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Physics Teachers' Level of Knowledge and Integration of the Deped Core Values

Junbryle B. Agbayani[1] and Vida V. Antonio[2]

Abstract

This descriptive-qualitative research determined the level of knowledge and integration of the DepEd Core Values of Physics teachers and the challenges which the teachers encounter during the integration of the DepEd Core Values in teaching Physics, as well as the DepEd Core Values reflected in the self-learning modules. The sixty-five (65) JHS Physics teachers from the Schools Division of Ilocos Norte, who were chosen via total enumeration, were the participants of the study. The main tools used in gathering data were the adapted survey questionnaire, a researcher-made tally sheet, and an interview guide. The data gathered were statistically analysed using mean, frequency, and rank. Results show that the teachers are highly knowledgeable in the application of the DepEd Core Values in teaching Physics. Meanwhile, results also show that the teachers are advanced in integrating the DepEd Core Values in teaching Physics. However, there is a limited frequency of 15 DepEd Core Values reflected in the SLMs of JHS Physics, which affect the teachers' integration of the DepEd Core Values in their lesson. Moreover, the teachers face challenges in the integration of the DepEd Core Values it is because teaching Physics as the subject focuses on content and skills development. Values integration is difficult to implement and time consuming, and there is limited integration of the DepEd Core Values in the prescribed SLMs.

Keywords: *Challenges, DepEd Core Values, Integration, Level of Knowledge, Physics Teachers.*

INTRODUCTION

Science and Technology as one had significantly influenced society and its effect is rapidly rising. However, the advancement of scientific and technological progress necessitates the advancement of Science education. Science education is an essential component of the curriculum. It is an important avenue for providing development of human resources, modernization, and country's economic growth.

Teaching Science as a subject has always been associated with experimentation or laboratory work. Experiences of laboratory work; feel of apparatuses, materials and natural phenomena; events; and working with hands are essential and vital parts of Science education. Also, the language of Science is Mathematics, hence, it naturally involves formulas and equations that require numbers and a lot of analysis (Antonio, 2018). Moreover, Calzada and Antonio (2023) emphasized that for effective learning to take place, students should be provided with varied activities. More so, a good teacher must adapt his methods and learning materials to the nature of the individual child and his level of development.

The advancement of Science and rapid development of technology is essential for human evolution and as for the growth of moral values and principles. Strengthening moral values and principles is one of the efforts to anticipate in the rapid development of Science and technology. Science offers the empirical data required to apply and improve ethical standards. In turn, moral values provide students with the ideals and tendencies they need to make choices in the context of discovery, in the acceptance of hypotheses, and in the conduct of investigation. Students, as the country's future generation, should be instilled with moral values and principles to deal with change and adapt effectively. Additionally, educators need to alter how people view the idea of education as something that gives kids moral values instruction in addition to academic instruction (Tyaningsih, 2019). However, there are still challenges encountered by teachers in teaching Science especially in assessments. The teachers' top ranked problems in doing assessment include time for checking and test preparation; students' guessing their answers and low/poor performance; and finding the quality of tests via reliability and validity computation. They claimed that they need training along general assessment, trends in assessment and

[1] Divine Word College of Laoag, Laoag City, Ilocos Norte, Philippines, Email: agbayanijunbryle@gmail.com

[2] Graduate School, Mariano Marcos State University, Laoag City, Ilocos Norte, Philippines

alternative assessment. The low level of competency of the teachers in assessment defines the types of assessment methods they use and adds up in the difficulties they encountered in assessing their students' performance (Antonio et al, 2024).

The first paragraph of the Department of Education's (DepEd) Vision reflects the importance of developing moral values via education. To aid in this endeavor, the Department of Education established four (4) core values: *Maka-Diyos; Makatao; Makakalikasan;* and *Makabansa*. The ability to put the core values into practice enables everyone to realize the DepEd's vision and mission of producing citizens who are socially aware individuals capable of standing up for themselves and their country.

According to Adebayo (2020), it is critical that students are trained at an early age to exhibit vital non-cognitive qualities such as compassion for others in society. This can be accomplished by establishing a classroom environment wherein students are taught moral judgment and values (Chlonkar, 2016). In addition to this, Chowdbury (2016) argued that moral values through the DepEd Core Values should be included as a part in Science education curriculum to make Science lessons timely and relevant. Therefore, the DepEd Core Values should be methodologically integrated in Science education. However, students' poor interest in Science, especially Physics due to its complex nature continues to be a concern in the country (Fuente, 2019). This makes it even more difficult for teachers to emphasize the DepEd Core Values in their Science classes, particularly in Physics (Chowdhury, 2016).

Despite the need for teachers to increase their knowledge of the DepEd Core Values, including its inclusion into Physics classes, there are limited training programs available to address their concerns and needs. According to Skaggs (2019), Physics teachers are unfamiliar with the different approaches for completely integrating values in their classes, causing them to overlook the importance of resolving the problem of values not being emphasized in teaching Physics. This was further reinforced by Labi-i (2021), who found that most teachers receive insufficient training in Values Education, resulting in a lack of accurate and up-to-date knowledge of employing suitable techniques, approaches, and strategy.

