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The Philippine Journal of Educational Studies (PJES) is published by the University of the Philippines (UP), College of Education. It is a double-blind, peer-reviewed journal interested in providing relevant and novel insights on education systems, learners, teachers, and related disciplines to an international audience. The PJES is published semi-annually.

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Jerome T. Buenviaje, PhD
Dean, UP College of Education

The College of Education (UPCEd) shares in the mandate of University of the Philippines to serve as a research university by offering advanced studies in education. It should lead and facilitate active engagement in research dissemination that will ensure a balance between theory and practice, putting forward education as a discipline.

Given these ideals, I am delighted to introduce this inaugural edition of the relaunched Philippine Journal of Education Studies (PJES). This is a momentous event not only for the UP College of Education but also for the entire field of education research in the country and the international community.

Relaunching any research journal is no easy task, and PJES is no exception. Its precursor, Education Quarterly, published original research articles in the field of education from 1953 to 2015. However, given the plethora of resources available today, the challenge is for PJES to expand its publication to include not only original research articles but also publications providing policy directions and theoretical reviews for education stakeholders at different levels.

Cognizant of this challenge, PJES set this objective for itself--to present original ideas and novel research findings in education. PJES recognizes that theoretical and applied research is fundamental in developing appropriate systems and policies. Education is a large sector that even trivial matters can have ripple effects. Sound innovations can be highly beneficial while those that lack bases can result in debilitating outcomes. Therefore, emerging trends should be supported by research, so that they can be implemented effectively in appropriate educational settings.

Education is dynamic, and we do not stop searching for valuable insights even when faced with tremendous changes. When the COVID-19 pandemic challenged our education system, existing policies were deemed insufficient, and we were pressed to search for plausible solutions. As a response to this challenge, the UPCEd created the Education Resilience and Learning Continuity Plan as a guiding principle for educational institutions. This time, through PJES, relevant issues are explored to provide new insights and serve as a guide for future research in education.

More than being an avenue for authors to publish their work, PJES is a fruit of perseverance and commitment. It is made possible through the leadership of its Editor-in-Chief, Dr. Dina Joana Ocampo, a highly esteemed education expert on literacy and education reform and policy. It is managed and published by the UP College of Education, an institution that upholds student-centered, compassionate, inclusive, and innovative education. But with the current circumstances, how can we ensure that we are standing by these principles?

As educators, we can look at the bigger picture in order to anchor our actions in the advancement of education; aim for efficiency without sacrificing welfare; abolish obsolete policies and develop efficient ones; and contextualize instruction, so our students can understand the world better. We are encouraged to consider different perspectives to be inquisitive but at the same time relentless in searching for answers.

To my fellow educators, researchers, administrators, and policy makers, I present to you this journal, hoping that it will not only bring new information but also generate more questions in your quest for knowledge. To the entire PJES team, congratulations on this first issue! To the readers, I hope that PJES will help you in your research and teaching endeavors!

EDITOR'S NOTE

It is with pride and joy that we present the first volume of the Philippine Journal of Education Studies (PJES), an academic journal published by the College of Education of the University of the Philippines. As the next generation iteration of the Education Quarterly, this scholarly publication continues the pursuit of excellence in research dissemination by providing a relevant forum for the presentation, discussion, and enrichment of research on various topics and in fields in education with special emphasis on the Philippine experience.

This issue contains five papers that scrutinize important issues about teaching and learning in the Philippines today. Reeling from the impact of the pandemic and the government's response to it, critical and creative ways for learning recovery are desperately needed now in all levels of education. The papers in this volume provide insights on what is valued by learners, local communities and teachers. These can contribute ideas for affirmative action and better learning opportunities for all.

The first paper, "Enacting music curriculum contextualization in the Philippine K to 12 curriculum: Negotiations, Constraints, and Mediating Forces" addresses another very current concern in basic education. This paper brings localization to the fore once again by providing instances where community-based and local experiences, while challenging, yield meaningful and relevant connections between and among the teachers and musicians in schools. The second paper, "Accessible Education for Muslim Learners with Disabilities: Insights from Two Case Studies," provides data from two case studies and the implications on inclusive education. This paper proposes a framework for enabling access to education that is rooted in and contextualized to local needs and priorities.

While the first two papers are on basic education, the next articles address important higher education concerns. The third paper in the volume presents research on the pre-service phase of teacher professional development. This paper titled, "Making Sense of Pre-Service English Teachers' Practicum Experiences: Perspectives on Teacher Learning," gives pre-service teachers a voice about their practicum experiences. The insights from these experiences should, in turn, inform and be considered by teacher education institutions. The fourth paper inquiries about ways through which internationalization can promote quality-centric thinking in schools. Titled "Internationalization towards fostering a school culture of quality: Practices and perceived impact," this paper presents how certain practices can lead to positive outcomes.

Finally, the fifth research paper is a novel study which uses grounded theory to guide its data analysis. The paper demonstrates the ways that mathematical processes were used to create, investigate, and analyze science projects. Titled "Mathematical

Thinking in Citizen Science: Nature and Scope," this paper draws implications for strengthening the mathematical thinking skills which facilitate the use of science in daily life activities.

On behalf of our esteemed Editorial Board and the UP College of Education Research, Publications and Ethics Committee, the Journal Management Team and I sincerely thank the paper reviewers, editors, and artists for ensuring the quality of the papers accepted for publication in this volume. We also thank those who submitted papers to the PJES. We are confident that, with continued effort and consistent hard work, more research that elevates academic and public discourse on education will be shared in this platform.

Dina Ocampo, PhD
May 2023

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Enacting Music Curriculum Contextualization in the Philippine K to 12 Curriculum: Negotiations, Constraints, and Mediating Forces

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ABSTRACT

This study problematized the K to 12 music curriculum contextualization policy, and the negotiations, constraints, and mediating forces experienced by selected music teachers in formal music education, given the interactions with informal and non-formal music education. This ethnography analyzed the experiences of 12 music teachers in a town with a long-standing community band tradition. Data were gathered through interviews, focused group discussions (FGDs), surveys, and classroom observations conducted over a seven-month period. Framed from the concept of "policy as practice" of music curriculum contextualization, the findings revealed the music teachers' negotiations: music listening selections, immersion, and integrative teaching strategies; mediating forces: teachers' policy understanding and music content knowledge; and constraints: standardized examinations and inadequate school music resources. The study concluded that music contextualization policy should consider practice-informed teacher negotiations on the ground, teachers' mediating forces, and teacher-identified constraints. Recommendations included community dialogue, adaptations of community band practices in class, and a paradigm shift toward student-led learning and assessment.

Keywords: ***music, curriculum, contextualization, policy, practice***

Introduction

Music is an integral part of education across many societies. Music education has taken several forms or systems: 1) informal music education anchored in families and communities; 2) formal music education offered in schools; and 3) non-formal music education evident outside of schools and done in conservatories, academies, and modern-day studios. These music education systems are sustained by commonly held, historically-

rooted value systems and shared musical practices. In the past, these systems were viewed separately in a hierarchy where formal music education was given primacy over other systems (Bates, 2018; Green, 2014; Jorgensen, 2007; Wright, 2008;). This tripartite view is still present in the Philippines (Del Valle, n.d.) while recent studies have shown that this is not the case anymore in some countries. The recent works of Folkestad (2006), Jorgensen (2002), and Green (2008) view these forms of music education as located along a continuum with degrees of formality and informality within each system of music education.

With the contextualization policy of the K to 12 curricular reform in the Philippines, this continuum has provided possibilities for convergence. This contextualization policy is a main feature of the K to 12 curriculum based on the changing nature of the learner (Department of Education [DepEd], 2016a). In the K to 12 Philippine Basic Education Curriculum Framework, the learner in the 21st century is a "co-constructor of knowledge and active maker of meaning, not a passive recipient of information" (DepEd, 2014, p. 3). This framework is reflected in Rule II of the implementing rules of the K to 12 law. The DepEd shall adhere to the following standards and principles, when appropriate, in developing the enhanced basic education curriculum:

> "The curriculum shall be learner-centered, inclusive, and developmentally appropriate; The curriculum shall be relevant, responsive, and research-based; The curriculum shall be gender- and culture-sensitive; The curriculum shall be contextualized and global; The curriculum shall use pedagogical approaches that are constructivist, inquiry-based, reflective, collaborative, and integrative; h) The curriculum shall be flexible enough to enable and allow schools to localize, indigenize and enhance the same based on their respective educational and social contexts" (Page 3, Section 10.2 Implementing rules and regulations of Republic Act 10533 Enhanced Basic Education Act of 2013).

Within this contextualization policy, localization is achieved when schools develop "locally produced teaching and learning materials" (K to 12 IRR, 2013, Section 10.3). Indigenization, meanwhile, is attained with the incorporation of indigenous knowledge, skills, and practices in the learning areas (DepEd Order No. 35, S. 2016b). In the case of the music subject, the guidelines for it are stated in DepEd Order No. 31, S. 2012: Implementing Guidelines for Grades 1 to 10 to Enhanced Basic Education Curriculum (pp. 4-5):

> "Grades 1-6: The Music Program focuses on the learner as the recipient of the knowledge, skills, and values necessary for artistic expression and cultural literacy. The curriculum design is student-centered, based on spiral progression, and grounded in performance-based learning. Thus, the learner is empowered, through active involvement and participation, to effectively correlate music and art to the development of his/her own cultural identity and expand his/her vision of the world.

> Grades 7-10: Music and Art deal with contributing to the development of individual and collective identity. It is designed to be student-centered, based on spiral progression, and grounded in performance-based learning focused on appreciation and application where basic fundamentals are further reinforced. The program design empowers the learners to effectively correlate Music and Art to the study of Philippine Culture, as influenced by history, the culture of its neighbors, and the effects of globalization and the advancement of information technology."

In music education, these guidelines can be accomplished by teaching local songs, chants, games, and musical ensembles in Grades 1 to 6, while students' interpretation of various music cultures is encouraged in Grades 7 to 10 (DepEd, 2012b). Within these examples of contextualization through the use of local materials and students' interpretation, we ask how these happen in the classroom. We also attempt to identify the mediations that occur in enacting the policy from the perspective of teachers. Considering the anthropology of educational policy as practice, implementers on the ground are policy actors. It is through their enactment, engagement, or appropriation of policy that this contextualization policy should be analyzed. Music education becomes a platform for the interrogation of curricular contextualization. The problematization of curricular contextualization as a policy enacted from the ground is built on the presupposition of educational policy as practice.

This study focused on the curriculum contextualization in formal music education in Taytay, Rizal, a town east of Metro Manila with a long history of band music tradition. Given this, the policy of curriculum contextualization opens the school music education curriculum- defined as the goals, standards, and competencies of the music component of the K to 12 curriculum- to students as "co-constructors of knowledge" (DepEd, 2014, p.2). Their experiences may be influenced by other music education systems such as community band music education. This topic rests upon the inherent contradictions between the contextualization policy and the prevailing orientation of music education in schools, promoting a hierarchy of musical systems where formal music education is privileged over other systems. With the persistence of community band music education and its co-existence with school music education, one asks how teachers enact the policy of curriculum contextualization.

This study sought to unpack the enactment of the policy through everyday teacher decisions in the classroom. The enactment of policy is important in the anthropology of policy as practice in education because of the latter's focus on what is happening on the ground, with the primary assumption that teachers are policy actors. Studies on this area of interest have been done in other countries, and this study aims to contribute to the literature on this topic using the Philippine context.

Theoretical Orientation

The framework of the study hinges on two theoretical orientations, namely, educational policy as practice and curriculum contextualization.

First, the importance of educational policy as practiced, enacted, engaged, or negotiated by actors on the ground is an essential discourse of educational anthropological study (Hamann et al., 2007; Sutton & Levinson, 2001). Educational anthropology research on policy as practice delves into discontinuities in the policy concerning the practice of various actors across levels. Applying Sutton and Levinson's theories of negotiation, appropriation, and cultural production in education, the following studies are worth mentioning: Findlow (2008) on education, modernity, and religious interaction as shown in negotiations informed by power rather than culture in Arab states; Lanas et al. (2013) contesting national stereotypes in education by marginalized Finnish learners from the rural north against urbanized southern Finland; Bartlett and Vavrus (2014) on transversal analysis of global educational policies at macro-meso-micro levels and the policies' "creative appropriation" in Tanzania; Valentin (2011) on the challenges of linear educational outcomes implemented among urban poor learners in Nepal, among others. These studies show the conversations surrounding the engagement of actors in educational policy on the ground.

Similarly, policy research in music education is a significant area in the International Society for Music Education (ISME) under the Commission on Music in Cultural, Educational, and Mass media policy. Music education policy research has been done in Kenya, South Africa, the United States, Canada, Brazil, Spain, Germany, Japan, Korea, and China (Andang'o & Mugo, 2007; Frierson-Campbell, 2007; Richerme, 2016; Schmidt, 2013; 2019). Educational policy and music education research is a "matter of fact in our educational calculations and might impact everything from everyday actions to philosophical considerations to curricular and pedagogical adaptation" (Schmidt, 2013, p. 110). Schmidt (2019) uses Ball's idea of enactment in educational policy as practice and applies this to music educators' everyday decision-making in the classroom.

Second, as regards curriculum contextualization, context has been analyzed in anthropology by Dilley (1999), pointing out that contextualization is the process of finding connections. In its extreme forms, extreme contextualization or contextualism may lead to cultural relativism, which in education may present an educational anthropological dilemma on the nature of knowledge to be learned (Dilley, 1999). Similar to anthropology, in the sociology of education, Collingwood (as cited in Dilley, 1999, p. 215) critiques the nature of official knowledge in schools. The anthropological and sociological discourses on contextualization and the sociology of knowledge have resonated with curriculum studies scholars such as Lawton (1978) on the bearing of the sociology of knowledge in rationalizing curriculum content, Billings (2003 as cited in He et al., 2015) on culturally relevant curricula, and most recently Shahjahan et al. (2022) on decolonizing curricula. Contextualization is defined in relation to indigenization and localization in curriculum studies about science education (O'Hern & Nozaki, 2014; Semken et al., 2017) and literacy education (Glasswell et al., 2022). In a recent literature review of environmental education curriculum studies, Druker-Ibáñez and Cáceres-Jensen (2022) defined contextualization as considering student's interests while localization and indigenization were defined as using local knowledge.

