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Identification and Validation of Themes for a Thematic Instructional Model on the Philippine K to 12 Junior Science Curriculum

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Abstract

In the attempt to provide an alternative mode to deliver the competencies of the Philippine K to 12 Junior Science Curriculum, the researchers explored thematic instruction. Cognizant to the process is the identification of the themes for the pedagogy. The researchers used a qualitative research design with document analysis procedures for the identification of the theme and expert interviews for its validation. Upon the document analysis of the different curricular reforms in the Philippines, four emergent themes were identified—body, environment, country, and earth and universe. On the other hand, the science education experts found the themes to be adaptable, useful, understandable, and feasible. However, the validation process revealed some inputs to the development of the thematic instructional model in terms of its international adaptability, matching of topics with the theme, and the potential of integration with other disciplines.

Keywords: *Thematic Instruction, Thematic Instructional Model, Philippine K to 12 Curriculum, Science Education*

Introduction

The Department of Education or DepEd implemented a significant change in the education system of the country through the Republic Act 10533 (Enhanced Basic Education Program) or the K to 12 Program for basic education in 2013. Primarily, the curriculum revision is a response of the Philippines to the many challenges that the country is facing such as academic parallelism, skills competence, and citizen mobility (Bonco & David, 2020). According to Hernandez (2012), the DepEd stressed that the K to 12 program, will provide better access and improve the quality of education. The K to 12 curriculum views that every Filipino student will be at par with their counterparts in other countries because it proposes additional years of schooling. To Andaya (2016), the holistic development of every student is the main goal of the new K to 12 program. The program is expected to equip students with life-long skills for them to be ready for the challenges of the 21st century. The program envisions the student-graduates to be effective communicators; literate in information, media and technology; and independent in pursuing learning and innovation.

The new K to 12 Science Education Program is, in many ways, different from the previous curriculum particularly in terms of pedagogies, sequencing of competencies, and assessment. The revisions made in the science curriculum are perhaps a response to the suggestion of educators like Bernardo (1999) to improve the science education by revising the curriculum design.

However, the success of the K to 12 curriculum in the country appears hampered by several factors. Argote (2016) questioned the design of competency arrangement while Montebon (2015) probed on teacher readiness. Nevertheless, Hernandez (2012) reported that then DepEd Secretary Luistro said that the K to 12 program deliberately have "blank spaces" to be filled up as experiences in the program are being assessed and improved for the program to be relevant; hence, evolution of the K to 12 curriculum is expected. Luistro reiterated that "[t]here has to be constant feedback in the field, but you will be happy to know that the new curriculum is made by Filipinos for Filipinos."

In response, the researchers aim to explore an alternative way that can contribute to the delivery of K to 12 science competencies in a holistic, integrative, and seamless modality. Kysilka (1998), posits that in school processes, the 'means' is as equally important as the goals. Thus, curriculum planners and teachers should carefully plan for the teaching-learning process. In response, the researchers report in this study the initial step of their endeavor to design a thematic instructional model that can be used to teach the competencies of the K to 12 program. While there are many researches available on thematic instruction, the researchers aim to contribute on the research gap on how to primarily start the process.

Tantamount to the implementation of the study is the identification of themes. Hence, in this paper, the researchers report the results of the document analysis done to identify themes for thematic instruction to be implemented and how science education experts perceive them.

Specifically, the researchers aim to answer the following research questions:

1. What themes for thematic instruction can identified based on the documents related to the Philippine Curriculum?
2. What do science education experts say on the identified themes for thematic instruction?
3. What do the results imply to the thematic instructional model being developed?

Curricular Change in the Philippines

From the document written by Inciong (2008) on how the curriculum developed in the Philippines, it seems that the curriculum planning in the country involved in-depth study and analysis but many critics of the K to 12 argue that it did not happen with the K to 12 reform. The debate on how the K to 12 was planned stirs a question to its successful implementation. Lacanilao (2012) in his article "K to 12 most likely to fail" compared the views of academic scientists (with publications from reputable journals) and those that are not scientists; he reiterated that the implementation of the K to 12 curriculum did not undergo research and trial run. Lacanilao (2015) added that while the announced purpose of the K to 12 program is noble, perennial educational problems such as lack of classrooms and materials should have been addressed first. Another critic of the K to 12 is Tapang (2012), a physicist; he pointed out that the K to 12 does not answer local problems but to the global demand of employment. Barlongo (2015) agrees that the move of the government to implement the K to 12 program is tough yet strategic for it will become the 'backbone for a highly skilled and employment workforce'.

