process, facilitating intercultural learning and understanding. Though there might be initial resistance to some inclusive practices, the benefits are clear and lead to positive institutional transformations supporting internationalization (P3).

Inclusive education empowers by building skills and self-confidence, creating a sense of belonging that leads to greater engagement and better outcomes (Ebersold et al., 2011). It encourages mutual respect and cooperation across diverse backgrounds, creating an inclusive learning environment. Promoting equal opportunities and inclusivity democratizes education, making learning more accessible and engaging.

Inclusive education aligns with internationalization goals by integrating global perspectives into the institution's culture (Leask, 2015; Deardorff, 2011b). This boosts global competitiveness and reputation, making inclusive education a key strategy within global education (Slee, 2013).

Table 1. Key Findings

Dimensions	Main Themes
A. Strategy	• Strategic Planning and Decision Making • Quality of Education and Global Reputation • Policy and Practice
B. Task	• Operational Impact of Inclusive Education • Promotion of Global Competence • Transformation through Inclusive Education • Challenges and Commitment to Inclusive Education • Measurement and Alignment Towards Internationalization
C. People	• Inclusive Education and Empowerment • Enrichment through Understanding and Diversity • Democratization and Participatory Experiences • Inclusive Education and Internationalization
D. Culture	• Inclusive Education and Cultural Diversity • Inclusive Education as a Driving Force for Diversity • Perceptive Understanding of Cultural Differences • The synergy between Inclusive Education and Cultural Perspectives in Internationalization
E. Environment	• Transformational Impact of Inclusive Education • Alignment and Adaptation for Inclusivity • Inclusive Education and Global Readiness • Promotion of Safety, Equality, and Access

Culture: Cultural Synergy through Inclusive Education in the Context of Internationalization

As highlighted by this research, inclusive education is key to promoting cultural diversity, understanding, and a sense of shared purpose in an international setting. Inclusive education is a powerful force, fostering a learning environment that celebrates diversity, balances opportunities, and incorporates a wide range of cultural perspectives throughout the curriculum (P1, P3, P4, P7, P8). Participants recognized that this inclusive approach enhances students' awareness of cultural differences, builds intercultural competence, and facilitates effective collaboration with individuals from diverse backgrounds (P5). Tracer studies provided valuable insights into the effectiveness of these efforts (P5). Ultimately, the synergy between inclusive education and diverse cultural perspectives is a key driver of successful internationalization, highlighting how inclusivity creates a more welcoming and enriching learning environment that prepares students for success in a globalized world (P2).

Inclusive education promotes cultural diversity by respecting and celebrating varied backgrounds (Banks, 2015; Gorski, 2009). This enhances social cohesion and understanding. It catalyzes an inclusive cultural shift, valuing differences for multicultural understanding and global cooperation (Deardorff, 2011b).

By integrating culturally diverse perspectives into teaching, inclusive education promotes cultural awareness and intercultural competence (Bennett, 2013). This synergy between culture and internationalization prepares students for a globalized world, making inclusive education key to internationalizing higher education (Knight, 2012; Taylor & Ali, 2017).

Environment: Transformation and Alignment of the University Environment through Inclusive Education for Global Readiness

By embracing inclusive education, universities cultivate a safe, collaborative environment, preparing students for the globalized world. It aligns physical infrastructure and ideologies to embrace diversity, creating welcoming facilities and resources for all (P1, P4, P6, P7). Inclusive education transcends geographical limitations, ensuring its positive impact is felt regardless of the institution's location (P4). Inclusive education is pivotal in preparing a globally competent workforce and promoting transnational education (P2). Ensuring collaboration and inclusivity prepares students to navigate a diverse professional landscape and facilitates cross-border educational opportunities (P8). Importantly, inclusive education champions safety, equality, and access. It works to prevent discrimination, creates safe spaces for socialization, builds trust within the community, and expands access to higher education for individuals from diverse backgrounds (P5). Collectively, these themes underscore the

transformative power of inclusive education in shaping a university environment that supports student success, fosters global readiness, and prioritizes inclusivity for all.

Inclusive education aligns and adapts physical and educational environments for diversity. This includes infrastructural changes and multilingual resources, regardless of location, to create a welcoming space (Ainscow & Sandill, 2010). A sense of pride and belonging enhances student experiences.

It prepares students for global workforces by promoting communication and collaboration skills across diverse groups. Inclusive education facilitates transnational education through online learning and international quality assurance, expanding opportunity and collaboration. Additionally, it promotes safety, equality, and access by ensuring discrimination-free environments and policies that respect all (Forlin, 2010). This expanded access supports internationalization goals.

Inclusive education transforms universities into diverse, globally prepared communities, aligning physical space and ideology to meet diverse student needs. This boosts the institution's global competitiveness (Deardorff, 2006).

CONCLUSION

This research demonstrated that inclusive education is pivotal for advancing internationalization in educational institutions, necessitating robust policy frameworks for effective implementation. It revealed that inclusivity enhances operational efficiency, cultivates global competence among students, and drives transformative cultural diversity within the academic environment. The study emphasized the role of inclusive practices in fostering an empowering and collaborative classroom atmosphere, enhancing institutional reputation and global readiness. Additionally, inclusive education has been highlighted as essential for appreciating and integrating diverse cultural perspectives, promoting a vibrant, inclusive academic community. Overall, the research underscored the integration of inclusive education as a strategic approach to achieving comprehensive internationalization in higher education.

The research recommends that institutions must adopt a collaborative and adaptable approach to implement inclusive internationalization successfully. Involving diverse stakeholders in policymaking ensures alignment with the institution's mission and broader inclusion standards. Fostering cross-departmental and international collaborations provides access to best practices and creates a culture of teamwork. Empowerment is crucial, offering stakeholders recognition and supporting professional development in

inclusive teaching, cultural competency, and global collaboration. Focusing on belonging, accessibility, and proactive cultural sensitivity is vital, with workshops and events designed to break down barriers. Leveraging local culture and celebrating diversity enrich internationalization efforts. A collective effort from faculty, staff, students, and external partners ultimately builds the robust network necessary for sustained success in inclusive internationalization.

AUTHOR'S CONTRIBUTIONS

The author confirms sole authorship of this study.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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