Curriculum contextualization as it is implemented in the classroom was studied by Leite et al. (2018). They cited educational anthropology theorists such as Apple (1999), Giroux (1983), Hall (1996), and Ball (1998, 2001, 2014, 2016) who had previously identified curricular contextualization and policy as intertwined. They also explained that this relationship had been put to the fore in international education development by the Organization for Economic Cooperation and Development (OECD) and the European Union since 2006. In writing about Portugal's Project of Autonomy and Curricular Flexibility pilot tested in 2017 and extended nationally in 2018, Leite et al. (2018) documented the prevailing practices and constraints of curriculum contextualization and national curriculum policy from the lens of elementary and high school teachers. In an earlier study of Turkish middle school mathematics teachers, Haser (2010) found constraints for teachers in navigating national curricula, school culture, and classroom contexts. In the Philippines, the K to 12 Curriculum features curriculum contextualization and advises teachers to use a spiral progression of knowledge, differentiated instruction, and localization in their teaching approaches, materials, and assessment modes (DepEd Order No. 42, 2016). Bongco (2020) found that principals and school administrators deferred to teachers in implementing policy guidelines of the Philippine K to 12 curriculum.

The implementation of the contextualized curriculum also necessitates a closer look at curriculum studies and curriculum enactment. He and Schultz (2015) investigated the teacher's role in enacting culturally relevant curricula to help students not only in using what they learned in the classroom but also in engaging with social issues encountered outside school. Teachers need training (Reisman & Jay, 2022) and support in planning, enacting, and reflecting (McNeill et al., 2022) to enact contextualized curricula in their classrooms with good judgment (Qoyyimah et al., 2020) and confidence (Alfrey & Connor, 2020; Baregas, 2019; Doyle & Rosemartin, 2012).

Aside from the literature on policy as practice, contextualization, and curriculum enactment of contextualization, there is a need to connect how these discourses are applied in music education. For music curriculum contextualization and music education policy, research has been done by Johansen (2014), Hentschke (2013), Schmidt (2013), and Manzano (2016), among others. Sætre (2011) applied Doyle's curriculum enactment definition and analyzed music teachers' music background and decision-making skills in compositional teaching strategies as teachers' curriculum enactment knowledge. In these studies, the authors noted the tensions and challenges for teachers in contextualizing music education in schools (Frierson-Campbell, 2007; Hentschke, 2013).

Despite these tensions and challenges, studies recognize the need for contextualization (Schmidt, 2013) because "communities, schools, programs, and the individuals who participate in these groups are tied to the social, cultural, and political contexts in which they reside" (Van Deusen, 2016, p. 1). Schmidt (2019) elaborated on Levinson, Sutton, and Winstead's concept of policy as management classified into

two: traditional top-down and progressive from the ground up. He added that, even though policy was formal, it was very much context and action-oriented. Thus, a policy of contextualization seen from the ground up is natural from the perspective of educational anthropology of policy as practice.

Method

The research employed the interpretive paradigm of qualitative research methodology. The interpretive paradigm is a framework of ethnographic research that uses thick description through data gathered from various sources and perspectives. The meanings culled from these sources and perspectives define the analysis.

Ethnographic design, tools, and procedures

Using ethnographic methods of participant observation, interviews, focused group discussions, and document analysis, meanings generated from the data were drawn from the actors' perspectives. Key informant sampling was used to ensure validity. The inclusion criteria for student key informant interlocutors included membership in the community band and enrollment in the public elementary or high schools in the town. The inclusion criterion for teacher key informant interlocutors was that they should be teaching music to the student community band member interlocutors at either public elementary or high school levels.

Member checks and data triangulation were employed to ensure the reliability of the results. Member check was done by having the interview or focused group discussion transcripts read and approved by the interlocutors before analysis could be made. Member check was done so that the interlocutors were assured that the analysis only considered data they had previously read and approved for inclusion. Triangulation was observed by comparing three data sources such as the interview or focused group discussion transcripts, researchers' field notes from the observation of rehearsals and music classes, and documents such as pictures, videos, and textbooks.

Data analysis

Documents for analysis in the study were classified into music books used in the classroom, audio-video materials used, and pictures of music classes. For the teachers' interview or focused group discussions, the questions revolved around (1) teachers' definitions of contextualization; (2) contextualization strategies; (3) contextualized materials; (4) contextualization policy versus mandated textbooks; (5) contextualized assessment; (6) problems in contextualization; (7) solutions to problems in contextualization; (8) recommendations for contextualized music classes; and the (9) dynamics of junior community band students and teachers in music classes. Music class observation noted the music lesson content, class activities, assessment methods if any, and interactions between the teacher and the students who were concurrent

members of the community bands during music class. Field notes were taken during each observation detailing the sequence of events and noteworthy incidents or comments made during the observation. Analysis of the observation field notes, interview, and focused group discussions was done through frequency count of keywords (Ryan & Bernard, 2003), classification of frequency-counted keywords into categories, and synthesis of the categories into themes. Insights from related literature also informed the thematization process which, together with thematic content analysis, formed an iterative process. Sentiment analysis from the interview transcripts was also processed using NVIVO 6.0 qualitative software.

To adhere to standards of research ethics, free and prior informed consent (FPIC) was solicited from all interlocutors before the study was made. Before conducting the research, permission to conduct the study was sought through a letter addressed to the Department of Education, Division of Rizal. Protocols such as anonymity, member check, and deletion of data in computer databases after the study were included in the parental advice. Before pictures and videos were taken, permission was asked from those whose pictures or videos were to be taken. Anonymity in pictures and names was also observed for data privacy.

Results

Setting

The study was done in Taytay town, Rizal province, Philippines. Located below Antipolo along the foothills of the Sierra Madre Mountains, some 22 kilometers away from Manila, Taytay is a first-class municipality and is in the first district of the province of Rizal. The town is also located along Laguna de Bay and is twelve kilometers away from the Pasig River. The town has six barangays: Dolores, Muzon, Santa Ana, San Juan, and San Isidro (Taytay Local Government, n.d.). See Figure 1 for the map of Taytay.

Figure 1

Barangays of Taytay map

Interlocutors

The interlocutors of the study were school music teachers and their students from community bands in Taytay, Rizal. The teacher interlocutors

for the study were three elementary music teachers and five high school music teachers from Taytay, three music teachers from Angono, one bandmaster / high school music teacher, and one principal. Table 1 summarizes the demographic descriptions of the teacher interlocutors in the study.

Table 1

Demography of Music teacher interlocutors

Teacher	Gender	Teaching Experience	Educational Background	Classes
Teacher R	Male	5	BEE	MAPEH
Teacher I	Female	15	BEE	MAPEH
Teacher H	Female	5	BEE with music certification	MAPEH
Teacher JR	Male	20	Diploma in Music performance, bandmaster	Music and Art
Teacher R	Male	11	BSE English	MAPEH
Teacher J	Male	10	BSE Physics, Church organist	MAPEH
Teacher M	Male	2	BSE Music Education	MAPEH
Teacher J	Female	2	BSE Music Education	MAPEH
Teacher M	Female	5	BSE Music Education	Music and Art
Teacher O	Male	20	BSE MAPEH	MAPEH TLE, Music coordinator Music, Voice
Teacher C	Female	3	BSE TLE	MAPEH TLE, Music coordinator
Teacher R	Female	10	BSE ESP	Music, Voice

Teachers' background data showed that their average years of teaching music experience was nine, with new teachers at two years and veteran teachers at 20 years. This background is significant as only six of the twelve (50%) music teachers had music backgrounds. Of these six teachers, only three had professional music education

degrees, one had a MAPEH degree, and two had a musician's diploma and a music certificate. The other half of the teacher interlocutors were generalists or educators with professional elementary education degrees in subjects other than music.

Considering the aforementioned information, it could be assumed that only three out of 12 were music educators with pre-service preparation for content, pedagogical, and pedagogical content knowledge for music in basic education. Teachers with music diplomas and certificates are equipped with music content knowledge but may not have pedagogical and pedagogical content knowledge which could be gained from music education methods courses. Given only 12 units of Music in the BSE MAPEH program, the pre-service course preparation of the MAPEH teachers may also be lacking in terms of music content and pedagogy. There is no music education course for generalist and non-music subject area teachers in their pre-service teacher education curriculum. Given the nature of the music curriculum and its content and performance standards, music concepts, and competencies, there is an implied assumption that teachers have adequate professional preparation for music education to teach the music curriculum and to contextualize it. However, according to the study's data, only 3 of the 12 teachers have adequate music education preparation. Therefore, at the onset, the teachers expected to enact the policy on the ground are already constrained because while the policy assumes they have the necessary knowledge and skills to teach the standards and contextualize them their qualifications show otherwise. Thus, it can be said that the teachers' context (i.e., educational background, music content, and pedagogical knowledge) is a mediating force in the enactment of the contextualization policy. Where they are coming from acts as a lens through which their policy enactment intersects with the requirements of the music curriculum in formal music education.

Napakadugo (Difficult): Defining Contextualization

The word cloud (Figure 2) illustrates the teachers' concept of contextualization. They primarily associated contextualization with the words: "local," "lesson plan," "English," "Music," and "materials." The word contextualization was equated with the words "local" and "akma" (appropriate), meaning what was contextual was local and appropriate to the learner. Local materials derived from the students' experiences were used to discuss the concepts learned in subjects. Thus, the abstract concepts in the curriculum were made real by deploying materials that the learners were familiar with, exposed to, and interested in.

The teachers' definition of contextualization is aligned with localization where appropriate learning materials are chosen considering the students' a) ability and interest, b) community and technology exposure, and c) emotions associated with learning the concept. It is noteworthy that one music teacher's understanding and definition of the contextualization were tied to the English subject despite the policy being threaded across all the subjects in the K to 12 curriculum, including music. Teachers also understood that proper contextualization was difficult and entailed

Figure 2

Teachers' Contextualization Definitions Word Cloud and Treemap

consultation and validation, similar to the lesson planning of Indigenous Pedagogy (IPED). During the interview, one Grade 10 IPED-BSE English teacher teaching music said:

> *"Sa pagbuo ng curriculum ng contextualization based on what I attended sa regional seminar sa IPED, napakadugo, napakadugo bago ka makapag-come up ng isang lesson plan na masasabi mong authentic contextualize lesson plan it will take talagang napakahabang proseso."* (In enacting curriculum contextualization based on the IPED regional seminars I attended, it is difficult, very difficult even before you can produce one lesson plan that is considered as an authentic contextualized lesson. It takes a very long process.) (Teacher R, Grade 10 music teacher)

The teacher's emphatic comment "napakadugo" may reflect the difficulty of ensuring culturally responsive content and pedagogy on top of the curriculum's music content and performance standards. Thus, for teachers whose professional preparation differs from what they are teaching, the requirements for contextualization add to the critical music content, which they must master and then contextualize.

Relate, Integrate: Enacting Contextualization through Classroom Learning Strategies

Teachers were open to sharing their teaching strategies when prompted about their activities to contextualize their music lessons. Teachers R and M shared their practices while Teacher I asked N, a junior student who is also a community band member in class, how school music knowledge was applied in the band and vice versa.

> *"'Yong contextualization na ginagawa ko for the past kasi hindi nila maintindihan 'yong impressionist music. 'Pag ganoon, ini-integrate namin agad si arts para*

malaman nila through the elements of arts, through the elements of music, ahh, ganoon pala 'yong feeling ng music na ganito." (In past contextualization lessons on impressionist music, when students did not understand it, we integrated the elements of music with the elements of art. So students learned the feel of the music.) (Teacher R, Grade 10 music teacher)

"Kaya po minsan 'pag may pinapatugtog kami, kailangan may alam kaming na parang ire-relate namin kaagad para mas mabilis nila matandaan Music sila tapos pinapatungan ng cartoons. Tom and Jerry." (At times in listening, we have to know something about the music that we can relate immediately for easier recall… music associated with cartoons like Tom and Jerry.) (Teacher M, Grade 9 music teacher)

"'Yong indigenization, 'yong local knowledge ngayon, contextualization lahat 'yong lahat, both local knowledge and local materials. So in the case of me, for example ang context mo taga-banda ka, nag-aaral ka rin ng music so nagagamit mo 'yong banda sa pag-aaral ng music, nagagamit mo ba 'yong school music mo sa pag-aaral mo sa banda? Oo, papaano?" (Presently, indigenization and local knowledge are all contextualization. The use of local knowledge and local materials. In my case, if your context is community band and you have music in school, I ask you if you are able to use your band knowledge in the study of school music and vice-versa. If so, how?) (Teacher I, Grade 6 music teacher)

Aside from integration strategies, the teachers also asked the students to interpret and immerse themselves in the assigned topic. An interpretation was made visually or through role-plays, while community immersion entailed interviewing people from the community. The teachers thought that experiencing and applying the topics in the lesson would help maintain students' interest associated with contextualization. The choice of materials and the teacher's disposition were also important to motivate students in lessons that students could not relate to. Teacher C shared:

"Ayaw naming ikulong sa discussion. Present through short skits 'yong pong topic na ina-assign sa kanila o through pa-drawing interpretation. Through research, assignments, tapos, pumupunta rin po sila mismo sa lugar din po… 'yong sa health talagang nag-uusap sila sa taong mismo doon sa health center, kung ano mayroon sa community, so as much as possible 'yong experience talaga…maranasan nila para maintindihan nila kung ano mayroon sa community." (We do not want to limit the class to discussions. Students can present or interpret assigned topics through short skits or drawings. Through research and assignments, they go to the actual places … like health centers to talk to health workers. We use what is in the community as much as possible and for students' real-life community experience to be able to understand.) (Teacher C, high school music coordinator)

A textual analysis of the teachers' strategies in contextualizing lessons (Figure 3) reveals the words: "elements," "topic," "music sounds," "iba" (different), "reading" at the first level; and the words: "keyboard," "knowledge," "ginagawa" (being done), "song," "wind," "banda" (band), "lesson," among others, at the second level. At the first level, the

Figure 3

Teachers' Contextualization Strategies Word Cloud

word "elements" pertains to the related arts approach where the elements of music and art are integrated so that students' experiences with music take on meaning through visual associations. On the second level, the words "keyboard," "knowledge," "ginagawa" (being done), "song," "wind," "banda" (band), and "lesson" pertain to an overall theme of musical experience coupled with musical knowledge. While there was an integration of musical elements to keep the students interested, other contextualization strategies used musical experience, either through immersion or actual musical experiences in band, keyboard, or song. This aspect of the musical experience was absent during the observation of music classes, where, at most, video viewing and discussion were done. In the previous analysis, it was assumed that, given the teachers' definitions of contextualization tied to localization, teachers' understanding of localization would reveal cultural mapping as a strategy for generating context from the ground. However, neither musical experience through music-making or cultural mapping was made even though it was identified in their interview responses. The factors that may have limited these contextualization strategies may include limited time, lack of musical instruments and facilities like classroom, and/or limited teacher's musical background.