Through time, the curriculum in the Philippines has been constantly developed and changed according to the agenda of the government. This does not come as a surprise for according to Joseph (2015), changes in the curriculum is caused by 'strong political climate'. In other words, for whatever purpose, the curriculum is utilized politically to promote change in the society. Studying the succeeding years of the curriculum evolution in the Philippines, political influence on education is still evidently observed even in the present K to 12 program. Reports on the K to 12 program appeared to describe that the curriculum has been implemented even its not yet fully ready to have it under the legacy of then President Benigno Aquino III (Lacanilao, 2012; De Dios, 2012). Thus, critics of the program described it to be ill-equipped and politically driven.

While the researchers acknowledge the many critics of the K to 12 curriculum, the present study does not take side. Instead, what the researchers aim is to explore an alternative way of delivering the K to 12 competencies which is through thematic instruction. A pedagogy that has been proposed to be effective by many educators and researchers (Okoro & Okoro, 2016; Cook, 2009; Contardi, et al., 2002).

Thematic Instruction and it Processes

Thematic instruction according to Chumdari and Budiyono (2018) is a pedagogy that organizes learning content and activities around a common idea to purposely develop among students a certain set of concepts and values. Majid and Rochman (2014) agrees that thematic instruction is an approach that connects various field of study that reflect real-challenges and occurrences in students' contexts. In the current study, the researchers adapt the definition of (Finch et al., 1997) that thematic instruction is the use of a predominant idea or theme that connects the different teaching-learning processes.

Thematic instruction has several benefits to the education process. Freire (1981) pointed out that the pedagogy promotes meaningful learning for it can increase students' content knowledge, apply learned concepts in social and political areas, and possess critical

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minds. Kysilka (1998) agrees that authentic learning happens in thematic instruction because students' find the pedagogy more meaningful and purposeful. In the same vein, Contardi et al., (2000) agrees that meaningful and authentic learning happens in thematic instruction because of the multiple connections that students can make while exposed to the process. According to Okoro and Okoro (2016) thematic approach is a 'powerful tool' because it allows holistic and non-fragmentary development of the different areas of the curriculum and primarily considers students' context and interest. Hence, students through thematic instruction can relate more on their classroom activities.

There are diverse ways on how to proceed with thematic instruction. Fogarty (1991) presented different models for thematic instruction: connected, nested, sequenced, shared, webbed, threaded, immersed, and integrated. Among the different models for thematic instruction by Fogarty (1991), the integrated model is most desirable for a seamless spiral arrangement of topics. According to Fogarty (1991), the integrated model has no lines that defines specific disciplines; rather, it presents as integrated and holistic design. Thus, an integrated curriculum upholds seamlessness. Examining the work of Fogarty (1991) and Jacobs (1991) makes educators reflect on the relationship between what to teach and how to teach; though as experienced teachers, one would agree that both processes are intertwined. However, Kysilka (1998) stressed that often 'how' precedes 'what' and in effect the content to be taught gets 'lost' in the process. Therefore, it is suggested that careful planning among teachers who wish to integrate must be observed.

In their own conduct of thematic instruction, several researchers pointed out some common processes to be observed. According to Barrentine (1999), the process of planning for thematic instruction involves the studying and selection of a theme that will serve as the unifying concept that binds the content to be taught, the method of delivering the lesson, the activities to be prepared and even the assessment procedures to be done. Other researchers agreed (Chumdari, et.al, 2018; Esu, 2012) that in proceeding with thematic instruction, planning for the theme is primary.

In choosing a theme, previous teaching experiences are important according to Broadhead (2001). In his paper on curriculum change in Norway, he pointed out that the baseline knowledge is important in implementing thematic instruction. It means that, early experiences are essential precursors to both an understanding of subject-specific knowledge and the capacity within learners, to combine this knowledge in integrated ways. Though many teaching and learning factors are to be considered, the flexibility for integration of concepts central to the theme should come first.

In the currents study, the researchers acknowledge that for them to successfully plan for thematic instruction, the identification of the theme is relevant. Consequently, the researchers also realize that the theme should allow other disciplines to successfully integrate should collaboration to teach happens. In fact, the reviewed studies (Contardi, et a.l, 2000; Freiri, 1981; Kysilka, 1998) stressed that an authentic thematic instruction should allow students to create multiple connections among different disciplines.