Furthermore, no research investigations on the adoption of the DepEd Core Values in Physics instruction have been undertaken. It is in this context that the researcher was encouraged to investigate the Physics teachers' level of knowledge and integration of the DepEd Core Values, the DepEd Core Values reflected in JHS Physics self-learning modules, and the challenges teachers face while integrating the DepEd Core Values in teaching Physics.

This study was performed to determine the level of knowledge and integration of the Physics teachers on the DepEd Core Values; the DepEd Core Values that are being integrated by the teachers as reflected in their modules and the challenges the teachers encounter in the integration of the DepEd Core Values.

The results of this study could guide Physics teachers in evaluating their ability in integrating the DepEd Core Values in their lessons. This could help them which seminars, crash courses, or trainings they need to attend to improve their knowledge and abilities in infusing the DepEd Core Values in their instructions. School heads and administrators could use this study as a basis in creating plans in monitoring the integration of the DepEd Core Values lessons in teaching Physics. Additionally, the results could be considered as eye-opener for future professional development for teachers, emphasizing on the improvement of their awareness and practices on the integration of the DepEd Core Values in their instructions through seminars and training workshops. This study could also assist curriculum developers to create effective curricula, courses, and learning methods that emphasizes on incorporating the DepEd Core Values in increasing student academic achievements in Physics, which has the potential to result in the development of an educational framework for a more meaningful Physics program. Likewise, the results of this study could provide meaningful feedback to material developers for the improvement of self-learning modules (SLMs), particularly in the incorporation of the DepEd Core Values, to ensure the sustainability of quality education in Science through modular instruction.

METHODS

This study was anchored mainly on Values Education Program Framework and Contextual Teaching and Learning (CTL) Theory. The Values Education Program Framework is designed to serve as a guide for regional and division offices, as well as schools, in designing their Values Education programs. Integrating Values Education in Physics according to Brown (2021), encourages students to actively generate value through reasoning, scientific explanations, moral discussions, and individual decision-making processes. As a result, designing lessons and activities based on Values Education Framework and using a student-centered and inquiry-based approach in teaching Physics plays an important role in drawing students' attention to and thinking about the moral value being presented, which is effective in achieving the targeted moral value, as well as the opportunities for further development in applying it in daily life (Sabri, 2018).

The study used descriptive-qualitative research design to determine and describe the Physics teachers' level of knowledge and integration of the DepEd Core Values. It also explored the challenges encountered by the teachers in the integration of the DepEd Core Values in teaching Physics. Furthermore, the study determined the DepEd Core Values reflected in JHS Physics SLMs. The SLMs for JHS Physics prescribed by the Department of Education were considered for the document analysis. The study was conducted in the public secondary schools of the DepEd Schools Division of Ilocos Norte (SDOIN). A total of 65 Physics teachers employed in the various public secondary schools served as the respondents of the study.

An adapted questionnaire from DepEd Division of Baguio City D.M. no.39 s., 2016, DepEd Teacher Induction Program 2018 and Peralta (2022) was used in the study to determine the teachers' level of knowledge and integration of the DepEd Core Values which was sent via Google form. In the document analysis, the researcher-made tally sheet on DepEd Core Values that is based on DepEd Division of Baguio City D.M. no.39 s., 2016 and DepEd Teacher Induction Program 2018 was used as a guide by the researcher to describe the DepEd Core Values reflected in the SLMs. A semi-structured interview protocol was also used in the online interview to ten (10) randomly selected teachers to gather qualitative data to support the data gathered from the survey questionnaire and tally sheet.

Frequency counts were used to analyze the reflected DepEd Core Values in JHS Physics SLMs, while the mean was used to determine the level of knowledge and integration of the DepEd Core Values. The following range of mean with its corresponding descriptive interpretation on the teachers' level of knowledge adopted from Ancheta (2022), was used: 4.20 – 5.00 Highly Knowledgeable (HK); 3.40 – 4.19 Knowledgeable (K); 2.60 – 3.39 Moderately Knowledgeable (MK); 1.80 – 2.59 Slightly Knowledgeable (SK); 1.00 – 1.79 Not Knowledgeable (NK). Meanwhile, the following range of mean with its corresponding descriptive interpretation on the teachers' level of integration adopted from and Peralta (2022), was used: 4.20 – 5.00 Expert (E); 3.40 – 4.19 Advanced (Ad); 2.60 – 3.39 Average (Av); 1.80 – 2.59 Beginner (B); 1.00 – 1.79 New Comer (N). Furthermore, the responses from the semi-structured interview were transcribed, coded, and thematically analyzed.

Prior to gathering relevant data and conducting the survey, the researcher obtained permission from the Schools Division Superintendent of Ilocos Norte to conduct the study. The researcher provided all necessary information about the research to the respondents in the form of a written document and explained the contents as needed for them to make an informed decision to participate in the study. The confidentiality of their personal information, as well as the benefits of their participation, were explained.

RESULTS AND DISCUSSION

Physics Teachers' Level of Knowledge and

Integration of the DepEd Core Values

Level of Knowledge

Table 1 shows the level of knowledge of the teachers on the application of the DepEd Core Values in their Physics classes. Based on Table 1, teachers are highly knowledgeable of the DepEd Core Values, as indicated

by the overall mean rating of 4.65. This means that teachers understand how the DepEd Core Values may be integrated into teaching Physics. This rating may be influenced by the DepEd mandate focusing on implementing these core values in public schools across the country. The DepEd Core Values should be infused into all subjects as part of the mission. Long-term teacher training on various strategies of incorporating the DepEd Core Values in Physics is essential to retain highly knowledgeable teachers.