Ginagawa, Walang Magawa (Do, Make Do): Enabling Contextualization through Materials Selection

In their definitions of contextualization, the teachers identified student interest as important. However, when prompted about music that students preferred to be studied in class, Teacher H said there was no time to accommodate students' preferences. In these instances, a paradox is revealed. Despite the learner-centeredness definition of the contextualization policy as defined by documents and the teachers themselves, the non-negotiable curriculum competencies are still followed and largely disregard student music preferences when it comes to materials selection. Teacher J2 points out:

> *"We stick to what is needed competency from the curriculum itself because it's non- negotiable. So ang ginagawa namin aside from the book, we have to search for the other ideas or knowledge from Google."* (We stick to what is needed competency from the curriculum itself because it's non-negotiable. So what we do is that aside from the book, we have to search for the other ideas or knowledge from Google.) (Teacher J2, Grade 10 music teacher)

In the word analysis (Figure 4), the most important words connected to contextualized materials selection in music are "sounds," "ginagawa" (being done), "music," "iba" (different), "book," and "speaker." In words, with "ginagawa" (being done) and "sound," teachers recognized the value of musical experience through actual music-making. The word, "speaker," represented technology mediations in materials selection and signified an added burden to teachers who did not have good equipment. However, the word "book" implied that despite using local materials, the teachers still depended on music textbooks for materials. This practice was validated during observation where the selections viewed in class were based on or derived from the examples from the music textbook. Despite teachers' definitions of contextualization being based on localization,

Figure 4

Teachers' Contextualizing Materials Word Cloud

materials from books abounded, and localization by developing materials grounded in community traditions per policy was lacking.

"Ginagawa" (being done), in music, is tied to the concept of experience, especially in the experience of music, whether familiar or unfamiliar, through listening, performing, evaluating, or creating. Because of the required competencies, the lack of teacher training in music education, and the unavailability of musical instruments and technologies, teachers could only discuss music lessons on a superficial level, which de-contextualized music. The teachers were limited to motivating students through the injection of humor or focusing on extra-musical things in class.

In the contextualization policy, research is necessary to utilize local traditions as sources for learning materials. Teacher JR said that the paperwork required consumed the time which should have been allotted to research. Teacher O shared that their school also limited the research which teachers may require of students to contextualize their learning materials. Teacher JR added that research done by some teachers may not be directly useful in their music classrooms and may have been mounted only for career promotion purposes.

Boxed-in: Assessment of Contextualized Learning

The problem of standardized assessment and what one teacher identified as "boxed-in" assessment is that it contradicts the principles of contextualized assessment (DepEd, 2012c). Teacher R had this to say about standardized music testing, "Hindi maganda (standardized exam) kasi kung halimbawa, may hindi ka naturo tapos isasama sa exam, eh hindi masasagot ng bata. Kung ano 'yong tinuro ng teacher, 'yon dapat. (Standardized exam is not good. For example, there may have been lessons not taught yet included in the exam that the students cannot answer. Whatever the teacher has taught is what should be assessed.) (Teacher R, Grade 6 music teacher)

The teachers also commented on performance assessment in music which, they say, should complement traditional forms of assessment. Teacher JR said of performance assessments in music, *"Ang ginagawa na lang nila nag-aano lang ng mga MP3, audio. Actually, di na nila tinutugtog, sumasayaw na lang sila eh. Mahirap. Mahirap, oo, para kaming naka box kasi, di ba? Naka box 'yong ano mo. Eto lang ang kailangan mong ituro. Eto lang . . . Mahirap, di mo alam kung paano mo i-explore ng basta ano. Pagka nag explore ka, kailangan mo ng mas maraming days, di ba?"* (What they do is just play the MP3 audio and just dance. It is difficult, we are like in a box, right? This is what you are allowed to teach. Just this. It is difficult because you do not know how to explore other things. If you do explore, you will need more contact days, right?) (Teacher JR, Grades 7–10 music teacher)

Based on the NVIVO sentiment analysis of the interviews with teachers, their sentiments toward contextualized assessment were mostly negative. The analysis

showed three negative sentiments, one very negative sentiment, one mixed sentiment, and six neutral views about assessment. The negative sentiments of the teachers pointed to standardized examinations, especially at the elementary level, that went against the principles of contextualization. Aside from division-wide standardized music examinations in elementary, the music examinations sometimes had wrong answers or concepts that were not taught because only one teacher in the division office prepared them. Teachers also explained why objective type testing did not work in favor of contextualization. For teachers to give authentic assessments using music as experienced by the students, they highlighted the need for longer contact time. In performance task assessments, the students could only sing or dance but not play musical instruments in an ensemble due to the limited time given to music. Even when a singing requirement was chosen as the culminating activity, the students had to make time outside of class hours to practice. It is clear that, while the assessment policy accompanying the contextualization policy details non-traditional forms of assessment, performance-based assessment in music requires adjustments to the curriculum schedule, teacher expertise, and resources such as equipment and instruments. The teachers also pointed out that contextualized assessment necessitated out-of-the-box thinking, but the instructional plan for music per quarter (only 8 hours for music per quarter) could only accommodate traditional paper and pencil tests or, at best, singing and/or dancing to recorded music for culminating activities.

"LAC" Training: Proposed Solution to Problems Encountered

The teacher informants also identified possible solutions to the problems they shared. These were a) teacher training programs and Learning Action Cells (LACs), b) motivation strategies, c) prioritization of acquisition of musical instruments, d) provision of actual music experience, and e) dialog with the community.

The teachers identified the need for harmonization between the music programs offered at the basic education level and the teacher training programs in music education at the tertiary level. The teachers also pointed out that the MAPEH components (Music, Art, Physical Education, and Health) being taught by one teacher may sacrifice critical content in these four components. Teacher H also suggested that contextualized music lessons be done through Learning Action Cells (LACs), defined as collaborative planning sessions for a group of teachers in a school: "Sa LAC session po na music learning action sinama nila, half day ng aming session para sa music isa ako sa mga nagturo. Sabi ng mga teachers ay ganoon pala 'yon, aminado sila na di nila naiintindihan kung ano 'yong nangyayari doon" (In the LAC sessions where we had half a day for music, I was one of those who trained my fellow teachers and they finally understood and admitted they did not understand these before.) (Teacher H, Grade 6 music teacher)

Teachers used various motivation strategies to keep students interested in the required content in the music curriculum that may not be relevant or interesting. Teacher H and Teacher JR utilized humor or "twists" in presenting what would seem to

be uninteresting content to students. Teacher O used fear to exercise his power over the students, warning his students that if they persisted in not listening, they would have to perform the musical example he was explaining. For most teachers, extrinsic motivation was superficial, and they preferred additional music lessons. The policy of contextualization is framed around learner-centered knowledge, which implies music relevant to the learner's musical experience. The teachers' use of humor and fear in some cases is an extrinsic motivation for a problem of music curricula not framed around students. While the contextualization policy allows schools and teachers to contextualize the curriculum, they must also observe the music competencies that prescribe the content to be delivered. In an ironic twist, the musical experience (which can serve as an enjoyable, student-directed, meaning-making activity) is used as a punishment for not listening, i.e., *if you don't listen, you will perform the music.*

Despite limited music backgrounds, some teachers realized the importance of musical experience over textbooks. Teacher JR brought personal musical instruments to show to his classes. He and Teacher H devoted additional time outside of class to instrumental music education (e.g., orchestra, band, choir) for students interested in learning actual music-making. For these free extra music classes, they asked parents and organizations to donate instruments. Teachers R preferred the provision of instruments to textbooks, *"Hmm, kasi ang pagtuturo naman iba-iba naman tao, kung halimbawa sa kaniya nagdedepende sa libro, eh ako, mas gusto ko eh instrument mismo kahit magkakaiba na tayo, basta nandoon iyong instrument. Di ba. Mas madaling umano kasi sa bata, madali nilang tanda 'yong apply 'pag nasa application"* (Teaching diverse people does not depend on the book. What I prefer is using musical instruments, right? Children remember better when they apply what they learned) (Teacher R, Grade 6 music teacher).

Teacher R saw lesson planning in consultation with experts and the community as another solution, but admitted this was a tedious process:

> *"Kahit teacher ako ng paaralan eh hindi naman ako taga Muzon so how could I verify it kung yun ba talaga ay nangyayari o talagang pina practice nila kaya dapat may involvement ang community. I think it takes involving a lot of experts na para makihalobilo sa mga teachers na nasa ilalim na talagang gumagawa ng contextualization sa pang araw-araw na pagtuturo kasi kung parang ide-define ng contextualization even without providing trainings, let's say seminars and workshops, I don't think talagang maachieve ng teacher yung real essence ng contextualization. So it's not about providing the memo or the awareness that we have to include contextualization but also exposing the teachers how to make a preparation to come up a contextualization lesson plan in connection to teaching music subject."* (Even if I am a school teacher, I am not from Muzon so how could I verify if that is what is truly practiced? That is why community involvement is a must. I think it involves a lot of experts to interact with teachers on the ground who are enacting contextualization every day in their teaching because if we just define contextualization without providing training, like seminars

> and workshops, I don't think the teacher can really achieve the essence of contextualization. So it's not about providing the memo or the awareness that we have to include contextualization but also exposing the teachers to how to prepare a contextualization lesson plan in connection to teaching the music subject.) (Teacher R, Grade 10 music teacher)

In synthesis, the teachers' implementation of the music curricular contextualization policy is mediated by their understanding of the policy and their music content and pedagogical knowledge. Issues in enacting the policy include the lack of school music resources (e.g., contact time and music instruments) and assessment constraints (standardized examinations). Through collaboration with other music teachers in LACs, the teachers strategize to improve instruction through additional training in music and by reworking contact time for culminating activities in music as contextualized performance assessment.

Discussion

The experiences of the music teachers in the study were analyzed from two main perspectives, namely, Fernandes et al.'s (2013) and Leite et al.'s (2018) curricular contextualization approaches and Schmidt's (2019) policy as practice for music educators.

Music Contextualization Influx and Formal Music Curricula: A Paradox

Using the contextualization practices identified by Leite et al. as a framework for analysis, the practices of the music teacher interlocutors in the study involved mostly (1) adaptation of the curriculum to students' interests in music listening materials through techniques such as pointing out familiar classical music in cartoons and using Filipino popular music; (2) curriculum adaptation based on the student's life experiences through immersion projects; and (3) horizontal and vertical curriculum articulation through the integration of arts and music content through activities like festival presentations.

Using the same framework, the study found that what is lacking in the implementation of music curriculum contextualization is a) curriculum adaptation based on local features, which would entail the engagement of the community band tradition in the music lessons; and b) diversification of practices such as improvisation or watching live community band performances and relating these to music lessons instead of mostly listening activities. The curriculum contextualization practice of adapting based on local features is an important strategy that truly reflects the spirit of the contextualization policy being place-based and relevant to the learner. Given that the selected schools are in a town with a long-standing band tradition, the possibility of using the local community band in music contextualization is as important as ever. When students' experiences of community band traditions are considered in the classroom, these musical experiences not only consider people's voices in the implemented curriculum

but also bridge the gap and act as an enactment of the contextualization policy of the intended curriculum.

Similar to Leite et. al.'s findings on the paradox of formal curricula and implementing contextualization of the curriculum, the music interlocutors in the study pointed out that contextualization was a tedious process because of the non-negotiable content and competencies in the curriculum. While the curriculum has been decongested to a certain extent, the remaining content and competencies limit the time to contextualize music activities and accommodate student listening preferences. Andaya (2019), director of the Philippine Department of Education's Bureau of Curriculum Development (DepEd BCD), admitted this and suggested reducing the competencies and curriculum guides for better teacher flexibility. The standardized examinations required periodically also bear upon the teachers who must contextualize and at the same time prepare their students for the objective division-wide music paper and pencil tests, similar to findings of Leite et. al.'s study. In one music teacher's reflection, it is difficult to contextualize when a "box" is expected to be filled. This paradox of contextualization, which requires imagination, collaboration, and community awareness, contrasts with standardized music curricula and examinations. Hence, teachers can maneuver only within a limited space.

Music Contextualization Policy in Practice: Enactment, Negotiation, Navigation

Policy enactment is not only in policy documents but also in individuated, every day, political settings where "it is embodied by people" (Ball, 2006 as cited in Schmidt, 2019, p. xi). This enactment as embodied by individuals is mediated by their understanding of the policy language identified by Schmidt (2019) as policy know-how and their contexts as music educators.

Schmidt (2019) also detailed three important policy aspects of practice for music educators: content knowledge, pedagogical knowledge, and policy know-how. From the teachers' profiles, their professional music education shows a lack of content knowledge. The teachers in the study have identified the importance of the teachers' music content knowledge through music training to deliver and contextualize the content and performance standards of the music curriculum. Teacher recommendations to improve content knowledge include in-service music training through music LACs and teacher mentoring in the four-component subject, MAPEH. Teachers found that the four-component MAPEH presented problems related to mastery of content knowledge in four disciplines by one teacher. Thus, a review of teacher pre-service music education programs vis-a-vis the music curriculum requirements in basic education is needed to address music content knowledge in general and its implications for the contextualization policy in particular.

Besides content knowledge, teachers' knowledge of the contextualization policy affects its enactment. The teachers' views of research as removed from the teaching

process do not feed into the policy's framework where research into local traditions informs contextualization practices. The paradigm shift from teacher-led processes toward student-directed learning as contained in the policy framework on learner-centeredness is yet to be seen except for student-produced culminating activities in music. Thus, in terms of policy know-how and understanding the language of the contextualization policy, the practice on the ground needs further clarification. Concerning pedagogical knowledge, the teachers showed many examples of this despite material and personal limitations. In implementing the contextualization policy, there is an attempt at enactment of the policy but only superficially according to the teachers themselves.