Materials and Methods

Research Design and Procedures

This study is a qualitative research using document analysis and expert interviews. Figure 1 describes how the research design operates in the study.

According to Bowen (2009), document analysis allows the researcher to interpret and give meaning to the text being studied. From the various forms of data sources identified by O'Leary (2014), the researchers obtained public documents for assessment. Specifically, the researchers analyzed the different curricula implemented in the Philippines as documented by Inciong (2008) and the DepEd K to 12 Curriculum Guide (2013). Ultimately, the insights gathered from the document analysis guided the researchers to describe the characteristic of each theme.

According to Cresswell (2014), the researcher's role in a qualitative research is important because his/her perceptions and pre-conceived knowledge can further the investigation. Contextually, the researchers acknowledge that their experiences in science education motivated them to determine a theme that can logically teach children the relevance of the discipline from a personal to a communal level. Thus, such preconceived knowledge guided them in identifying the themes from the documents they analyzed.

In the second phase of the study, the set of the

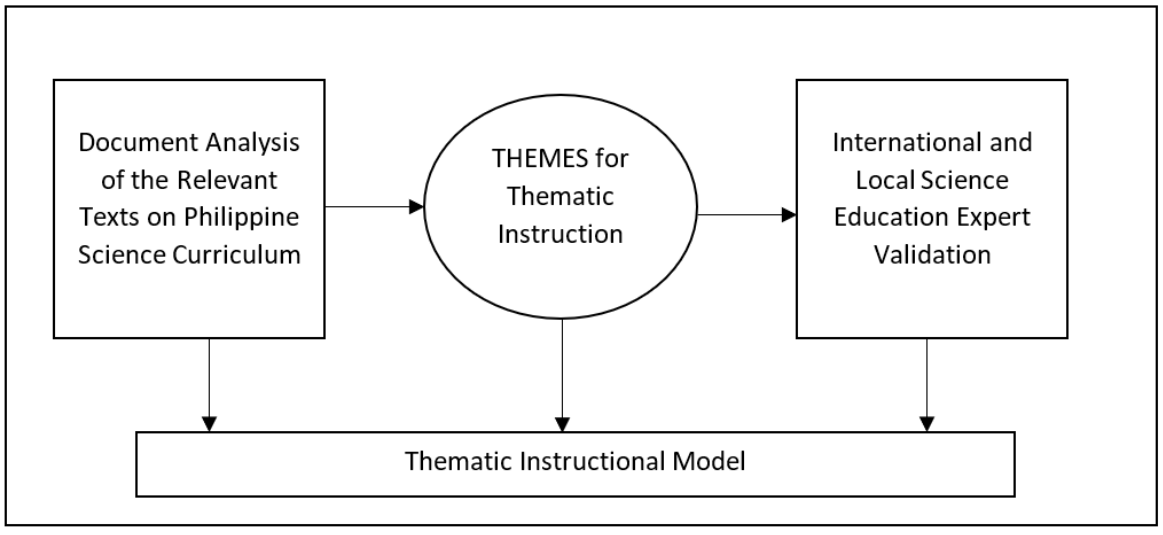

Fig 1 Methodological Framework for the Development of Themes

identified themes was validated by science education experts to generally determine the potential of the themes for implementation through the desired thematic instructional model.

Data Analysis Procedures

In the qualitative document analysis process in the study, the researchers followed the process suggested by Akiyonde and Khan (2018). First the researchers scanned the documents for possible coding. Then they identified the codes independently and share their initial coding guides for discussion. After, they proceed with the final coding of the documents analyzed and discussed their results for agreement. From the codes they have identified, they determine the organizational and the global themes.

On the other hand, the data for expert validation has been analyzed using the model of Koksal (2009) for validating an instructional model which includes adaptability, utility, understandability, and feasibility of an instructional model.

Validators of the Study

The science education experts (SEEs) referred in this study are the practitioners of science education in both local and international contexts. The researchers purposively identified the science education experts and grouped them according to the nature of their participation in the research. Group A are the international SEEs while Group B are the local SEEs. The profiles of the SEEs are described in Table 1.

As described in the profile of the respondents in Table 1, the set of science education experts are varied for the researchers to obtain a more inclusive perception on the validity of the themes.