This result coincides with the study of Sumbi (2022) where junior high school teachers have a high level of knowledge in integrating the DepEd Core Values in their subjects. This implies that the teachers with high level of knowledge can effectively integrate the DepEd Core Values in their Physics lessons (Villaruz, 2020).

Table 1. Mean ratings on the teachers' level of knowledge on the DepEd Core Values.

	Indicators	Weighted Mean	DI
When I teach,			
1.	I engage the students in worthwhile spiritual activities such as praying, meditation, moment of silence, etc. in each lesson.	4.06	K
2.	I encourage students to respect sacred places and religious beliefs of others.	4.63	HK
3.	I promote students' willingness to learn about other people's spiritual life.	4.26	HK
4.	I encourage students to always be honest and tell the truth.	4.85	HK
5.	I train students to respect the feelings of others and to acknowledge their own prejudices.	4.78	HK
6.	I encourage students to show respect to others.	4.88	HK
7.	I train students to wait patiently for their turn.	4.74	HK
8.	I advise students to treat borrowed items with care and returning them in good condition.	4.78	HK
9.	I train students to see mistakes as opportunities for significant growth.	4.66	HK
10.	I encourage students to help others, particularly those in need.	4.74	HK
11.	I educate students to identify and accept persons from various economic, social, and cultural origins.	4.63	HK
12.	I involve students in cooperative learning.	4.78	HK
13.	I support a student to become the leader of their group during an activity.	4.71	HK
14.	I train students how to accept defeat and appreciate the achievement of others.	4.65	HK
15.	I practice anti-discrimination in the classroom.	4.75	HK
16.	I encourage pupils to have a caring attitude toward the environment.	4.80	HK
17.	I motivate students to undertake waste management practices	4.77	HK
18.	I train students to save energy and resources.	4.68	HK
19.	I encourage students to take care of school resources, facilities, and equipment.	4.80	HK
20.	I encourage pupils to maintain their work environment clean and orderly both during and after work.	4.75	HK
21.	I train students to respect the Philippine flag and singing the national anthem.	4.69	HK
22.	I motivate students to appreciate diverse Filipino cultural expressions, customs, and traditions.	4.54	HK

23.	I train pupils to appreciate Filipino cultural languages.	4.32	HK
24.	I encourage children to adhere to school, community, and country rules.	4.68	HK
25.	I encourage students to develop an interest and pride in being Filipino.	4.54	HK
26.	I help students to manage their time and resources properly and efficiently exhibits *Makabansa.*	4.54	HK
27.	I train pupils to persist in accomplishing their objectives despite challenging situations.	4.58	HK
	Overall Mean	**4.65**	**HK**

Legend: **Mean Interval** **Descriptive Interpretation**

4.20 – 5.00	Highly Knowledgeable (HK)
3.40 – 4.19	Knowledgeable (K)
2.60 – 3.39	Moderately Knowledgeable (MK)
1.80 – 2.59	Slightly Knowledgeable (SK)
1.00 – 1.79	Not Knowledgeable (NK)

Table 1 also shows that under the DepEd Core Values *Makatao*, encouraging to show respect to others, is one of the well-known indicators that may be effectively integrated into Physics lessons, as indicated by the mean rating of 4.88 with a descriptive interpretation of *highly knowledgeable*. This obtained mean may be ascribed to the DepEd's promotion of Gender and Development (GAD) among public schools to understand the significance of respecting individual differences.

On the other hand, under the DepEd Core Values *Maka-Diyos*, teachers are aware of but occasionally integrate spiritual activities, in teaching Physics as indicated by the mean rating of 4.06 with a descriptive interpretation of *knowledgeable*. The results show that the teachers require direction on various approaches to integrate spiritual activities in Physics lessons.

The results above can be supported by the teachers' responses during the interview. When asked about their knowledge on DepEd Core Values, some of them commented:

> The Core Values instilled in us are love for God (*Maka-Diyos*), love for people (*Makatao*), love for the environment (*Makakalikasan*), and love for our nation (*Makabansa*). These values must serve as the foundation for creating activities or assessment tasks for the students.
>
> Teacher 5
>
> The DepEd Core Values instill in us the love of God (*Maka-Diyos*), the love of people (*Makatao*), the love of nature (*Makakalikasan*), and the love of our nation (*Makabansa*).
>
> Teacher 1

From the obtained responses from the teachers, it can be said that they have the knowledge and have understood well the components of the DepEd Core Values. The findings corroborate with Sumbi's (2022) conclusion that teachers fully comprehend the significance of each core value and the relevance of integrating it into their lectures. Additionally, Values Education teachers assist Physics teachers by offering suitable methodologies and strategies for integrating the DepEd Core Values into Physics teaching, as well as relevant teaching resources.