Negotiations and navigations of what is possible within the limited spaces between contextualization and curriculum are also revealed in the everyday music interactions in school. With this limited space, lack of resources, and the expectation to contextualize and meet the curriculum standards simultaneously as the backdrop, the music teachers diffuse the tension by injecting humor into their music lessons to keep students motivated. In the absence of musical experience, for some teachers, negotiation between realizing the curriculum content and contextualizing it for students in a town with band traditions requires free extra music lessons with instruments donated by organizations and interested parents. These strategies for the navigation of policy within limited spaces are necessary so that teachers can implement curriculum contextualization given the aforementioned limitations.

Teachers recognize that the contextualization policy, if properly implemented, will entail research and consultation with the community. Given their limited music content knowledge and policy know-how, they recommend having more music training and regular consultations with the community and educational experts on the policy, aside from official memoranda containing guidelines, which they say will improve their confidence in contextualizing the curriculum. For the teachers, policy know-how is not only about reading DepEd orders but also about working together to identify common experiences and collaboration. In Schmidt's (2019) policy as practice for music educators, the individual embodiment of policy is important through everyday decision-making in the classroom. However, based on the data from the study, policy negotiations are possible if teachers plan collectively (Banegas, 2019) and collaborate through the LACs. In the schools observed, music teachers who act in teams rather than as individuals have more power in negotiating for changes to benefit their music classes. Thus, embodied contextualization policy as practice in music education is a collective practice based on this study's results.

Teachers know the policy and its importance, but material and human constraints limit its enactment. Cognizant of their limitations and the extent of their understanding of the policy from memoranda and guidelines, teachers want policy experts to work with them and the community to prepare contextualized music lessons.

Conclusions

Teachers defined contextualization as localization using materials interesting for students on the ground. This definition was enacted through (a) selection of familiar music materials, (b) integration of music with other disciplines, (c) wide use of technology, and (d) use of music performance assessment tasks like culminating activities. The teachers' enactment of policy was mediated by their understanding of the contextualization policy and their musical backgrounds. Issues that may hinder their policy enactment include school constraints (resources) and division standardized assessment.

Music teachers negotiate the constraints micro-structurally in their classrooms by using positive (humor) and negative (fear) motivation strategies. At the macro-structural level, the teachers negotiate policy constraints by working in teams through music learning action cells (LACs), advocating for space to make teaching decisions.

Three forces mediated the enactment of the policy. First, teachers' policy know-how (understanding of the language of policy) where their understanding of the paradigm shift to student-centered learning is inconsistent with their textbook-directed lessons. Second, teachers' lack of music qualifications also mediates the contextualization of the music curriculum as teachers cannot facilitate students' personal musical experiences in the classroom. Third, teachers' limited understanding of research as an aid to localization resulted in a lack of awareness of using community band traditions as context. Because of the lack of awareness of local music (place-based) traditions, teachers could not use local community band traditions in their lessons. Instead of interpreting the policy from official documents alone, the teachers advocate for a collaborative effort in implementing the policy through regular dialogue with the community, the teachers, and educational experts.

The results of the study support discussions on the paradox of curriculum contextualization and standardized curricula, implying the complex nature of music curriculum contextualization as practiced. While previous studies identify curriculum contextualization enabling factors for teacher confidence like the provision of teacher training on content knowledge and contextualization pedagogy, the results of the study revealed that collective teacher decision-making in the everyday enactment of the policy provided alternatives to exercise professional judgment. The importance of teachers' collective decision-making not only helped the teachers compensate for their limited knowledge necessary for the enactment of policy but also provided opportunities for the sharing of material, social, and cultural resources. In the formulation of contextualization policy, as seen from the enactment of teachers from the ground, the importance of the teachers' contexts redefines contextualization apart from the focus on learner-centeredness in its educational definition. These teachers' contexts not only inform policy redefinition but also help re-conceptualize future policy directions for curriculum contextualization with an awareness of contextualism in its extreme forms.

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Accessible Education for Muslim Learners with Disabilities: Insights from Two Case Studies

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ABSTRACT

This qualitative research studied the perceptions of Muslim Learners with Disabilities (MLWD) and key informants regarding access to education utilizing case studies and thematic coding. MLWDs strongly identified with their faith as an important feature of identity. Participants were framing disability using the Islamic and the bio-medical perspectives which affirmed the synchronization of Islam with science as well as the affirmation model of disability which viewed persons with disabilities as active participants who constructed their own definitions of disability. Important elements in gaining greater access to education are: having a firm identity, parental attitudes, involvement in the child's education, having sufficient funds, and providing a nurturing home and community. However, having grit can offset a low parental level of education, low socio-economic status, and low home and community support so that MLWDs can have greater access to education.

Keywords: ***access to education, accessible education conceptual framework, Muslim Learners with Disabilities, Islamic perspective, grit***

Introduction

The United Nations Development Program (UNDP) estimates that there are 650 million individuals who are disabled (UNDP, 2006), and approximately one-third, according to the World Bank, are children in developing countries with little or no access to education (World Bank, 2005). Additionally, while efforts are being made to localize inclusive education across different countries in the world, reports highlight serious questions around the overall equity, quality, and efficiency of education systems, especially for many Muslim countries. Specifically, the United Nations Educational Scientific Cultural Organization (UNESCO) reported that the quality of achievement in Muslim areas tended to be lower than that in other countries even in those areas with similar income levels and with a large number of out-of-school learners (UNESCO, 2008).

As a response to the global call for inclusion in the Philippines, the Commission on Higher Education (CHED) stated that it universally recognized that quality higher education is accessible to all who seek it particularly those who may not be able to afford it (CHED, 2022). The Department of Education (DepEd), meanwhile, admitted that children with disabilities continued to be underserved in the education system, with only two percent of those who should be in primary education having access to Special Education (SpEd) services (DepEd, 2009).

The situation is worse in efforts to educate students belonging to minority ethnic and religious groups. Symaco and Baunto (2010) observed that minority groups were most likely to be deprived of educational and other opportunities. According to a recent extensive local study done among children with disabilities (CWD) among Muslims and indigenous peoples, the DepEd faces the challenge of reaching out to the most marginalized groups in the country, namely, the CWD in Muslim and Indigenous Peoples (IP) communities (RDFCEI, 2014).

The school is a site of social reproduction, according to Collins (2009), and is not an institution of equal opportunity and instead a mechanism for perpetuating social inequalities. To address social inequality, it is important to study Muslim Learners with Disabilities (MLWDs) who may be twice or even thrice disadvantaged by faith, ability, and socio-economic status.

Disabilities can be defined from various lenses. This research aimed to further the understanding of disability and access to education from a Muslim perspective. The research investigated how MLWDs made sense of their disabilities and how they related to others to give them a voice and provide their warranted representation in society.

This study aimed to create a framework for MLWDs to gain greater access to education. It also aimed to determine the perceptions of MLWDs, parents/caregivers, Muslim educators, community leaders, and education-focal persons about disability as well as access to education. In addition, the study intended to identify the different factors that determined MLWDs' access to education. Specifically, the study sought to answer the following questions:

1. How do Muslims conceptualize disability?
2. How do Muslims perceive and experience accessible education?
3. What factors determine MLWD's access to education?

The data from this study can be utilized by parents and stakeholders to raise and build awareness on how Islam can be inherently justified to align toward greater access to education in both formal and informal education settings. All data were subjected to both descriptive and interpretive analyses to propose a framework that had the potential to harmonize ideas pertaining to the access to education of MLWDs. Lastly, the research added to limited studies about Islamic education, about MLWDs in the

Philippines, and about the use of socio-anthropology to view, understand, and address local issues.

Perspectives in Special Education

Issues in SpEd can be viewed from various lenses. Generally, the views can be categorized as socio-cultural, scientific, developmental, and technical. Under the socio-cultural perspective is the ecological perspective.

The ecological perspective is inspired by the ideas of Urie Bronfenbrenner (1979). From this perspective, individuals are not seen as a tabula rasa but a growing, dynamic entity that progressively moves into and restructures into what he would refer to as "ecology". In this context, the relationship between the individual and his environment is said to be bidirectional. The ecological environment is thought of as a set of nested structures which extend to incorporate interconnections including influences from the larger surroundings. Bronfenbrenner identified four environments in which people develop: microsystems, mesosystems, exosystems, and macrosystems. Although the four environments are conceptualized by Bronfenbrenner as interrelated, this study limited itself to the MLWDs' microsystems and mesosystems which are defined as:

1. Microsystems: immediate environments in which individuals develop. The setting consists of the connections between persons, the objects to which a person responds, or the people whom he interacts with on a face-to-face basis.
2. Mesosystems: the relationships between various microsystems. A mesosystem is composed of interrelations among two or more settings in which the developing person actively participates.

Covered under the developmental model is the medical perspective. The medical model of disability positions a person's disability based on their individual impairment with a focus on how the impairment can be managed and, if possible, overcome.

Under the technical model of disability are the deficit perspective and the affirmation model. The deficit perspective suggests that all human beings possess deficits of varying levels across the deficit continuum. The affirmation model rests on the premise that provision for children with special educational needs, and consideration of their strengths and needs must evolve from their own perspectives and definitions of their disabilities. It rejects the "tragic" model of disability and recognizes that disability is an integral aspect of a person's identity (Crutchley, 2017).

Accessible Education and Inclusive Education

Accessible education and inclusive education are seen as related concepts. Accessible education answers the need for equality of opportunities among individuals while inclusive education answers the need for equity in educational opportunities

among individuals across race, gender, ability, age, religion, socio-economic status, sexual orientation, learning styles, etc. Accessible education refers to the capacity of learners to be provided with knowledge, skills, attitudes, and habits in any form within the formal and the informal settings. It is intended for the teachers, the learning institutions, and the state to remove any barrier and make education and learning easy to access. The process of making education and learning easy to access is important in creating inclusive classrooms. According to Republic Act 11650, An Act Instituting a Policy of Inclusion and Services for Learners with Disabilities, inclusion is an approach where every learner is valued, supported, and given access to equal opportunities and learning experiences within an inclusive learning resource center, school setting, and the community. Inclusive education has for its end-goal full participation, presence, and achievement in learning cultures and communities, and this may entail accommodation, modification, adaptation, and individualization of content, approaches, structures, and strategies.

According to Ainscow et al. (2006), inclusive education's ethos and values include establishing a culture of belonging and support. These ethos and values are compatible with Dizon's (2011) important tenets in inclusive education which include acceptance of the child, respect for the dignity of the child, and adherence to the value of loving the child that strengthens commitment to his welfare.

DepEd Efforts for the Protection of the Disabled

Although inclusion should have been an ideal principle to observe in providing education for learners with disabilities, the special school set-up was the initial route taken by the national government as it gradually adopted the genuine philosophy of inclusion in its mechanisms. The current SpEd set-up has its roots in 1997 when DepEd promulgated DECS Order No. 26 (DepEd, 1997) which institutionalized SpEd centers. The DepEd claimed that it adopted the "inclusive educational concept" in the different types of SpEd programs to make them suited to the needs of learners and that it aimed to provide access to basic education among children with special needs through the formal system and other alternative delivery services in education. However, despite these efforts, only 2.5 percent of children with special needs were educated during SY 1998-1999, only 4.8 percent in 2004-2005 while 95.2 percent were unreached (DepEd, 2009). To rule out possibilities of disabled learners getting discriminated against in schools, the DepEd released DepEd Order No. 40, s. 2012. The order was called the "DepEd Child Protection Policy" which was both a policy and a set of guidelines on protecting children in school from abuse, violence, exploitation and discrimination, bullying, and other forms of abuse.

The Six Articles of the Muslim Faith

The meaning of Islam revolves around the concepts of peace, submission, and surrender. A Muslim is said to be one who has surrendered to God. The central teaching

of Islam is the worship of one God who created all and who alone is uncreated (Arsad, 2013). The Quran has six essential doctrines, which are also described as "Articles of Faith." The fourth, fifth, and sixth articles have direct implications for the conceptualizations of disability among Muslims as well as their regard for individuals with disabilities. The fourth article is a belief in all messengers and prophets of God. According to this article, God reveals himself in the Quran as interpreted by prophets called khalifa. The term khalifa is applied not only to these prophets but also to all individuals who are assigned to be stewards of God's creation. The fifth article is the "Last Judgment" at the end of time known in Islam as yawm al-din or "the day of religion/doom." It is a belief that every person will be raised from the dead and God will judge each person according to his faith and his actions. The fifth article presents an epistemological grounding in a Muslim's morality and personal ethics based on the idea of divine justice. The sixth article is about the belief in the "Divine Decree and Predestination." This doctrine is a belief in God's ultimate authority over all that occurs. This is said to be a contentious doctrine which has led others toward a fatalistic acceptance of whatever happens as God's will. It should be emphasized though that, even when the Quran emphasizes God's power and control, it also pins down human responsibility as a final arbiter for a moral life.

The Muslim Conception of Man

Man is conceptualized in his place in the universe as the most significant creation of God who has been bestowed with intelligence that makes him unique among all the other creatures. Man is also believed to have a seamless connection with other creatures and is seen as equal to other men. In this belief, man's ultimate goal should be nothing less than piety. Because of man's power to reason and his capacity for inner knowledge, he rules over the earth, not in his own right, but as God's *khalifa* among all of God's creation.

According to the teachings of Islam, each individual is a *khalifah* to God. Arsad (2013) explained that being a *khalifah* presumes that man is responsible for the rest of creation and accountable for his actions. Muslims, in particular, must strive to adhere to and advance God's will by establishing a society that reflects human dignity and justice. Accordingly, it is believed that human beings have been given the necessary intelligence, strength, and divine guidance to benefit humanity. Al-Ghazali (n.d.) wrote, *"On the day of judgment, the most severe torment will be given to the scholar to whom Allah had not benefited from his/her knowledge."* It can, therefore, be assumed that, in the Quran, accountability and responsibility are expected from people to whom knowledge is given.