Results and Discussions

Themes for Thematic Instruction

The document of Inciong (2018) discussed the different curricular reforms in the study. Specifically, such reforms are the Revised Educational Program (REP), the Basic Education for Filipinos (BEF), the New Elementary School Curriculum (NESC), the New Secondary Education Curriculum (NSEC), the Basic Education Curriculum (BEC), and the Secondary Education Curriculum (SEC). Meanwhile, the K to 12 curriculum is also known as the Enhanced Basic Education Curriculum. Upon analysis of the said educational reforms in the Country, Table 2, summarized the researchers' observations.

From Table 2, it can be deduced the general aim of the Philippine curricula is seemed to develop learners who will have positive impact on different areas of development—self, country, environment, and the world. These four areas of development identified in the curriculum review are actually manifested in the core values of the Department of Education (DepEd). Thus, the said areas of development are used as themes for thematic instruction in the study. The identified themes are graphically shown in Figure 2.

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Table 1 Profile of Science Education Experts

Expert Participant	Role and Affiliation	Position	Field
Group A: International Science Education Experts (ISEE)			
	Former president of Canadian Science Education Organization	Associate Professor	Science Education Research
	Instructor, Canadian HEI	Assistant Professor	Applied Science Education
	Head, Division of Curriculum in a Canadian Province	Curriculum Expert	Science Education Planning & Implementation
Group B: Local Science Education Experts (LSEE)			
	Consultant/Private Organization	Consultant	Science Education Planning & Implementation
	Faculty/ International School	Coordinator and Teacher	Science in Basic Education
	Faculty/Public School	Teacher	Science in Basic Education
	Faculty/ Public HEI	Assistant Professor	Science in Tertiary Education and Research
	Admin/ Public School	Department Head	Science in Basic Education
	Faculty/ Private School	Teacher	Science in Basic Education
	Faculty/ Public School	Master Teacher	Science in Basic Education
	Faculty/ Private School	Teacher	Science in Basic Education
	Student/ Private School	PhD Student	Science Education Research
	Faculty/ Private HEI	Instructor	Science in Basic Education

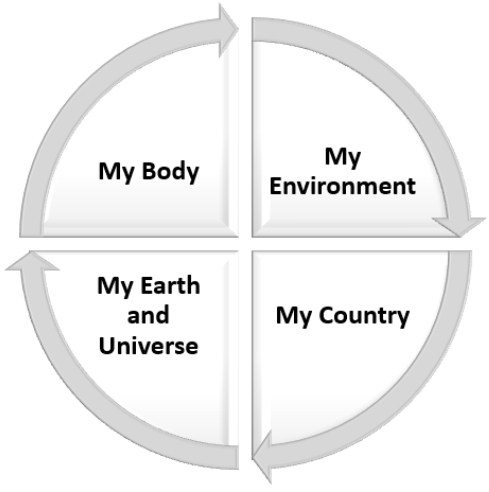

Fig 2 Identified Themes for Thematic Instruction

My Body. *"Maka-Tao"* which means pro-self or pro-human, is the first core value of the Philippine education system. Adhering to the 'maka-tao' vision of DepEd, the curricula implemented sought to develop students to attain their full potential (BEF) by equipping them with quality cognitive skills (NESC), essential understanding (SEC), and 21st century skills (K to 12). The present researcher identifies "Self or Body" as one of the thematic units of the study; specifically, *My Body* unit is formed. In the teaching and learning process, the theme *My Body* discusses concepts related to the human body and its functions. It aims to inculcate among students the scientific idea that a human body is made up of living and nonliving components that interact together to sustain its biological and physical complexities. Also, the human body has processes that make it respond to the environment and function for the perpetuation of the species.

My Environment Another core value of DepEd is to develop students to be "Maka-Kalikasan" or pro-nature. In the curricula implemented, prior to K to 12, the value of being "Maka-Kalikasan" or pro-nature by DepEd is not as pronounced as the two other values, pro-self and pro-country. However, looking intently in the process of the curricula implemented, it can be deduced that the value on producing pro-nature students are palpable; as such the REP is aimed at preparing students for community leadership, the BEF is geared toward preparing ready students for civic participation, and the NESC and NSEC for the development values among students for social living. The researchers assumed that the aim for community leadership, civic participation, and values for social living affect the learner's environmental decisions. Moreover, the K to 12 science curriculum specifically aims to inculcate among students the attitude to "protect the environment and conserve resources" (DepEd, 2013). From the ideas presented on the "Maka-Kalikasan" vision of DepEd and how it was translated