This is also consistent with the study of Hadi (2015), in which teachers realize that teaching Physics is not only designed for the transmission of information, but also for nurturing and growing outstanding moral character

so that students not only grasp Physics, but also have a strong sense of character. As a result, character or Values Education is not only the responsibility of the ethics instructors, or guidance counselors, but also other teachers through the incorporation of values into their lectures.

Level of Integration

As reflected in Table 2, teachers claim that they are *advanced* in integrating the DepEd Core Values in Physics instruction with an overall mean rating of 3.76. This suggests that the teachers are capable of fully integrating a wide range of the DepEd Core Values into various teaching-related procedures in Physics. This high rating can be attributed to DepEd's GMRC and Values Education trainings and seminars for teachers and educators to increase their knowledge and understanding of the Values Education Framework of the K to 12 Program and the Filipino cultural value system, as well as by providing adequate and relevant instructional materials (Press and Public Affairs Bureau, 2020).

Table 2. Mean ratings on the teachers' level of integration on the DepEd Core Values.

	Indicators	Weighted Mean	DI
1.	Integrating DepEd Core Values in teaching Physics.	3.65	A
2.	Integrating DepEd Core Values in planning the lesson.	3.83	A
3.	Making of learning activities fitting to the following DepEd Core Values:		
	3.1. *Maka-Diyos*	3.71	A
	3.2. *Makatao*	3.94	A
	3.3. *Makakalikasan*	4.03	A
	3.4. *Makabansa*	3.85	A
4.	Integrating DepEd Core Values in preparing activity sheets.	3.68	A
5.	Incorporating DepEd Core Values in designing modules.	3.68	A
6.	Incorporating DepEd Core Values in constructing problem sets.	3.68	A
7.	Applying DepEd Core Values in making enrichment activities.	3.75	A
8.	Integrating DepEd Core Values in illustrating Physics concepts.	3.80	A
9.	Incorporating DepEd Core Values in constructing periodical tests.	3.75	A
10.	Carrying out the DepEd Core Values reflected in the Self-learning Module (SLM) in my lesson.	3.74	A
11.	Applying the DepEd Core Values in preparing Strategic Intervention Materials (SIM).	3.60	A
12.	Incorporating DepEd Core Values in constructing lesson quizzes.	3.69	A
	Overall Mean	**3.76**	**A**

Legend:	**Mean Interval**	**Descriptive Interpretation**
	4.20 – 5.00	Expert (E)
	3.40 – 4.19	Advanced (Ad)
	2.60 – 3.39	Average (Av)
	1.80 – 2.59	Beginner (B)
	1.00 – 1.79	New Comer (N)

Notably, Physics teachers are *advanced* rather than *expert* in terms of integrating the DepEd Core Values. Teachers who had a high level of knowledge on the DepEd Core Values also had a higher level of integration of these values. This result may be attributed to limited training on the different teaching strategies in the integration of the DepEd Core Values in Physics (Briones, 2018). As a result, they merely integrate the DepEd Core Values into certain parts of their instruction.

Table 2 also shows that the teachers' application of the DepEd Core Values is clearly based on the creation of learning activities that correspond to the DepEd Core Values - *Makakalikasan* - with a weighted mean rating of 4.03, with a descriptive interpretation of advanced. This finding demonstrates that the teachers are skilled at incorporating environmental-related activities and lessons into Physics lessons.

Furthermore, Table 2 results that teachers can, but occasionally do, include the DepEd Core Values while creating strategic intervention materials (SIM) with a mean rating of 3.60 described as *advanced*. This finding indicates that the teachers require guidance in incorporating the DepEd Core Values within a SIM.

The results above are supported by the teachers' responses during the informal interviews as follows:

I am employing the Core Values in my teaching specifically in activities.

Teacher 10

I am employing some of the DepEd Core Values in my Physics class. For example, in the lessons of Physics we can understand better and appreciate the difficulties and beauty of nature which relates to the *Makakalikasan* value.

Teacher 7

From the responses of the teachers, it was found that they mostly integrate the DepEd Core Values in the activity section of their lessons. According to Hung (2018), learning activities are the ideal part of the lesson for teachers to do integration. Learning activities help students learn new knowledge and create connections due to the high degree of interaction that can be done by the teacher. However, owing to a lack of knowledge and abilities in the formulation of values-based activities, Physics teachers are significantly struggling with the integration of the DepEd Core Values in Physics activities. (Ramma, Boloa, Watts, et al.,2018).

This is also congruent with the study of Althauser (2018) which identified the issues preventing teachers from successfully integrating values-based lessons and activities. The time it took to plan and produce the materials, the assistance they received from Values Education teachers, the teachers' personal knowledge of the subject matter that was being taught, the opportunities and practices for integrating values, and the amount of professional growth they received in values integration were all factors that made it difficult for teachers to fully implement values integration in their Physics lessons.

DepEd Core Values Reflected in the Self-learning Modules (SLMs)

DepEd Core Values Maka-Diyos. It can be observed from the table that among the six indicators of *Maka-Diyos*, encourages curiosity and readiness to learn about other people's spiritual expressions (f = 1) and encourages honesty and truth-telling (f = 1) ranked first.

The high frequency of these indicators imply that people value the importance of having a spiritual belief. Moreover, the result could be attributed by the strong religiosity of teachers and students in Philippines' public schools (Cena & Bual, 2021). This might also be ascribed to the considerable number of Catholic students in the public schools.