Muslim Conceptions of Disability

The Holy Book of Islam has an inherent and kind regard for people with disabilities. At the very least, disabilities in the Quran are believed to be morally neutral, neither

a punishment nor a blessing from God. The kind regard for disabled individuals has an ontological grounding in the Islamic understanding of the "problem of evil." The "problem of evil" is not seen as a problem but rather as an instrument of God's plan, which is intertwined with human experiences in this world – an experience necessary for man's spiritual development (Rouzati, 2018). A careful scrutiny of the narratives of the Quran, according to Rouzati, demonstrates that the so-called problem of evil is seen as an instrument in fulfilling God's purpose. *"We shall certainly test you with fear and hunger, and loss of property, lives and crops: however, (Prophet), give good news to those who are steadfast."* (Surah Al-Baqarah - 155, Quran). Trials and adversities are seen as necessary in order for man to realize his divine source. Exercising patience, trusting God, and loving God are essential to actualize man's potential and purify his soul.

Concepts of normalcy or ideas about the treatment of individuals with a disability have changed over the years. Yaqut (2000) detailed that the pre-Islamic Arabs used to kill their female babies and ignored people with special needs but this treatment eventually changed. When Islam was introduced, it upheld the supremacy of the value of piety rather than looking at disability. A human's worth in the sight of God depends on spiritual development, not on any physical or material attributes. One saying of Prophet Muhammad recorded in the *Hadith* is *"Verily Allah does not look to your bodies nor to your faces but He looks into your hearts."* Hasnain et al. (2008) also said that many Muslims saw disability in the context of *qadar* or fate, a cornerstone of Muslim belief. This concept reflects the sixth article of faith, which is often expressed as the belief in preordination or what was meant to be, will be, and what was meant not to happen will not occur. This conceptualization, however, does not discount the idea of man's responsibility to exercise one's free will.

Muslim Education Philosophy

Education is held in high regard among Muslims based on the Quran and in the prophetic teachings of Muhammad, specifically anchored to Muslim's obligation to continually seek after ilm (knowledge). Boransing et. al (1987) stated that Muslim scholars observed the following saying on knowledge: *"The ink of a scholar is holier than the blood of a martyr. Seek knowledge from the cradle to the grave. Learning is a duty for every Muslim, man or woman"* (p. 27).

The Quran stresses the need for both religious and secular education. There is nothing in the Quran which is opposed to the pursuit of secular education. Al-Ghazali (n.d.) wrote that both knowledge and piety should be consistently sought. He said, *"My dear beloved son! Do not be deprived of good deeds, do not be without the knowledge of the external matters and do not be without internal excellences"* (p. 4).

Factors that Determine Access to Education

The literature suggests that access to education is affected by personal qualities,

identity, parental level of education and socio-economic status, the home, the school, and the community.

Personal Qualities and Access to Education

Grit. Grit is a positive, non-cognitive trait characterized by perseverance and passion to achieve a long-term goal or end-state. Grit is also the ability to persist in something or to work strenuously coupled with a powerful motivation to overcome challenges in the face of obstacles in order to obtain goals. Duckworth (2016) explained that grit is a process that starts with something one cares about that gives meaning to everything that one does and requires being steadfast to achieve this goal. Exploring grit, Christopoulou et al. (2018) said that it was rooted in two facets: perseverance of effort and consistency of interest. In his study, perseverance was a strong positive predictor of academic performance.

Identity and Access to Education

Faith Identity. An identity consists of one or many characteristics or attributes that describe a particular person and make him unique. A Muslim identity is said to be initially and deeply anchored in faith or religion. Bassiouney (2017) acknowledged that religion played a vital role in defining a public identity in the Arab world in general. He hinted that religion formed part of a Muslim's attitudes and moral valuations. Al-Oufi et al. (2012) also suggested that a Muslim's general attitude towards disability was generated from faith and belief in Allah.

Parental Status and Access to Education

Level of Education (LOE). Level of education pertains to the parental level of education, the educational attainment achieved by the parents or the caregiver of an MLWD in formal and informal educational settings. It is important to note how the level of education is potentially transmitted by parents and caregivers of an MLWD to the child to be a source for the production of other forms of capital. Findings from international and local sources point to the direct relation between the level of education and positive educational outcomes or subsequent access to education. Van Zanten (2009) noted the difference in the rearing practices between the middle and the working classes. He suggested that new middle-class parents chose to introduce their children to more stratified modes of education that appeared to offer more certain routes to higher education and occupational success. Reay (2010) cited time richness and poverty as keys, with the people in the working class relatively constrained in terms of how much time they could devote to their children's education. She pointed out the disparity between the culture of the school and the orientation of the families toward that culture. A study commissioned by the World Bank (2005) revealed that parents who had a high level of education possessed the resources to send their children both to *madrasah* and to a mainstream school. On one hand, parents who had low levels of

education were often left with no other choice but to avail of *madrasah* alone. However, the USAID (2007) report on access to quality basic education for Muslim learners suggested that the notion that less educated parents were naturally disadvantaged in achieving economic and social outcomes was largely an unfounded perception. The belief that knowledge, skills, and values can only be provided in the setting of the formal school discounts the crucial role of the non-formal or informal settings in the education system.

Socio-economic Status (SES). In dealing with issues of socio-economic classes, it is imperative to distinguish hierarchies in relation to household income or local economies in general. Individuals from higher income brackets have more access not just to education itself but also to higher levels of education. Shala (2016) reported that socio-economic status influenced family dynamics, parental techniques, parental investment, and access to resources necessary for development and that low socio-economic status hinders the development of children. Essentially, at the core of social hierarchy are resources. Bourdieu (2004) would refer to this as "capital." According to him, capital can present itself in three fundamental forms: economic, cultural, and social. Among the three forms of capital, economic capital is the most important as it is considered the root of all the other types of capital. To demonstrate this, a local study by Basman (2010) found that economic standing coupled with the right set of family values would facilitate the accommodation of children with disabilities. According to Basman, family values included respect, nurturing attitude, independence, closeness, and understanding. The higher the economic status, the more able families can undertake activities to help the child develop. However, family fears and values might constrain families with high economic status to withhold activities that may develop the child.

Ecologies and Access to Education

Home. The home comprised what Bronfenbrenner (1979) would refer to as a microsystem, the interrelations within the immediate setting. Related studies about the home setting explored the placement of the agents at the center as being influenced by the quality of relationships one has with the immediate family.

The findings of the RDFCEI (2014) about inclusive education of Muslim learners in the Philippines held the family as the central locus of care. The caring behavior of the family appears to have been borne from the value of compassion, which makes possible the centrality of emotional capital in caring for a child with a disability (CWD). It revealed that caring practices among family members had greater attention to and investment in those experiencing multiple difficulties. Parents who have experienced formal schooling see sending the CWD to school as a way of caring for them. However, for parents with no or little education, schooling is sacrificed in favor of more basic needs.

Biglan et al. (2012) advocated for the need for a nurturing home to be established to prevent mental, emotional, and behavioral disorders. The study discussed the benefits

of establishing nurturing homes among family members and suggested that nurturing environments minimized the possibility of psychologically-toxic events. It reinforced pro-social behaviors, limited opportunities for problem behavior, and fostered psychological flexibility—the ability to be mindful of one's thoughts and feelings.

School. The school is what Bronfenbrenner (1979) would refer to as within the agent's mesosystem, where an active individual can participate. Related studies about the school setting revolved around the experiences of children with special educational needs and the issues and challenges related to school inclusion.

Schools as Sites of Contestation of Social Power. The school is conceptualized as more than being a physical structure but a site of "social reproduction," of hegemony, or of contestations between dominant and minority forces in society. The school is also seen as an agency of class domination, culture, and ideologies and is filled with contradictions and produced in contestation and struggle. Nader (1997) claimed that schools were involved in the articulation of the politics of exclusion based on the alleged propensity in human nature to reject strangers.

Community. A community is an organic, natural kind of social group whose members are bound together by a sense of belonging created out of everyday contacts covering the whole range of human activities (Adair-Tottef, 2006). Conceptualizations for the term "community" center on the individuals' interactions with each other within an enclosed geographical territory where members work together and follow a certain social structure (e.g., culture, norms, values, and status).

The Role of "Bodies" in Social Contestations. One way of looking at MLWDs is through the prism of socio-anthropology as "bodies." Bodies are centers of discourse that relate to the contestations of competing forces in society. According to Evans et al., (2009), our bodily selves are increasingly subject to the performative expectations not only of the labor market but also of consumer culture centered around visions of physical perfection, initially articulated as "slender body ideals." MLWDs as bodies are labeled as objects that disturb identity, system, and order and provoke the desire to expel them. The whole process of abjection involves the erection of social taboos and individual defenses. Abjection involves processes whereby those named unclean are reviled, repelled, and resisted.

METHOD

Research Design

This investigation employed the case study method to achieve the goals of the study. The case study data were generated through in-depth interviews of the two cases of participants, with each case located in varying and opposing circumstances. The multiple case study design also used the logic of replication where the inquirer

replicated the procedure for each set of cases.

Participants

The research involved two cases of participants. Case 1 was an MLWD placed in a private *madrasah* setting while Case 2 was an MLWD placed in an inclusive, private Christian school setting. Each case consisted of the following participants: (1) the MLWD, (2) a parent/caregiver of MLWD, (3) the *madrasah* teacher: the *ustadz (asatidz)*, (4) the community leader, and (5) the education-focal person. The research thus presented multiple perspectives in each case.

The subjects were Filipino-Muslim children aged 13-19 who had disabilities and were receiving education entirely in their respective schools. It meant therefore that the participants were learning from an exclusive formal instruction in an inclusive formal setting. The MLWDs age range of 13-19, known to be the start of adolescence or adulthood, was intentionally selected to delimit the study and to gather data from the voices of the MLWDs themselves. Although the study dealt with participants who may be cognitively impaired, the researcher attempted to evaluate the circumstances of the participants through alternative sources of data. In the absence of potential reflective and reasoning skills, insights from the MLWDs were sourced from their non-verbal reactions or by asking the people the MLWDs regularly interacted with, who were also participants in the study (parents/caregivers, *asatidz*, community leaders), which allowed the data to be triangulated. To further control and define the expected data, the learner must belong to a Maranao tribe by virtue of parental or genealogical affinity.

Respondents in the study were recruited using the snowball technique. The researcher asked for referrals initially from the community gatekeepers of barangays (villages) whose population was composed largely of Filipino Muslims. The participants were nominated by the community leaders at the two research sites, namely the Muslim communities in Brgy. 648, San Miguel, City of Manila and in Maharlika Village, Taguig City.

When endorsements were made, the researcher communicated with the family of the MLWDs to verify whether they satisfied the criteria for the study. Formal consent was secured prior to setting up an interview with the MLWDs, their parents and caregivers, the *asatidz* or the imam, the community leaders, and the education-focal persons. A letter was addressed to the key informants in the barangay (the MLWD, parent/caregiver, *asatidz*, and community leader) and to the School Operations Division (SOD) of DepEd (for the education focal persons). The letter came with a research contract indicating a guarantee that information would be held in utmost confidentiality and that the undertaking was being done only for the purpose of academic research. Verbal permission was also sought whether proceedings could be recorded through a mobile phone audio-recorder or notes or a few photographs could be taken with

the participants to document the process. The researcher followed up with the key informants and the SOD of DepEd-Manila and the SOD of Taguig-Pateros for the approval of the request for an interview. Upon approval, the researcher scheduled the interviews on a per case basis.

Profile sheets for the education focal-persons were brought during the day of the interview and were completed by the respondents themselves. Field notes were also used to record relevant observations during the conduct of the interviews. At the onset of the interviews, the researcher reiterated the confidentiality agreement in the contract and emphasized that the participants had the liberty to back out at any point during the interview process. To maintain the authenticity of the data, verbal permission was sought to use their first names in the study. After the interview, the researcher also secured permission from the respondents if he could still be in touch with them for further verification and clarification of information. Any follow-up was done through the short messaging system (SMS). The participants were assured by the researcher of feedback on the results of the study when necessary. The participants were provided a simple token for their contribution to the study.

The participant who attended the weekly *Madrasah* was Aliacub. He was a 19-year-old male with a physical disability at the time of the data gathering. His *ustadz* in the *Madrasah* said that Aliacub has "slow memory," which was an indication of intellectual delay. He was born to a Muslim father and a Christian mother who later converted to Islam. He was the 5th of six children living together in an approximately 30-square-meter apartment in a Muslim community in Brgy. 648 in San Miguel, Manila. His father decided to stay in Marawi City so his mother was left supporting all six children in Metro Manila, making her technically a solo parent. Aliacub experienced going to a public school when he was in Grade 1 but he stayed for less than a month because he experienced bullying by a classmate. To make up for his lost opportunity in formal education, his mother enrolled him in the *madrasah* (non-graded) within the compound during weekends. Aliacub had not undergone any form of therapy at the time of the research.

Sailenur was the 16-year-old female MLWD enrolled as a Grade 10 student in an inclusive private Christian school in Taguig City at the time of the study. She had congenital cataracts which resulted in a profound visual impairment. Sailenur underwent an eye operation when she was an infant, leading her to wear eyeglasses with grades ranging from 900-1000 as she grew older. Sailenur could move without eyeglasses but could not read without them. Just like Aliacub, Sailenur came from a close-knit, devout Muslim family at the heart of a Muslim community. Her mother completed a 4 –year college degree while her father almost completed college until he chose to get married. The family inherited a vast estate in the same area where they lived which they leased to fellow Muslims. This secured them financially as her mother also worked in a government office. Sailenur's school was only a few streets away from their home, and she had not received any form of therapy at the time of the research.

Data Analysis Procedure

The data underwent four levels of content analysis: (1) decontextualization, (2) recontextualization, (3) categorization, and (4) compilation.

Both descriptive and interpretative analyses were done by transcribing the interviews of the two groups of participants word for word. An example of an actual transcription is shown in Table 1. Transcriptions included non-verbal expressions that came with the participants' responses. In transcribing the words of participants and juxtaposing them with gestural observations, getting their exact words was usually not very important as their meaning took priority (Stake, 1995).

Table 1

Example of Decontextualization

	Transcript	Analysis
A.4.	**I:** Ano ang pakiramdam mo na ikaw ay may kapansanan? *(Participant answered quickly)*	
	P1: *Okay lang, tanggap ko.*	P1 accepts that he is disabled

This stage was what comprised recontextualization, the threshing out of data from the participants, exploring meaning out of the responses, and figuring out from the larger scheme of things where the data would fall. An example of recontextualization is shown in Table 2.