Table 2 Thematic Analysis of the Educational Reforms in the Philippines

Codes and Source	Organizational Theme	Global Theme
• equipped with livelihood and household skills (BEF) • have well-developed work skills (NESC)	*Vocational Efficiency*	*Makatao or Pro-Self*
• functional literacy and numeracy (BEF) • mastery of learning (NESC) • critical thinking, higher order thinking, and scientific outlook (K to 12)	*Academic Competence*	
• ask essential questions • increased time for tasks (BEC) • passion for work and lifelong learning (SEC) • Holistic Development (K to 12)	*Self-Actualization*	
• ask essential questions • increased time for tasks (BEC) • passion for work and lifelong learning (SEC) • Holistic Development (K to 12) values for social living; integrated health values (NESC) • civic participation (BEF) • Environmentally Responsible (K to 12)	*Care for environment*	*Makakalikasan or Pro-Environment*
• Upright Citizenship (REP) • shared values for nationhood (NESC) • Responsible citizenship (K to 12)	*Love for Country*	*Makabayan or Pro-Country*
• multidisciplinary content (NSEC) • Global Citizenship (K to 12) • International competence (K to 12)	*Respect for diversity*	*Maka-Diyos or Pro-God*

in the curricula implemented in the Philippines, the researcher identifies *My Environment* as another thematic unit in the present study. Therefore, from the concept of self, the thematic instruction continues to present how to understand one's surroundings through the theme *My Environment*. The *My Environment* theme specifically aims to teach students that humans exist in an ecosystem with varied components--living and non-living. The said components of an ecosystem can be arranged in certain hierarchy. To maintain balance, the ecosystem has both physical and biological mechanisms.

My Country. Consistently, among the different areas of impact identified, the stress of the curricula to prepare learners for citizenship is the most observed; thus, another theme was identified--*My Country*. In terms of citizenship, the curricula implemented aims to prepare students for democratic and social responsibility in the community (REP); be productive and versatile citizens (BEF); for humanism and sense of nationhood (NESC, NSEC, BEC, and SEC). This aim on citizenship is envisioned by DepEd in the area of *"Maka-Bayan"* or pro country. Therefore, in the present research, *My Country* is an essential theme that was recognized. In the theme *My Country*, students are taught with lessons to describe the environmental characteristics of the Philippines such as geographical location, weather, and resources. The theme *My Country* teach students that the Philippines is an archipelago with definite and relative positions; has different natural resources that can be classified in distinct categories; and utilizes different form energy.

My Earth and Universe. Among the four core values of the DepEd, there is one value that encompasses all three other values: *Maka-Diyos* or pro-God. The *Maka-Diyos* or pro-God value recognizes the Philippines as a religious country of diverse denominations—Catholics, Christians, Muslims among others. The diverse religions present in the country seem to uphold the universal human right principles. Though with different worldviews, each religious belief applies on a universal scale and goes beyond ethnic or race. That said, the researcher identifies *My Earth and Universe* as an essential thematic unit to be implemented for its universal and global underpinning principle. Though some of the critics' question K to 12's vision to prepare students for the global arena, the present research ascertains *My Earth and Universe* to inculcate among students the universal attitudes and values. Among the different curricula implemented in the Philippines,

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it seems that only the K to 12 program recognizes the need to prepare students for global citizenship. Specifically, the K to 12 Science Curriculum Guide (2013) acknowledges that the present global education arena prepares students for the knowledge economy. Hence, Filipino learners should be equipped for it. The theme *My Earth and Universe* teaches students the concept that the universe is made up of heavenly bodies that are in continuous motion; and that, energy is essential to make its mechanisms to fully function. The theme *My Earth and Universe* connects with the theme *My Country* by describing how the position and motion of the earth in the solar system affects the phenomena that occur in the country.

Expert Feedback on the Themes for Thematic Instruction

The second objective of the current study is the validation of the identified themes from the document analysis conducted. Table 3 shows the summary of the validation process by the local and international science experts of the said themes.

Adaptability of the Themes

The adaptability of the themes in this study primarily describes its flexibility. About 45.5% of the local science education experts rated the identified themes to be *adaptable* while 55.5% rated it *very adaptable*. According to one of the international validators: *"I find your model (identified themes) good. It looks clear ... for sure science lessons can fit in to it."* - ISSEE 1. Similarly, one of the local validators, LSSE 3, described that the identified themes are adaptable due to its "*high flexibility on the flow...*".