Table 3. Distribution of the DepEd Core Values *Maka-Diyos* as reflected in the SLMs.

Indicators	Grade Level				Total	Rank
	7	8	9	10		
	f	*f*	*f*	*F*	*f*	
1. allows students to engage in spiritual activity.	0	0	0	0	0	3
2. demonstrates how to respect religious places.	0	0	0	0	0	3
3. demonstrates how to respect the religious views of others.	0	0	0	0	0	3
4.encourages curiosity and readiness to learn about other people's spiritual expressions.	0	1	0	0	1	1
5.encourages honesty and truth-telling.	1	0	0	0	1	1
6.demonstrates respect for one's own and others' feelings.	0	0	0	0	0	3
				Overall Total	**2**	

Scheper (2013) believes that children remain linked to their beliefs regardless of whatever institutions they attend. These findings motivate the public school to make the most of the students' participation in their own religions to preserve their understanding of *Maka-Diyos*.

The DepEd Core Values *Maka-Diyos* aims for every student to express their spiritual beliefs, while respecting the spiritual beliefs of others and shows adherence to ethical principles by upholding truth.

One of the indicators of *Maka-Diyos* includes "*encourage honesty and truth-telling*". Honesty is the practice of not telling lies in what one says or does, of always telling the truth, and of being willing to confess mistakes. Everybody should develop the value of honesty in oneself, in the same way that students should establish the value of honesty in themselves (Syofyan, Rosyid, Febrianti et al., 2022). Applying honesty in modular learning is vital since teachers cannot directly supervise students in accomplishing their assignments and activities. Instilling the virtue of honesty in students is crucial for the successful operation of modular learning.

One of the fundamental customs that are instilled to Filipinos as they grow is the practice of superstition. This is to honor and revere their forefathers, who are the origins of many superstitions still practiced today. Allowing the students to give scientific justifications for their well-known superstitious beliefs may engage and enlighten both the teachers and the students, while also teaching them to value the views of others that were passed down to them by their ancestors (Besa, Abusama, Lao et al., 2021).

DepEd Core Values *Makatao.* It can be gleaned from Table 4 that among the 10 indicators of *Makatao*, *encourage people to help others in need (f = 3)* ranked first, while *encourages cooperative learning (f = 1)* ranked second.

Table 4. Distribution of the DepEd Core Values *Makatao* as reflected in the SLMs.

8	Grade Level				Total	Rank
	7	8	9	10		
	f	*f*	*f*	*f*	*f*	
7. develops respect for others.	0	0	0	0	0	3
8. encourages people to be patient and wait their turn.	0	0	0	0	0	3
9. employs mistakes as a means of meaningful learning.	0	0	0	0	0	3
10. encourages students to treat borrowed goods with care and to return them in excellent shape.	0	0	0	0	0	3
11. encourages people to help others in need.	2	1	0	0	3	1
12. acknowledges and respects people from various economic, social, and cultural backgrounds.	0	0	0	0	0	3
13. encourages cooperative learning.	0	0	1	0	1	2
14. promotes leadership (recognizes and accepts the contribution of others towards common goal).	0	0	0	0	0	3
15. uplift others and celebrates others' success.	0	0	0	0	0	3
16. prevents prejudice.	0	0	0	0	0	3
				Overall Total	**4**	

The DepEd Core Values *Makatao* aims for students to be sensitive to individual, social, and cultural differences and demonstrates contributions toward solidarity.

Children learn about their reliance and sense of connection with other people by "helping others". One indicator of *Makatao* is to encourage people to help others in need. Helping others and offering assistance is a technique to foster the interdependency required to unite individuals in a shared society. Just by observing people in their environment, children should be able develop various behavioral habits. Modeling and imitation are significant to the development of new behavioral patterns in children because they allow for the learning, strengthening, weakening, or facilitation of a broad spectrum of behaviors (Quigley, 2004).

Another indicator of *Makatao* is encourages cooperative learning. Cooperative learning is a teaching technique in which students work in small teams to help one another understand the lessons (Slavin, 2015). The improvement of social networks and the growth of students' learning attitudes, skills, and self-belief have all been linked to cooperative learning. Compared to individualistic learning, students who participated in cooperative learning showed greater belief and proficiency in personal and academic teamwork (Tran, 2019). Additionally, compared to competitive or individualistic learning, cooperative learning fosters stronger connections between students. This type of positive interaction boosts students' motivation and tenacity in achieving common objectives.

DepEd Core Values Makakalikasan. It is evident in Table 5 that among the five indicators of *Makakalikasan*, *encourages waste management practices (f = 2)* rank first, while *promotes maintaining a tidy workspace both during and after work (f = 1)* rank second.

The DepEd Core Values *Makakalikasan* aims for students to develop a caring attitude for the environment and develop skills in utilizing resources wisely, judiciously, and economically.

Table 5. Distribution of the DepEd Core Values – *Makakalikasan* as reflected in the SLMs.