Table 2

Example of Recontextualization

	Main Themes	Sub-themes	Examples of Basic Themes
MLWD	Microsystem	Disability as God's will and responsibility	"Dapat tanggapin kasi ito ibinigay ni Allah. Mabigat na responsibilidad" ("Aliacub", personal communication, January 10, 2021).

Table 3

Examples of Categorization

Open Codes	Enumeration of Open Codes	Appearance Organizing Theme	Overall Theme
MLWD treated well by family	34	Home	Establishing Inclusive Ecologies and Possessing Positive Personal Qualities
Marginalized at school	21	School	
Well received in the community	15	Community	
Having grit	6	All	

The next level required the data to be systematically juxtaposed with the previous statements made by the participants in each case. Categorization is shown in Table 3. The open codes were systematically enumerated and assigned an organizing theme against the backdrop of previous studies and the collective voices of previous participants at different times or places. The agreement or disagreement of the new finding and the explication of the potential reason allowed for the novel finding to assume categorization.

Table 4

Example of Compilation

P1		
Main Theme	**Sub-theme**	**Example of Basic Theme**
Identity	Acceptance of one's disability	"Okay lang, tanggap ko na ako ay may kapansanan" (Aliacub, personal communication, January 10, 2021).

The categorized data which required a bringing together of the participants were coded as to their meaning. This is the process of compilation and is shown in Table 4. The process of "compilation" was done by quoting the participants' statements verbatim and stressing the underlying meaning of the statements.

RESULTS AND DISCUSSION

The results of the study are presented with the discussion to contextualize the responses of the participants in the study to allow a smoother and continuous flow of their narrative.

Muslim Conceptualization of Disability

Disability is perceived differently across cultures. Muslims hinged their perceptions of disability on their religion, specifically from their interpretation of the Articles of the Muslim faith and the concept of *qadar*.

Disability as "God's Will"

The study drew from the responses of Case 1 and 2 participants. Teresa, the mother of Aliacub (MLWD) said, *"Kasi iyan ang pagsubok ni Allah."* (That is Allah's test.). The *ustadz* in the *madrasah* said "*…iyan ang bigay ni Allah, si Allah ang bahala"* (..that is what Allah has given, Allah's will be done.). The community leader near the *madrasah* explained, *"Kapag nagkasakit, iyan ang bigay ni Allah."* (When we become ill, that is given by Allah.). One of the Case 2 participants made a direct reference to disability as God's will. The *imam* of the MLWD in the inclusive school opined: *"Siya ang higit na nakakaalam. Mayroong dahilan…Pagsubok ni Allah ang paghihirap. Ibinigay ni Allah ang kapansanan pandagdag pagsubok."* (He is the One who knows. There is a reason. Difficulties are Allah's tests. Allah gave the disability as an additional test.) This finding supports the thesis of Rouzati (2018) that Muslims interpret the "problem of evil" or difficulties and hardships as instruments for men to realize their purpose and purify their souls.

In the interview of Case 2 in an inclusive private school, Sailenur (MLWD), her caregiver, and the community leader pointed to their belief in Allah as the ultimate cause of their conceptualizations related to "disability as a test." The community leader mentioned, *"Sa amin, kung ano ang ibinigay sa iyo ng Allah, iyon na lang din iyong dapat mong tanggapin. Kaya nga ibinigay sa iyo iyan ibig sabihin kaya mo. Iyon talaga iyong kapalaran."* (For us, whatever Allah has given, we should accept. It means you can handle it. It is your destiny.) Consistent with the notion that being a Muslim means surrendering to God and the Muslim's sixth article of faith which is the divine decree of predestination or the concept of *qadar* (fate) (Hasnain et al., 2008), the conceptualizations of the Muslim participants about disability confirmed that a Muslim's general attitude towards disability was influenced by their faith and their belief in Allah.

Table 5

Conceptualization of Disability of MLWD and Key Informants in a Private Madrasah (Case 1)

Case 1	Main Themes	Sub-Themes	Examples of Basic Themes
MLWD	Microsystem	Disability as God's will and responsibility	"Dapat tanggapin kasi ito ibinigay ni Allah. Mabigat na responsibilidad."
Parent	Microsystem	Disability as God's will	"Kasi iyan iyong pagsubok niya (Allah). Kung iyan ang ibinigay sa iyo dapat tanggapin mo."

Table 6

Conceptualization of Disability of MLWD and Key Informants in an Inclusive School Setting (Case 2)

Case 2	Main Themes	Sub-themes	Examples of Basic Themes
MLWD	Microsystem	Disability naturally accepted over time	"Yung bata pa po kasi ako hindi ko pa naiisip iyong mga bagay-bagay, kung bakit ganito. Pero ngayon unti-unti ko na pong natatanggap."
Caregiver	Microsystem	MLWD must socialize and persevere	"Sa kanya (MLWD), dapat patuloy lang. Makihalo lang sa iba at magsikap sa buhay."
Ustadz	Microsystem	Islamic belief in medical science	"'Ang sabi ng propeta, "ang lahat ng sakit , may gamot." Ang magagamot sa atin iyong duktor, siya ang nakakaalam ng sakit.'"
Com. Leader	Microsystem	Disability and need for courage	"Mahirap iyon para sa isang may kapansanan na laging iisipin mo na maging matigas at matapang ka."

Factors that Affect Access to Education

The factors that affect access to education were culled from the various perceptions and experiences of the participants as they engage in their respective microsystems and mesosystems. The participants in the study, based on the analyses of themes, identified these access factors that relate to identity and positive personal qualities, parental support and positive personal qualities and supportive ecologies and positive personal qualities.

Identities and Positive Personal Qualities

Faith Identity. Consistent with the belief that a Muslim is one who has "surrendered" to God, the analysis of themes indicated that the Muslim participants strongly identified with their faith. Aliacub (Case 1) accepted his disability and associated the challenge with God, saying, *"Dapat tanggapin mo kung ano ang utos sa iyo ni Allah kahit mabigat."* (You should accept what Allah has given you even though it is hard.) His mother concurred with this idea, *"Dapat lagi kang sumusunod sa mga pinag-uutos ni Allah. Na kahit anong hirap, kung iyon ang plano sa iyo ng Diyos dapat tanggapin mo."* (You should always follow what Allah commands even if it is hard. If that is His plan, you should accept it.) Sailenur (Case 2) was proud to be Muslim. Her caregiver said, *"Nakakabuti naman ang aming paniniwalang pang-relihiyon, lalo na sa aming mga Muslim."* (We Muslims benefit from our religious beliefs.) All Muslim participants had basic knowledge of proper and improper conduct and were proud to be Muslims. To have better access to education, it was essential for MLWDs to accept their identity expressed in their faith, known as "faith identity." Faith identity is rooted in one's spiritual beliefs.

Grit. To have access to education, MLWDs were expected to possess not only a firm faith identity but also grit. Duckworth (2016) suggested that grit started with something that gave a person meaning and was able to overcome the challenges that came with it. Sailenur (Case 2) and her community leader were proud Muslims and were willing to exert effort to fit in their broader environments. Sailenur emphasized the need to get along or adapt to her inclusive, Christian school. Her caregiver emphasized the need to be rooted in her Muslim faith, to socialize with others, and to persevere in life. The community leader in the area of Sailenur (Case 2) shared her own account of advocating for her needs inside the classroom. The community leader, who had profound visual impairment herself, also spoke of her personal experience of asking people on the street and police enforcers to read the jeepney sign boards whenever she commuted using public transportation. The MLWDs expressed their needs constantly and asked for help to achieve their desired ends. The community leader also talked about the need for persons with disabilities to have more grit, saying, *"Dapat malakas ang loob mo. Parang hindi ko sinasabi sa sarili ko na hindi ko kaya iyan kasi may kapansanan ako. Hindi iyon ang pananaw ko e. Mas matapang talaga ako."* (One must be brave. I don't tell myself that I can't do things because I have a disability. That's not how I think. I really am brave.)

Parental Support and Positive Personal Qualities

Guidance and encouragement. The analysis of themes indicated that MLWDs had to be guided and encouraged. Guidance can come from parents, caregivers, or from a knowledgeable authority in the form of follow-ups, remedial classes, or any other learning opportunities that can empower and enable MLWDs.

Marked differences were observed in the rearing of Aliacub and Sailenur, with more positive observations seen in parents who had higher levels of education. The caregiver of Sailenur as well as their community leader provided accounts of how Sailenur's parents supported the MLWD in her studies. Sailenur's caregiver averred, "*Ang mga kabataan dapat ginagabayan lagi ng magulang. Kailangan sinusuportahan talaga ng parehong nanay at tatay.*" (The youth always need guidance from their parents. They need the support of both mother and father.). The community leader of Sailenur stated: *"Tungkulin ng mga magulang magbigay ng suporta, financially, tapos iyong gabay."* (It is the parents' duty to provide finances and guidance.)

The *asatidz* and the education-focal persons argued strongly about the crucial role of guidance and encouragement from parents for their children to access education. This finding resonated with literature about the impact of parental level of education on their children's educational outcomes and achievement (Bourdieu, 2004; Van Zanten, 2009; Reay, 2010). Parents with a higher level of education have a natural advantage as they see the importance of providing resources such as time and guidance to their children. Furthermore, consistent with the finding of the World Bank (2005), parents with a lower level of education tended to enroll their children not in mainstream, formal education but only in the *madrasah*.

Financial Resources. To access education, MLWDs needed sufficient financial support. The results of the study confirmed what Bourdieu (2004), Shala (2016), and Basman (2010) said about the inherent advantages of economic capital which they said produced other necessary tools to facilitate accommodation and economic success. The participants agreed that a certain amount of money was needed to support education. The mother of Aliacub valued having money as a very important factor in supporting her son's schooling at the madrasah. The caregiver of Sailenur, despite not having completed her primary school, had to work in a foreign country to support the school needs of her own children. The education-focal-persons shared personal accounts of student hunger and its effects on attendance and drop-out rates in their respective schools.

Grit. In the absence of a sufficient parental level of education or socio-economic status, the parents and the MLWDs could leverage grit and perseverance. Although parental level of education and socio-economic status are seen as instrumental to having access to education, these factors alone do not automatically guarantee access to education. Parental resources such as guidance or financial resources must be

coupled with determination and grit. This finding was consistent with what Duckworth (2016) and Christopoulou et al. (2018) said when they associated grit with passion, perseverance of effort, and interest.

Aliacub, the MLWD in a private madrasah declared, *"Para magkaroon ng pagkakataon mag-aral, dapat magsikap."* (To have an opportunity to study, one must persevere.) His mother expressed her wish, *"Sana nga magpatuloy siya ng pag-aaral para kapag tumanda siya hindi siya ganyan lang."* (I hope that he continues his schooling so that he will not be stuck in life.) Aliacub's *ustadz* shared: *"Ako lang ha, para matuto, dapat magpursige talaga siya."* (For me, he must persevere to learn.) The community leader suggested that aside from financial resources, perseverance will lead to access to education. *"Ang kailangan, pagpupursige lang."* (What is needed is perseverance.) The caregiver of Sailenur shared that she needed to instill discipline among her children to study. She said, *"Iyong mga anak ko, para lang pumasok, sinasabihan ko ang mga iyan. Sabi ko: "mag-aral ka, gusto niyong lumaki kayong mangmang?"* (I always tell my children: study hard or else grow up ignorant.). The *ustadz* of Case 2 stated that success in education depended more on the child than his parents. He said, *"Hindi dahil sa pagsisikap ng magulang, kung hindi dahil sa pagsisikap ng bata."* (It's not so much the effort of the parents but the effort of the children [to study].)

Supportive Ecologies and Positive Personal Qualities

Home support. MLWDs need a nurturing home to have access to education. This result was in line with the sixth article of the Muslim faith and the concept of *"qadar"* (Hasnain et al., 2008) as children with disabilities were seen as "gifts" from God. Similar to the findings of the RDFCEI (2014), the home is seen by the participants as the central locus of care, and children with disabilities are provided with greater attention compared to their non-disabled family members. A nurturing home requires consistent family involvement, not only from parents but also from other members of the family. Aliacub and Sailenur, although coming from different socio-economic backgrounds, were both provided with emotional security at home. Nobody within their immediate and extended families looked at their disability as the sole basis of their identities. The MLWDs could not think of any instance when they were mistreated or ostracized at home. The home was their safe place where they were nurtured and treated fairly. Both MLWDs enjoyed meaningful relationships not only within their homes but also in their communities. Biglan et al. (2012) stated that a nurturing home prevented mental, emotional, and behavioral disorders, minimized the possibility of psychologically toxic events, and reinforced prosocial behavior. Even when both MLWDs were aware of their disabilities, their nurturing homes provided them with the same warmth and security that non-disabled children enjoyed, and this made them feel like their disabilities did not matter.

School inclusion. Responses from participants who had experiences of public schools, namely, Aliacub, his mother, the community leader in Case 2, and the education-

focal persons in both cases, proved that being discriminated against was a reality and a possibility in the public school setting. Although the incidents in the study may be considered isolated, the findings were not in consonance with the ethos and values of inclusive education as espoused by Ainscow et al. (2006) and Dizon (2011) which revolved around the idea of accepting and loving children and being committed to their welfare. Incidences of bullying contradicted the philosophy of inclusion that the DepEd wanted to establish through RA 11650 and the "Child Protection Policy" which emphasized that every learner must feel valued, supported, and protected from abuse, violence, exploitation and discrimination, bullying, and other forms of maltreatment.

Aliacub said he was a frequent subject of teasing by his classmates who would shout *"Pilay! Pilay!"* (Cripple! Cripple!) at him. He said he was bullied because of his physical disability and not because he was a Muslim. His school experiences became too harrowing for Aliacub that he considered not enrolling in a public school again. Sailenur, meanwhile, treated bullying by an individual only as a minor incident. She said that she was accepted as a Muslim who wore a *hijab* in school and who also had a profound visual impairment. On the other hand, the Muslim community leader who had dual disability experienced bullying in primary and secondary public school. She said she was taunted because of her obvious physical and visual disabilities but she had learned to fight for herself.