Also, other validators described that the themes are adaptable in terms of its ability to conform with other teaching methods. Among the many forms of pedagogies that can work well with thematic instruction, ISEE 1 stressed that it is the inquiry-based approach that works with it best. With the K to 12 curriculum perspective in mind, some local SEEs pointed out that the themes encourage different strategies in delivering student outcomes.

Lastly, 4 LSEE described that the themes are adaptable and allows the interconnection among science concepts and even with other disciplines. Sample responses are:

> *...because the lessons placed in each theme correlates to each other – LSEE 5*

> *...some lessons can also be used to discuss other themes – LSEE 8*

Utility of the Themes

The next area that obtained the second highest mean rating is the **utility** of the identified themes in the classroom. About 27.3% of the respondents rated the thematic framework to be *very useful* in the classroom and 63.6% to be *useful*. In terms of the **utility** or the use of the themes in classroom instruction, ISEE 3 described that it appears to influence a holistic learning of science:

> *"The major advantage of thematic instruction is that it serves as a cohesive force to tie together the discrete elements that students are learning. Too often, in many subject areas, students learn discrete bits of*

Table 3 Perception of Science Education Experts on the Validity of the Themes

Codes & Frequencies	Organizational Theme	Global Theme
• clear & flexible design (2)	*Adaptability*	*Features of the Identified Theme*
• conforms to varied teaching strategies (2)		
• interconnectedness across themes and other disciplines (4)		
• promotes relevance of science (1)	*Utility*	
• cohesive learning (4)		
• logical (4)	*Understandability*	
• scientific (3)		
• conceptual formation (3)	*Feasibility*	
• student motivation & engagement (3)		
• application of knowledge (1)		
• international viability (1)	*Perceived Challenges*	
• collaboration (1)		
• Placement of topics (3)		

knowledge and skills, but never put them together for a focused purpose. This would be similar to practicing your favourite sport, but never being allowed to play the game. Without a doubt, that turns students off."

The statement of ISEE 3 on the benefits of using thematic instruction in the classroom clearly suggest that the identified themes seemed to uphold cohesiveness and holism in teaching science. Notably, LSEE 4 also noticed such cohesive nature of the lessons and the themes. She said, *"[i]t (referring to the lessons) cohesively complement the theme" – LSEE 4.* Such observations of both sets of science education experts seemed to describe that the themes identified can help the goal of the K to 12 curriculum to offer holistic education.

Meanwhile, other local science education experts cited that the themes promote the relevance of science among students. For instance, LSEE 6 inferred that: *"One can observe the relevance of the lesson to the theme."*

Understandability of the Themes

The next characteristic of the identified themes is its **understandability**. The perception that the identified themes is understandable accounts for 81.8% of the responses while 9.1% to be very understandable. ISEE 2 said that *"...you have explained why you chose the themes and how it applies to the Philippines".* ISEE 1 agrees that the thematic framework presented clear and understandable lessons. These forms of observations seemed to describe that the themes identified are logical which some LSEEs also noticed. For example:

"...the development of the topic is clear. Starting from oneself and how it can be related to a wider perspective." – LSEE 2

Still on describing the **understandability** of the identified themes, most of the local science education experts commended its 'scientific' characteristics, e.g.:

"the themes are scientific and logical because it encompasses the science concepts behind of each topic and how can it be analyzed and applied into practices" – LSSEE 7

Feasibility of the theme

A collective percentage of 72.8% signifies that there is a *moderate* to a *strong chance* of the identified themes being implemented in the classrooms. Such high percentage of perception seemed to be out of the potential of improving student outcomes. Below is a statement by LSSEE 6 to support her rating:

"Given activities can effectively encourage students to develop their interests in doing scientific investigations. It will help students talk about themselves before being able to talk about the world around them. It is a good thing because knowing science about oneself can build a certain degree of confidence which may be carried over to studying the rest of the lessons within each of the following themes."

Other LSEEs perceived that the themes can help students effectively learn science concepts that they can apply in real life and motivate them to study more of the discipline. Sample responses are:

"Using the thematic instructional model, students can easily understand the concepts of the lesson as they can relate it their daily life activities." – LSEE 8

The teacher can draw the attention of the students toward the lessons because the concepts are engaging and they can relate them to the own experiences – LSEE 9

Perceived Challenges

While ISEE 2 and ISEE 3 agreed that the identified themes are also adaptable to different pedagogies, they raised some concerns on its applicability to other contexts. ISEE 2 revealed his hesitation on how the identified themes will work for other countries like in Canada as he thinks that the thematic framework works only in the Philippines. Though the present research was intended for the K to 12 in the Philippines, the researcher gives merit to the point raised by ISEE 2 on the international adaptability of the thematic framework.