Indicators	Grade Level				Total	Rank
	7	8	9	10		
	f	*f*	*f*	*f*	*f*	
17. fosters an environmentally conscious mindset.	0	0	0	0	0	3
18. encourages waste management practices.	0	1	1	0	2	1
19. promotes energy and natural resource conservation.	0	0	0	0	0	3
20. encourages the proper care of school resources, facilities, and equipment.	0	0	0	0	0	3
21. promotes maintaining a tidy workspace both during and after work.	1	0	0	0	1	2
				Overall Total	**3**	

One indicator of *Makakalikasan* is *encourages waste management practices,* which promotes environmental knowledge. Environmental knowledge refers to thoughts and actions that are associated with the environment (White, Habib & Hardisty, 2019). The increase in environmental knowledge increases students' awareness of environmental problems, increasing the likelihood that students will take action to preserve the natural environment. Furthermore, it raises students' awareness and understanding of environmental concerns, as well as allowing them to give their views and knowledge on environmental issues, with the goal of making responsible decisions (Debra, Vidal & Dinis, 2021). As a result, teachers need to equip learners with the foundation of environmental knowledge for them to be able to comprehensively grasp the rising environmental issues (Jafer, 2020).

Another indicator of *Makakalikasan* is it promotes maintaining a tidy workspace both during and after work. Clean-up or tidy-up time is typically seen in school environments as a transitional period between one activity and another. Clean-up time, which serves as a transition between activities, fosters students' initiative to clean up their surroundings.

DepEd Core Values *Makabansa*

It can be deduced in Table 6 that among the seven indicators of *Makabansa*, *promotes being a law-abiding citizen (abides by the rule of the school, community, and country) (f = 4)* rank first, while *encourages awareness for various Filipino cultural expressions, rituals, and traditions (f = 1)* and *foster interest in and pride in being Filipino (f = 1)* rank second.

Table 6. Distribution of the DepEd Core Values – *Makabansa* as reflected in the SLMs.

Indicators	Grade Level				Total	Rank
	7	8	9	10		
	f	*f*	*f*	*f*	*f*	
22. promotes respect for the Philippine flag and national anthem.	0	0	0	0	0	4
23. encourages awareness for various Filipino cultural expressions, rituals, and traditions.	1	0	0	0	1	2
24. encourage the appreciation and improvement of Filipino languages.	0	0	0	0	0	4
25. promotes being a law-abiding citizen (abides by the rule of the school, community, and country).	2	2	0	0	4	1
26. foster interest in and pride in being Filipino.	1	0	0	0	1	2
27. encourages efficient and effective time and resource management.	0	0	0	0	0	4
28. encourages perseverance in achieving goals despite adversity.	0	0	0	0	0	4

Overall Total	**6**	

According to Salakhova, Belyakova, Knyazeva, et al. (2020), law-abiding behavior is a consistent conduct shown by an individual in which he adheres to the most fundamental laws of society and attempts to preserve the public's peace and harmony while still maintaining his own sense of identity. Imitation is the initial stage in developing a habit of behavior. In the classroom, children and adolescents are socialized, their personalities are developed, and values, attitudes, rules of behavior, and legal competence that are consistent with prevailing societal norms and ethical standards are formed. Thus, teachers should develop student's law-abiding behavior, starting with the stage of imitating normative behavior and continuing through the stage of developing a law-abiding personality (Salakhova, Belyakova, Knyazeva, et al., 2020).

Another indicator of being *Makabansa* is encourages awareness for various Filipino cultural expressions, rituals, and traditions. Proverbial statements are one of the various ways that culture may be expressed. Proverbs function as upkeep for the survival of the society and culture, as well as edification, guidance, warnings, and admonitions. Proverbs have the power to mold students' thought processes by exposing a profound philosophical meaning and by expressing the harmony of universal human ideals, as well as the particular and distinctive characteristics of a national mindset (Toshtemirova, 2021).

Summary of the DepEd Core Values Reflected in the SLMs

Table 7 shows that among the four Core Values *Makabansa (f = 6)* rank first, *Makatao (f = 4)* rank second, *Makakalikasan (f = 3)* rank third, and *Maka-Diyos (f = 2)* rank fourth.

The high frequency of the core values *Makabansa*, based on Table 7, may be ascribed to the DepEd's objective of developing Filipino teachers' and students' patriotism and nationalism by exposing social issues that need critical thinking and analysis. (Garcia & Bual, 2022).

This result also supports the findings of Pantao (2020), which revealed that teachers moderately exercise the core values *Makakalikasan, Makatao* and *Makabansa,* while the core value *Maka-Diyos* is slightly exercised. The study also revealed that the core values *Makakalikasan, Makatao,* and *Makabansa* are integrated by teachers to a moderate extent, while the *Maka-Diyos* is integrated to a slight extent.

Table 7. Summary of the DepEd Core Values as reflected in the SLMs.

DepEd Core Values	Grade Level				Total	Rank
	7	8	9	10		
	f	***F***	***f***	***f***	***f***	
Maka-Diyos	1	1	0	0	2	4
Makatao	2	1	1	0	4	2
Makakalikasan	1	1	1	0	3	3
Makabansa	4	2	0	0	6	1
				Overall Total	**15**	

It can also be seen on the table the limited frequency of the DepEd Core Values manifested in the SLMs with a total of 15 only. This limited frequency is significant since this can affect the teachers' integration of the DepEd Core Values.