The education-focal-persons both admitted that bullying among non-disabled students occurred in their schools. The experiences of marginalization in public schools by Aliacub and the visually-impaired community leader in Case 2 gave credence to assertions by Nader (1997) and Collins (2009) about schools being sites of contestation with regard to hegemonic powers in society. It should be noted though that they were not being discriminated against because of their religion but because of their physical disabilities. Adopting the socio-anthropology lens, MLWDs are seen as "bodies" which do not satisfy the "slender body ideals;" thus, they may be repelled as "rejects."

Community support. MLWDs needed a nurturing community and home to have access to education. A nurturing community is perceived to be a natural feature of an Islamic community borne of a culture of compassion and brotherhood. The kind regard of Muslim communities for MLWDs resonated with the epistemological grounding of Islam in the sixth article of faith related to the concept of divine decree or preordination (Arsad, 2013) or *qadar* (Hasnain et al., 2008), the need to accept the will of Allah as well as the concept of *khalifa* (Arsad, 2013), where men, using their intelligence, are deemed to be responsible for the care of God's divine creation.

Aliacub spoke fondly of the Muslim community where they lived. He said, *"Pareho lang ang trato sa akin sa iba. Pero pinoprotektahan nila ako dito. Hindi ako na-bully dito. Never akong binully dito. Magagalit iyong mga datu."* (They treat me the same as they treat others. They protect me here. I am never bullied here. The *datus* will get mad.) His mother shared that he had a number of friends in the community. Aliacub said that even

when life was difficult he had a happy life. He associated his feeling of happiness with his family and having a number of friends. Aliacub's friends provided positive influence by ensuring he attended the *khutba* and the weekend *madrasah* where his friends were also regular attendees.

Aliacub's mother shared that Muslim elders strongly influenced the way MLWDs were treated in their community. She said that the *datus* and the *imam* who congregated at the *masjid* played very crucial roles in disciplining individuals and children within their community on how to treat individuals with a disability.

Sailenur shared that she usually stayed inside their house in the Muslim compound where her family and relatives lived. She shared, *"Wala naman pong bullying dito (community)."* (There is no bullying here.) Her grandmother, who was also her caregiver, shared that her relatives and classmates from the private Christian school kept Sailenur company. Sailenur mentioned that she was regularly invited to community activities such as jogging or some sports activities by her relatives and classmates. The *asatidz* framed their conceptualizations about community support using the Islamic perspective and said that MLWDs were treated with respect and care. The positive interactions of the MLWDs with people within their communities contradicted the theses offered by socio-anthropology about the contestations of forces in society as well as conceptualizations related to "slender body ideals" and the tendency for objects to be expelled (Evans et al., 2009). Islamic perspectives provided overarching guidance within Muslim communities.

Grit. This study also found that the MLWDs could offset the absence of nurturing ecologies such as a nurturing home, an inclusive school setting, and a supportive community, with grit. The MLWDs in both cases demonstrated grit when they showed their desire to fit in their respective communities. The other participants in the study identified the importance of grit in the community setting to be able to fit in and get by. Duckworth (2016) and Christopoulou et al. (2018) both conceptualized grit in light of a challenge or a difficult circumstance. They said that grit is the perseverance of effort and holding steadfast until one reaches the goal.

The education-focal person in Case 1 said, *"Para masolusyonan ng isang kabataang may kapansanan ang pag-aaral kahit mahirap lang siya, kailangan niya ng tiwala sa sarili, lakas ng loob. Character niya. Malaking bagay iyon, kasi iyon ang driving force eh."* (For a learner with a disability to finish studies even when he is poor, he needs to believe in himself, courage, and character. Those are the major driving forces.) The caregiver of Sailenur stressed the importance of developing very good relations with others including non-Christians to survive, thrive, and have access to education. The community leader of Sailenur who herself has a dual disability spoke extensively of the need to develop grit and self-advocacy skills especially when one has a disability. She said she learned how to be courageous as an MLWD growing up without her mother. She said,

"Kailangang tanggap mo na may kapansanan ka. Kapag tanggap mo, iisipin mo ang mga kaya mo at hindi mo kaya. Kapag naisip mo na iyon, iyong mga hindi mo kaya, iisipin mo kung paano mo mareresolbahan, iyong mga paraan para makaya mo iyan. Hanggat magkakaroon ka rin ng lakas na loob tsaka tapang. Kailangan matibay ang loob mo." (You need to accept that you have a disability. If you accept it, you would know your strengths and your weaknesses. If you know your weaknesses, you will learn how to address them until you develop boldness and courage.).

Lastly, the education focal person in Case 2 said, *"...kung gusto niya talaga makatapos ng pag-aaral, ginagawa niya ang lahat. Pursige."* (If a child really wants to finish school, he will do everything. Perseverance.)

Grit is a desired personal quality that can aid any individual in achieving personal goals and become emotionally and socially adjusted. The personal quality of grit is demanded in venues or sites where vulnerable groups are often subjects of ostracism and marginalization.

Table 7

Perception and Experience of Accessible Education of MLWD and Key Informants in a Private Madrasah (Case 1)

Case 1	Main Themes	Sub-themes	Examples of Basic Themes
MLWD	Microsystem	Culture of respect for MLWD	"Ay, hindi. Never akong binully dito. Magagalit iyong mga datu.'
Parent	Microsystem	MLWD marginalized by classmates and teachers	"Kasi siyempre, siya, hindi siya marunong sa sarili niya. Kaya ang sabi ng teacher, dapat na i-transfer daw sa kapwa may kapansanan. Doon daw pag-aralin."
Ustadz	Microsystem	MLWD must be tougher	"Pareho lang, dapat mas magpursige siya kasi madami siyang pagsubok na haharapin."
Community Leader	Mesosystem	Parents need to provide time and guidance	"Iyong magulang dapat gabayan mo yung anak mo.Yung oras din. Dapat bigyan mo ng oras. Pangatlo na lang iyong pera."
Educ.-Focal-Person	Mesosystem	Parents must address self-esteem of MLWD	"Sabi ko nga huwag susukuan. Para magkaroon din ng confidence iyong bata. Magkaroon siya ng tiwala sa sarili niya na kakayanin niya."

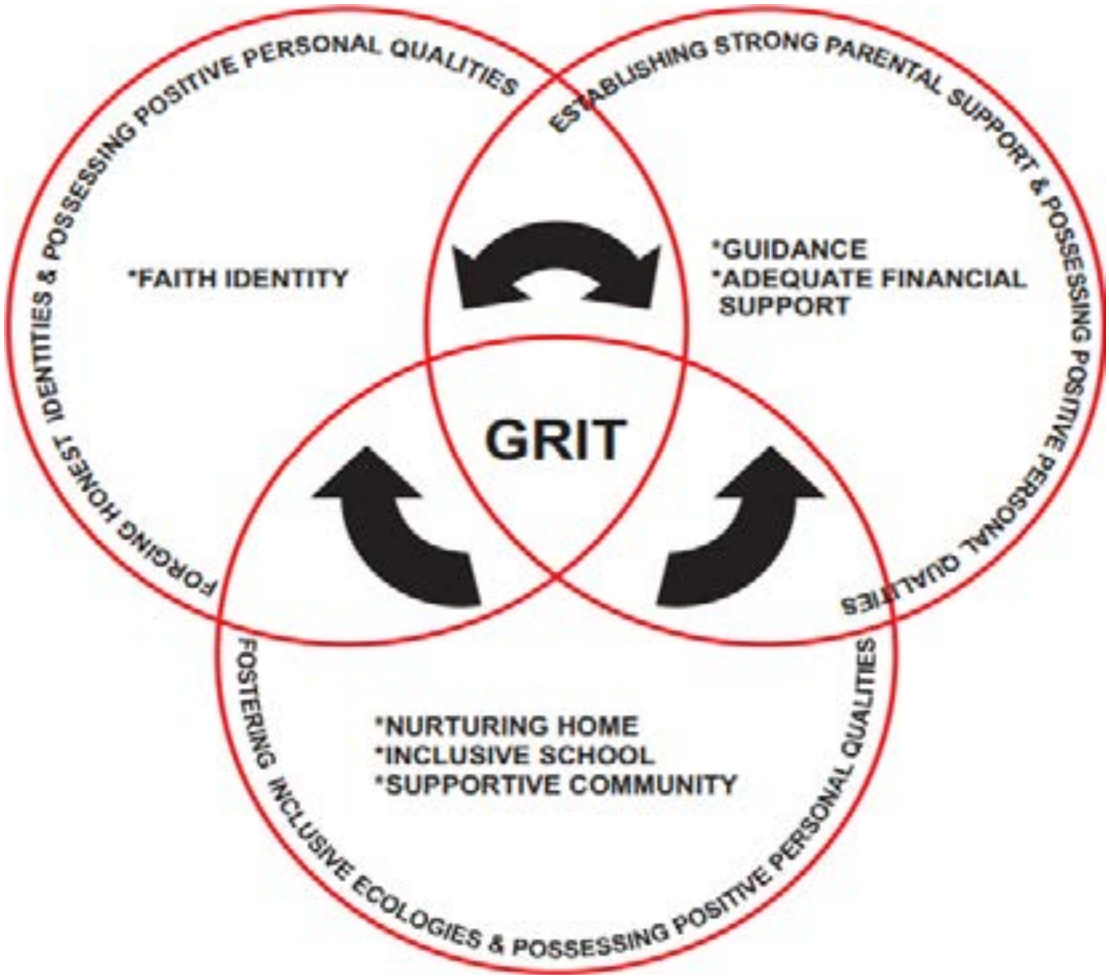
Table 8

Perception and Experience of Accessible Education of MLWD and Key Informants in an Inclusive School Setting (Case 2)

Case 2	Main Themes	Sub-themes	Examples of Basic Themes
MLWD	Microsystem	MLWD is the one who finds her way in school	"Ako na po ang gumagawa para sa sarili ko. Kapag halimbawa po may seating arrangement. Tapos sasabihin ko: "Ma'am, dito po ako kasi hindi ko gaanong nakikita." Pumapayag naman po sila."
Parent	Microsystem	Equal treatment of MLWD informed by belief in Allah	"Parehas lang ang tingin ng mga magulang sa kanila (MLWD) kagaya ng normal nilang anak. Bakit mo ikinakahiya iyan ang bigay sa iyo ni Allah?"
Ustadz	Microsystem	Care of child is parents' obligation to children and Allah	"Dapat ang magulang mabigyan niya ng good moral character ang anak niya. Pananagutan iyan ng magulang sa anak at kay Allah."
Community Leader	Microsystem	Need for disabled to have acceptance and grit	"Kailangang tanggap mo na may kapansanan ka. Kailangan matibay ang loob mo."
Educ.-Focal-Person	Mesosystem	Low SES can be offset by determination and perseverance	"Kung gusto niya talaga makatapos ng pag-aaral, ginagawa niya ang lahat. Pursige."

Figure 1

Conceptual Framework for the Study: Accessible Education Framework



The study upholds the agency of the individual, the MLWD, as central to determining access to education. As conceptualized by Bronfenbrenner (1979), the individual lies at the center, influencing and being influenced by various ecologies surrounding him, his own family and friends, his classmates in school, and his community. Drawing from the affirmation model of disability (Crutchley, 2017), where the understanding of an individual begins from the consideration of his strengths and needs, the MLWD is considered a primary agent and actant who proactively decides and determines his own fate. The MLWD lies at the center, creating personal choices for himself and his own future. MLWD grit is an amiable positive personal quality which an MLWD must wield in all the overlapping ecologies of the self, the family, and the community to have greater access to education. In the context of the ecological perspective, the relationship between the MLWD and the various ecologies is also deemed to be bidirectional, reciprocal, and mutually evolving as represented by the two-headed arrows in Figure 1. The ecologies where the MLWD is located are also conceptualized as a set of overlapping structures which incorporate interconnections including influences from the larger surroundings. To have greater access to education, an MLWD needs to exercise grit at all levels of interaction with his ecologies. Having grit is a desirable and

positive personal quality which serves as the foundation of personal identity, parental support, and a harmonious relationship with others. Even when considered mandatory, education is not freely accessible and warrants an investment not only of money but also of personal resources and effort.

Conclusions

Several themes emerged from the case analysis and the conduct of semi-structured interviews in the study. The study found out that disability was being framed consistently by Muslim participants using religion through the concepts of *qadar* and the Divine Preordination, one of the cornerstone beliefs of the Islamic faith. The framing lays the foundation for how MLWDs are regarded in the family and in the community. However, even if participants interpreted disability based on their faith, they also viewed the treatment of disability using the bio-medical as well as the affirmation models of disability. This indicates the harmonization of religion and science and an acknowledgment that Islam values surrender to divine power as much as they act based on free will. Faith identification can be self-constructed and can be leveraged by MLWDs in developing positive personal characteristics such as grit. Acknowledging one's faith is an important factor that can determine greater access to education.

The study observed that parents' attitudes and involvement in their child's education determined access to education. In the same light, the study confirmed the relationship between parental socio-economic status and having greater access to education. It was observed that MLWDs who had parents with higher levels of education and higher social status tended to prefer education in the mainstream and provided enriching after-school activities that aided in the achievement of positive school outcomes, while MLWDs who had parents with less education and lower socio-economic status tended to avail of education only in the madrasah. All participants in the study agreed with the importance of having financial resources, even in sending their children to public schools. However, in both cases, grit could be utilized by individuals to mitigate the effects of low parental level of education and low parental social status. Having parents with less education or lower socio-economic status must not be a deterrent to having access to education. Individuals possess inherent personal qualities such as grit that can potentially enable them to overcome challenges and provide them greater access to education.

The study also highlighted the importance of nourishing and supportive environments to ensure greater access to education. The home or the family is the most important of all ecologies in ensuring greater access to education. Bullying in school is a deterrent to access to education and must not be in any way tolerated. Although public schools are trying to prevent the occurrence of bullying, the inclusion of MLWDs in the regular classroom is still an aspiration yet to be fully realized. The respondents emphasized the importance of the positive personal quality of grit in order to surmount the challenges that naturally go with a disability. With disability being framed by religion and faith and basic respect for human dignity, a Muslim home, school, and community provide a nourishing ecology for MLWDs.