Still on the adaptability of themes, ISEE 3 says that *"the themes can be a bit constricting".* ISEE 3 explained that the identified themes seemed to limit how a teacher might implement the lesson with his or her preferred mode of teaching. However, he clarifies that the context in which he sees it is of his own province in Canada and understands how the framework might work in the Philippines.

Meanwhile, ISEE 1 who has a first-hand experience on teaching on thematic instruction, expressed her concern on how to go through with implementing the identified themes in the classroom. *"[b]ecause my personal experience on this is that it does not really work well with all science concepts. What I mean is sometimes the lessons get 'forced' with the theme. Once you feel it's kind of forced already, there is something wrong."* On the same vein, ISEE 3 reiterated that even if he found the progression of

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guiding statements of the thematic units to be excellent, he agrees that certain topics were forced in a theme. With this issue identified in a thematic instruction, ISEE 2 suggests that implementing the identified themes should be done inductively. Since the thematic instruction in the study used the 5E model of inquiry, she suggests that connecting the lesson with the theme be done in the *Elaborate* level. Further, she suggests the modification of the thematic plan to focus on the science concept first before emphasis on the theme.

Another concern of the experts is on students' interest on the theme itself. ISEE 3 said *"[t]he major challenge of thematic instruction of the large scale you propose is that students who do not buy into that particular approach are likely to be less engaged in their learning."* He cited that thematic instruction was also implemented in their province but failed due to students' lack of interest on themes. Therefore, even if some of the teachers were enthusiastic about it, others were not. Therefore, the not so unified perception of students and teachers on thematic instruction did not succeed in the said province of Canada. Similarly, ISEE 2 agrees that the theme itself can be a potential threat to the success of the implementation of the thematic lessons because of the students' interests. To counter the said threat, ISEE 2 suggests that the activities and materials should be well prepared to engage the students toward the themes.

In terms of feasibility, ISEE 1 questions whether all competencies apply to all levels and if the themes maybe integrated with other subjects. The questions raised by ISEE 1 were also noticed by ISEE 2 and ISEE 3. ISEE 3 said that the identified themes can be implemented best if it is being taught across subject areas because thematic instruction has potential of cohesively putting together the ideas being learned in the different subjects.

Notably, several local science education experts' signified that the identified themes has a 'slight chance' to 'not sure' of being implemented in the class. The local experts explained their inhibitions on implementing thematic lessons due to some clarifications that they want to ask about the it. Particularly, local experts question some topic under the themes *'My Country'* and '*My Environment*'. Such responses appears to show that even if they have hesitations, they still see the thematic framework to be potentially implemented in the classrooms once it is revised and improved as LSEE 2 said *"...collaborative work can still improve it* (identified themes)*."*

Implications to the Thematic Instructional Model Being Developed

From the results shown in Table 2, it can be inferred the study seemed to have met the standards for the different criteria identified for a successful thematic instruction. First, the science education experts find the identified themes adaptable to the different pedagogies. These confirms the idea of the different researchers (Adams & Bushman, 2006; Barab & Landa, 1997; Barton & Smith, 2000; Cook & Martinello, 1994; McDonald & Czerniak, 1994; Palmer, 1991; Smith & Johnson, 1993; Werederich, 2006; Cena & Mitchell, 1998) that in thematic instruction, different pedagogies can be implemented. Though inquiry based method was the primary form of instruction used in the study, the experts have found varied teaching strategies that can be used in the instruction. Perhaps, the variation of approaches aided in their observation of the identified themes' adaptability.

Second, science education experts found the identified themes to be understandable. Expert views described that the themes identified have contextual application with the Philippine's science education program. On the other hand, the experts upon review of the instructional plan and materials find that the lessons based on the themes identified has extensive characteristics on unit coherence, building progression, and scientific accuracy. The understandability of the framework appears to adhere to the condition set by Broadhead (2001) on implementing thematic instruction. He stressed that baseline-knowledge or early experiences are essential to the implementation of a thematic instruction. Freire (1981) also describe that context is crucial in determining the themes to be used in the design. That said, the identified themes seemed to uphold the conditions identified by other researchers on thematic instruction for experts have seen that the design and content considered appropriate progression of student learning and contextualization of lessons.