According to Jou, Mariñas, and Saflor (2022), SLMs can support values integration by providing the necessary resources of information for Physics teachers to effectively implement the strategy. This implies that the limited frequency of the DepEd Core Values manifested in the SLMs affect the teachers' integration of the DepEd Core Values in their lessons.

This is also consistent with Garcia and Bual's (2022) study on the awareness and practice of DepEd Core Values, in which teachers admit they are familiar with the DepEd Core Values and their advantages but only implement what is being manifested in the SLMs. This implies that the more DepEd Core Values being manifested in the SLMs, the more the teachers will be able to incorporate them in their lessons. This link is consistent with the assertion made by Kwol, Elowule, Avci, et al. (2019) that individuals' knowledge of the DepEd Core Values affects how they apply them.

Physics Teachers' Challenges in the Integration of the DepEd Core Values

The problems of teachers integrating the DepEd Core Values as embodied in self-learning modules (SLMs) in Physics are described and explored in this section. These were determined based on the teachers' comments during the online semi-structured interview.

The teachers' random responses were arranged thematically. The following themes from their perspectives, ideas, and observations on the DepEd Core Values expressed in the SLMs were as follows: 1) content and skills development focus; 2) difficult to integrate; 3) time consuming; and 4) limited integration due to prescribed SLMs.

Content and Skills Development Focus. Based on the recorded responses, the teachers considered teaching Physics should focus on content and skills development. Teachers argued that content and skills development should be the priority in teaching Physics due to the students' low foundational knowledge on the subject.

This is reflected in the following statements of the teachers:

> I think the greatest challenge in integrating the DepEd Core Values in teaching Physics is that the lessons and/or activities are more focus on students gaining factual information, rather than integrating them. Aside from being hard to relate and look for a hole to enter the core values, it is also a very critical task to develop appropriate strategies in implementing both Core Values and concepts at the same time.
>
> Teacher 2

> Implementing or integrating the DepEd Core Values in Physics lesson is not easy. First due to its complicated nature I need to focus more on the learning and understanding. For instance, during lecture I focuses on teaching concepts while during laboratory I focuses on skills development. Second is sometimes I have difficulties in integrating the DepEd Core Values especially to some parts of the lecture. Lastly is the lack of learning materials that already have the DepEd Core Values integrated lessons.
>
> Teacher 10

The statements above indicate that the teachers' perceptions of the difficult or abstract nature of Physics prevent them from incorporating the DepEd Core Values into their lectures. They believe that learning in Physics should concentrate on the development of the students' content knowledge and skills.

According to Koh, Camire, Regina, and Soon (2016), subject teachers regard themselves in the classroom as subject specialists rather than values teachers since their subject is their first priority. This viewpoint argues that teachers are unaware of the usefulness of values development as a learning technique. Furthermore, the subject teachers seldom utilize values development approaches in their classrooms because they feel it would take too much time and effort.

In addition, the Physics teachers cannot regard themselves as the ones accountable for imparting values development lessons to students. Their emphasis is on the delivery of their content rather than the development of the students' values. They believe that Values Education teachers are primarily responsible for this. The Physics teachers are taught to be professional Physics teachers, who should assist students in gaining conceptual knowledge of Physics subjects (Ong'ute, 2009). Furthermore, the Physics curriculum places a greater focus on strengthening the topic under study as a kind of fast scientific advancement. (Retnawati, Arlinwibowo, Wulandari, et al., 2018).

Furthermore, Farrokhnia, Diaz, Noroozi et al. (2019) state that secondary teachers focus on concept and skill development due to students' challenges with Physics concepts and problems, which can be rather ambiguous at times. Teachers emphasize the importance of students having the fundamental skills needed to improve their

success in Physics. Assem, Narty, Appiah, et al. (2023) found that Physics students' capacity to grow in their education is dependent on their comprehension and application of Physics topics.

Time Consuming. According to the findings of the interviews, the teachers believe that integrating the DepEd Core Values in Physics takes time. They contended that incorporating the DepEd Core Values consumes a significant amount of teachers' time when developing values-based activities and resources for teaching Physics.

In fact, some teachers conveyed:

> The issue that I encountered in integrating the DepEd Core Values in teaching Physics is the lack of time in integrating these Core Values to the learners. Due to many learning competencies that need to be covered within the quarter and other learning school activities, integrating the DepEd Core Values in teaching my Physics lessons is not totally implemented to the learners.
>
> Teacher 9
>
> One difficulty I encountered in integrating the DepEd Core Values is in finding appropriate materials or examples, which makes planning and creating the core values integrated lesson hard and takes a lot of time.
>
> Teacher 6

Based on the teachers' remarks, the teachers believe that integrating the DepEd Core Values interferes with the content area time. Since Physics has many competencies for students to acquire in a school year, the teachers focus on completing all those competencies and do not have enough time to adequately prepare for the integration of the DepEd Core Values.

With the so many competencies to teach and learn in Physics, the teachers must concentrate completely on the development of pre-requisite skills for the students to cover all the lessons in Physics in a school year. This was consistent with the findings of a study done by Ramma et al. (2018), who discovered that Physics teachers frequently must rush through teaching a topic to fulfill the syllabus. Furthermore, they concluded that employing this strategy allows pupils to carry out specific tasks while still being prepared to grasp the subject in class.