Though the identified themes are understandable, the presentation in the instructional plan needs to be carefully planned as one of the international science education experts noted that science lessons should be stressed more than the theme itself. In the literature review, researchers on thematic instruction have also pointed out the said idea--Broadhead (2001) expressed that the possibility of lessons to fit into the theme should be a primary consideration to the design of a thematic plan while Kysilka (1998) stressed that the means is more important than the goals; thus, thematic design is crucial for its success. Upon consideration of the

point raised on the understandability of the identified themes, the researcher revised how the lessons and instruction were presented in the lesson guides.

Third, the science education experts find the identified themes to be useful in the classroom. Primarily, it might be due to the observation that the identified themes provide the concept of relevance between what is learned in the classroom and its application in students' lives. The observations of the experts on the identified themes seemed to agree with the ideas of Freire (1981), Kyilka (2006), and Dilek (2002) that the main advantage of thematic teaching is providing meaningful learning to students for it aids in the realization of the importance of lessons. In terms of instruction, the identified themes have extensive properties in building student ideas through appropriate progression, monitoring student progress, and providing formative assessment. Such observations seemed to describe that the identified themes have a valid design for according to Barrentine (1999), a valid thematic plan unifies the content of lesson, the method of instruction, and the mode of assessment.

Last is the most challenging aspect found by the researcher—the feasibility of the identified themes to be implemented in the classroom. Upon the evaluation of the lesson guides, experts have acknowledged that the identified themes have *adequate* characteristic for relevance and authenticity while *extensive* in teacher support or coherence. It means that the experts find the thematic framework potentially provide authentic and relevant experiences to students. Meanwhile, the materials provide teachers with appropriate activities to support the proper implementation of the program. With the said observations, it seemed that teaching science through the identified themes is feasible to be implemented in Philippine classrooms.

However, the researcher acknowledges that the thematic instruction can be best implemented with support and cooperation from other disciplines as pointed out by experts on their views and perception. With the views of the different researchers in mind (Kysilka, 1998; Contardi, et.al 2002; Dilek, 2002; Freire, 1981; Fogarty, 1991) on how thematic instruction support holistic education, the researcher acknowledges the need for presentation of the identified themes to other teachers teaching different disciplines and determine if the themes identified can also be applied and integrated to their respective subjects. One of the expert's feedback pointed out the implementation of the thematic instruction can be further enhanced with collaboration among teachers.

In response to the views of ISEE 2 and ISEE 3 on the international limitation of the identified themes, the researchers posit that the project was really made for Philippine context. Nevertheless, since the themes represent general ideas thus it would be interesting to determine its validity on a global context. Also, the researchers reiterate that the themes are not prescriptive but suggestive; therefore, if a country decides to use the themes identified in the study, they can be modified. Finally, the researchers stress that the focus of the umbrella research is the development of the thematic instructional model (TIM) puts primer on the process of implementing a thematic instruction and not limited to the themes identified in the framework of the study.

Limitations of the Study

In the conduct of the study, the researchers acknowledge several limitations. First, the identification of the theme as inferred from the document analysis were decided by the researchers only as they have seen that the aims of the different Philippine curricula trough time were focused on the organizational themes in Table 2 corresponds with the DepEd core values. Should other researchers follow the process of identifying the themes, the researchers suggest modifying the procedure by involving several experts as well.

Second, the researchers identified only Canadian educators to validate the themes since the corresponding author is in there for his researcher-exchange program. The project has limited financial resources thus presentation to other international educators was not done. Nevertheless, the current study focuses on the process, thus the researchers posit their findings are still valid.

Lastly, the researchers find it appropriate to assign the different characteristics of learners identified in Table 2 to a specific theme to streamline the strategies for instruction. It would be interesting to study if the said characteristic can also be developed in the different themes identified.

Conclusions

The main objective of the study is to identify themes that can be used in the thematic instructional model being developed by the researchers. Upon the document analysis of the different curricular

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reforms in the Philippines, four emergent themes were identified—body, environment, country, and earth and universe. The science education experts find the themes to be adaptable, useful, understandable, and feasible. However, the validation process revealed to be considered in the development of the thematic instructional model which are international adaptability of the themes, matching of topics with the theme, and the potential of integration with other disciplines.

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