Teachers are also challenged by the lack of easily available value-integrated resources. Briones (2018) claims that teachers do not have to spend much time creating these time-consuming educational resources. Majority of teachers are downloading ready-made Physics presentations from the internet since they do not have enough time to prepare owing to the increased workload. Furthermore, due to increased workload and many topics to prepare, teachers do not have the time to create values-based teaching materials.

Furthermore, Carmona and Jazmin (2020) state that the top activity that impedes learning is a lack of time that teachers have available to cover the contents because of a teacher conference, teacher-training, and other complementary activities that overlap with the school schedule and interrupt learning during class time. Moreover, teachers believe that stopping regular classes to attend administrative events such as meetings, conferences, training, workshops, and seminars may have a detrimental influence on student performance. As a result, teachers are forced to rush through all the topics, focusing solely on concepts to finish the entire syllabus, and accidentally overlook incorporating values into their classes.

Limited Integration Due to Prescribed SLMs. According to the findings of the interviews, the teachers believe that integrating the DepEd Core Values in Physics is being limited by the prescribed SLMs. Teachers believe that the limited number of core values-infused lessons or activities in SLMs makes it hard for them to integrate fully the DepEd Core Values in their lessons. Since the teachers primarily use the SLMs as teaching and learning tool this defines the teachers' integration of the DepEd Core Values in their lessons (Natividad, 2021).

The following statements are the comments of the teachers:

Yes, the DepEd Cove Values are present in the Physics modules but not often. Some modules have it in their activities which helps me in my lesson. However, most modules do not incorporate the DepEd Core Values that is why it is hard for me to implement it in that lesson since I do not have any basis.

Teacher 2

The DepEd Core Values are generally included in the SLMs provided by the DepEd and that includes the Physics subject. The modules that we are using help us in the integration of the Core Values in the teaching and learning process. Although it would be a great help if the modules will include more core values-integrated lessons and activities.

Teacher 7

The statements of the teachers imply that the DepEd Core Values are present in some SLMs being used by the teachers. In which, teachers believe that these core values should be present more frequently in all SLMs to provide basis in fully integrating the DepEd Core Values in all aspects of the lesson.

According to Jou, Mariñas, and Saflor (2022), SLMs are a great teaching and learning materials since it can support various integration including values-based lessons and activities. Moreover, SLMs also provide teachers the necessary resources for them to successfully implement the strategy. This indicate that SLMs also contribute to the effectiveness of the integration of the DepEd Core Values in Physics. SLMs can assist and facilitate teachers in integrating values in the learning process (Sendari, Ratnaningrum, Ningrum, et al., 2019). SLMs are selected in the discharge of problems related to improving the quality of learning and improvement of values formation because it can facilitate communication between teachers and learners, in which teachers can introduce values development along the subject matter (Darmaji, Kurniawan, Astalini, et al., 2019).

Moreover, according to the study of Garcia and Bual (2022), teachers rely their integration of the DepEd Core Values in their lesson based on the available values-based lessons and activities in the SLMs. The frequent manifestation of the core values in the SLMs helps to increase the teachers' awareness on various methods of integrating the DepEd Core Values in their lessons. Gallinero and Otig (2018) believe that when teachers have a high awareness on the DepEd Core Values, they can exceptionally integrate them. Hence, increasing the frequency of manifestation of the DepEd Core Values in SLMs is critical in advancing the teachers' integration of the core values in their class.

CONCLUSIONS

In the light of the findings, the Physics teachers at the public Junior High Schools of the Schools Division of Ilocos Norte are knowledgeable in the application of the DepEd Core Values in teaching Physics. Moreover, the teachers are advanced in terms of integrating the DepEd Core Values in Physics lessons. It can also be concluded that the SLMs integrate some indicators of the DepEd Core Values. These indicators are mostly categorized under *Makabansa* and only a few indicators fall under *Makatao*, *Makakalikasan*, and *Maka-Diyos,* which are anchored on the Values Education Framework.

Furthermore, it can be concluded that the Physics teachers share common perception towards the integration of the DepEd Core Values and that they also face challenges regarding its integration which inhibits them from employing it in their respective classes. Lastly, the study concluded that teachers' knowledge, background, and support in the integration of the DepEd Core Values provide helpful insights in improving the instructional delivery in Physics.

Recommendations

Based on the findings of the study, the following recommendations were drawn: Organize regular training sessions and workshops for Physics teachers to enhance their knowledge and skills in integrating the DepEd Core Values effectively into their lessons. Create supplementary learning materials that specifically focus on incorporating all aspects of the DepEd Core Values, not just *Makabansa*. This can help teachers diversify their approach to teaching these values. Encourage a collaborative environment among Physics teachers where they

can share best practices, challenges, and success stories related to integrating the DepEd Core Values. This can help in addressing common perceptions and challenges. Provide teachers with the necessary resources, support, and encouragement to overcome the challenges they face in integrating the DepEd Core Values. This could include mentorship programs or access to additional teaching aids. Involve students and parents in activities that promote the understanding and practice of the DepEd Core Values outside the classroom. This can create a holistic approach to instilling these values in the school community.

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