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Making Sense of Pre-Service English Teachers' Practicum Experiences: Perspectives on Teacher Learning

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ABSTRACT

This study aimed to explicitly articulate how one learns how to teach English. Guided by sociocultural perspectives on teacher learning (Johnson, 2009), pre-service English teachers' practicum experiences were examined to gain insights into how they come to know what they know about language teaching. Ten pre-service English teachers recalled and reflected on their practicum experiences through a semi-structured interview and reflection logs. Their teaching practices were also documented through audio/video recorded classroom observations with a follow-up stimulated recall interview. Making sense of learning experiences during practicum revealed that teacher learning was enabled by the guidance of cooperating teachers, the use of symbolic mediation tools for teaching, and challenges in the teaching-learning environment. Recognizing these aspects of teacher learning can support teacher preparation. Teacher education practices should explicitly integrate them into learning experiences that can prepare pre-service English teachers for the complex realities of practice.

Keywords: ***second language teacher education (SLTE), teacher learning, human mediation, mediation tools, mediation space***

Listening to the narratives of those who are learning how to teach language can inform Second Language Teacher Education (SLTE). Perspectives of pre-service English teachers provide a lens on the cumulative process of teacher learning. Recognizing these views informs teacher preparation in developing adaptive teachers who can thrive in the challenging contexts of practice. Moreover, giving voice to those learning how to teach can yield insights on relevant realizations and future directions of SLTE programs. This is a practicable step to strengthen teacher preparation and inform policy amendments toward improving teacher quality.

Interest in articulating the process of learning how to teach has been furthered by sociocultural perspectives in SLTE, particularly on teacher learning. Johnson (2009) stresses that "when we turn our attention to how teachers come to know what they

know, how certain concepts in teachers' consciousness develop over time, and how their learning processes transform them and the activities of L2 teaching, we put ourselves in a much better position to support learning and development in the broader enterprise of L2 teacher education" (p. 17). Insights on teacher learning logically inform how pre-service teachers can be taught efficiently to prepare them for the realities of practice.

Sociocultural perspectives in SLTE argue for a shift from traditional models of teacher preparation. These perspectives cover areas of epistemology (positivist to interpretive), teaching practice (theory and technique application to reflective practice), and research (science models application to interpretive research and teacher cognition). Johnson (2009) elaborates on these with five points of view. First, teachers are viewed as learners of teaching; thus, there is value in understanding how teacher learning happens to logically inform how teacher learners can be prepared efficiently. Second, language is viewed as a social practice where meaning and use are situated in social and cultural contexts. Third, language teaching is viewed as dialogic mediation where concept development is critical to teacher learning and professional development. Emergence and internalization of concepts are seen to help teachers make informed instructional decisions. Fourth, second language teaching is situated in the broader social, cultural, and historical contexts. Johnson (2006) calls for a located L2 teacher education which "will entail recognizing how changing sociopolitical and socioeconomic contexts affect the ways in which L2 teachers are positioned, how they enact their teaching practices, and, most importantly, the kinds of learning environments they are willing and able to create for their L2 students" (p. 247). Finally, the sociocultural perspective in SLTE promotes an inquiry-based approach to professional development which encourages language teachers to reflect on their practice.

Sociocultural perspectives in SLTE look into teachers' ways of knowing. In this aspect, examining important areas of teachers' mental lives adopts an interpretive research paradigm to analyze the complexities of language teacher education. Teacher learning is seen to be shaped by one's experiences. How one learns, what is learned, and how it is used can be attributed to his/her social interactions. Foreign research in SLTE has explored these perspectives by documenting authentic learning experiences of teacher-learners. Findings highlight the transformative nature of teacher learning where different knowledge sources, social interactions, and contextual factors contribute to development (Golombek & Johnson, 2004; Herrmann, 2015; Singh & Richards, 2006). However, Johnson (2006) argues that "despite this sociocultural turn and the challenges it has created for L2 teacher education, it has yet to infiltrate the positivistic paradigm that continues to dominate the public discourse surrounding the professional activities of L2 teachers" (p. 237).

The positivist perspective relates to the prescriptive tradition in teacher learning where apprenticeship of observation is evident. Stefanski, Leitze, and Fife-Demski (2018) note this as an obstacle in teacher learning. Deeper learning is impeded when

pre-service teachers apply instructional strategies as observed in course work but fail to critically make sense of connections between concepts and practice. McMahan and Garza (2017) captured a similar observation in documenting how pre-service teachers described their learning in a structured field experience before practicum. The participants' responses exhibited a superficial grasp of pedagogy evidenced by the failure to articulate a deeper understanding of teaching and learning. Teacher learning was at a surface level limited to describing what was observed. There is a need for similar local studies that examine the implicit process of teacher learning. Articulating what happens when one learns how to teach guides informed interventions in teacher preparation. It is in this regard that the current study tackles the sensemaking process in teacher learning while taking the lens of sociocultural perspectives in SLTE.

Examining teacher learning from a sociocultural perspective entails a view of mediation. Childs (2011) defines mediation as "the process of connecting and relating our social and mental worlds through physical and symbolic tools in activity" (p. 70). Mediation is transformative as it moves from external to internal processes. Reflecting on practice leads to the internalization of knowledge and skills. Therefore, teacher learning is manifested by a "transformation" or a "cognitive change" as teacher-learners own their learning and appropriate it to the context of teaching practice.

With the view of teacher learning as mediation, this study examined three aspects of pre-service English teachers' learning. These are human mediation, mediation tools, and mediation space. First, human mediation refers to social relations that contribute to the learning process. Interactions with experts and peers are considered enabling opportunities for teacher-learners to make connections between and among received knowledge and learning experiences. The right assistance from human mediation, also termed "scaffolding," is expected to lead to the internalization of concepts. Eventually, teacher-learners transform with an ability to reconstruct received knowledge. Examining human mediation within the learning spaces of the practicum provides relevant insights on how pre-service English teachers learn what they learn, and how they use what they have learned. Second, mediation tools refer to instructional tools which can be physical or symbolic. Physical tools (i.e., physical cultural artifacts) may include instructional materials, lesson plans, textbooks, videos, course handouts, or recorded teacher narratives which are enabling materials that inform teaching. Symbolic tools, on the other hand, refer to psychological tools that may include teaching techniques, teaching philosophy, upheld beliefs, and academic concepts that mediate teacher-learners' mental processes. Teacher learning can be described based on the kind of tools teacher-learners use and how they utilize them. Finally, the third aspect of teacher learning that this study examined is the mediation space which refers to social structures that support participation and interaction for teacher learning. Mediation spaces are complex environments that can present tensions between upheld beliefs and realities. Both human mediation and use of mediation tools are situated in mediation spaces that afford opportunities for learning.

The identified aspects of teacher learning that relate to mediation processes have been explored by studies that involved second language teachers. Learning experiences of pre-service English teachers were documented to describe external processes involving human mediation where teacher-learners interact with experienced teachers who support their learning (Engin, 2014; Gan, 2014; Kolman et al., 2016; Molina, 2015). Learning experiences also comprised of use of mediation tools, both physical and symbolic, that become instrumental in making sense of experiences (Childs, 2011; Chung & van Es, 2014). Mediation spaces also proved to be a significant factor in teacher learning as discussed in SLTE studies that raised issues and highlighted gaps linked to contextual factors (Farrell, 2014; 2018; Harvey et al., 2016; Khourey-Bowers, 2005; Young et al., 2016; Zeichner & Liston, 2014).

Examining the implicit process of teacher learning is a relatively unexplored research area in local studies in SLTE; thus, this study intends to stir discussions on teacher learning by examining pre-service English teachers' practicum experiences. The practicum stage is a practicable context since this is where teacher-learners engage in their early teaching experiences. Moreover, the practicum school is a place where pre-service teachers experience moments of tension or conflict which can prompt sensemaking. Documenting the participants' practicum experiences may yield information on how teacher-learners come to understand concepts about teaching and learning language. Making sense of relevant learning experiences will reveal insights into factors that enable and further teacher learning.

Research Aims

This study focused on the transformative process of teacher learning among pre-service English teachers. Informed by sociocultural perspectives on teacher learning (Johnson, 2009; Johnson & Golombek, 2016), this study examined the participants' lived experiences during the practicum to gain insights into how these lead to the internalization of concepts in teaching English. More specifically, this study aimed to answer the question: What do pre-service English teachers' experiences in the practicum reveal about teacher learning?

Methodology

The methods of this study aimed to articulate aspects of teacher learning as a process that moves from external or socially-mediated interactions to internal sensemaking of relevant experiences. This goal was guided by the epistemological stance of sociocultural perspectives in SLTE which claim that "knowledge that informs activity is not just abstracted from theory, codified in textbooks, and constructed through principled ways of examining phenomena, but also emerges out of a dialogic and transformative process of reconsidering and reorganizing lived experiences through the theoretical constructs and discourses that are publicly recognized and valued within the communities of practice that hold power" (Johnson, 2006, pp. 240-241).

Accordingly, studies informed by sociocultural views documented and made sense of teacher-learners' lived experiences through qualitative case studies that allowed the researchers to thoroughly tap into relevant experiences that contributed to teacher learning. Qualitative tools such as interviews, observations, stimulated recall, and reflective journals were utilized to engage participants in authentic dialogic interactions to make sense of naturally-occurring data (Albaba, 2017; Engin, 2014; Kolman et al., 2016; Molina, 2015; & Yagata, 2017). In the same way, this inquiry created opportunities for dialogue between the researcher and the pre-service teachers through classroom observations with stimulated recall, semi-structured interview, and reflective journals.

Research Design

This inquiry was a participant observation study that focused on making sense of relevant learning experiences during the practicum to gain insights on pre-service English teacher learning. Participant observation studies are narrower than ethnographies as these situate the researcher in a social setting for a specific research interest and entail less time in the field (Hatch, 2002). Data collection methods included interviewing, artifact collection, and direct observation. Data gathering procedures were conducted in natural settings with the use of analytic tools. Both researcher and participants engaged in co-constructing meanings of lived experiences which involved the participants' interactions with themselves and others.

Participants

Ten pre-service English teachers or teacher-learners in their senior year participated in the study. These pre-service teachers came from two teacher education institutions (TEIs) in the National Capital Region, Philippines. These institutions were purposefully chosen for their shared characteristics. Both contexts are established higher education institutions and centers for excellence in teacher education. There was no intent to make any comparison since the pre-service English teachers were considered homogenous samples who shared similar experiences.

The ten pre-service teachers were doing their practicum during the conduct of this study. Five participants (Carla, Monica, Stacey, Ice, and Ira) had a 10-week off-campus practicum course. This was taken after their completion of a prerequisite on-campus practicum course in their institution's laboratory school. The off-campus practicum in the cooperating public high school required class observations and actual classroom teaching that lasted for about eight (8) weeks. The pre-service teachers were assigned in two public high schools in the south of Metro Manila where they taught English classes at the junior high school level. Each was assigned to a cooperating teacher from the practicum school. They were also supervised by a practicum supervisor from their TEI who made at least two visits, with a four-week interval, in the cooperating school for classroom observation.

The other five participants (Arvin, James, Gela, Ben, and Albern) took their practicum course for one semester and spent about 18 weeks of student teaching in their institution's laboratory school. Arvin and Gela taught junior high school students and were individually assigned to a supervising teacher. On the other hand, James, Ben, and Albern taught Grade 6 classes and were assigned to a common supervising teacher. They were assigned to the same teacher due to the limited number of available teachers who were qualified to supervise student teachers at the time the study was conducted. The English department in the practicum school purposefully assigned supervising teachers selected on the basis of their teaching experience and other qualifications. These supervising teachers had responsibilities similar to those of the cooperating teachers in the earlier mentioned public high schools. They mentored and guided the pre-service teachers in their practicum experience. A teacher educator from their TEI served as the student teaching coordinator whose tasks were similar to those of a practicum supervisor. Apart from observing classes taught by student teachers in the laboratory school, the coordinator also met with the pre-service teachers once a week to monitor their performance and address practicum concerns. This weekly meeting was part of a seminar course that the pre-service teachers took concurrently with practicum. The course was intended for the integration of learning into the degree program.

Instruments

Two research instruments were utilized to document the relevant practicum experiences of the pre-service teachers. First, the researcher-developed Classroom Observation Guide for Stimulated Recall was used to record relevant teaching events and interactions during the conduct of a lesson. Notable observations on instructional delivery included notes on classroom tasks, instructional materials, direct instruction and feedback, teacher-student interaction, student role/participation, and student-student interaction. These aspects of classroom teaching were key to identifying discussion points during stimulated recall. The interviews for stimulated recall prompted the participants to externalize how they put theories into practice and to where they attributed their use of instructional practices. During the stimulated recall, the video-recorded lesson was viewed and paused at significant teaching points noted during the observation. On the other hand, particular portions of audio-recorded lessons were transcribed and read to the participants. Questions were then asked to encourage participants to talk about their actions, thoughts, and feelings during the selected moments in the lesson.

The second instrument was the Semi-Structured Interview Protocol on Pre-Service English Teachers' Perspectives on Teacher Learning which engaged the participants in self-interaction as they drew insights from their experiences and thought processes. The interview questions extracted critical issues and insights through making sense of the lived experiences during practicum. The protocol had three main parts. Part I mined the pre-service teachers' upheld beliefs about English Language Teaching. Part II elicited recall of and reflection on relevant experiences in the practicum, while Part

III focused on pre-service teachers' reflections and realizations about how they learned how to teach.

In addition, the participants' reflective journals were examined to look into similar sensemaking. The weekly journals were written as part of the practicum requirements. In the journal entries, participants described relevant school experiences and/or wrote about realizations and insights not just on teaching and learning but also on themselves.

Data Gathering Procedure

This study engaged in naturalistic qualitative methods which involved direct interaction with the participants through classroom observation, stimulated recall, and semi-structured interview. Weekly reflective journals of the participants during the practicum were also collected and analyzed. These methods were used to describe teacher learning as pre-service English teachers made sense of their learning experiences. Data collection was conducted in an actual practicum school setting to give focus on participants' realities. The objective was to reflect both their introspective thought processes and observable actions to identify specific aspects of teacher learning.

Classroom observations were conducted in the practicum setting. All the participants signed a consent form allowing the researcher to gather data through recorded classroom observation with a follow-up stimulated recall. Consent from the practicum school was also secured. The practicum school that did not give permission to video record lessons allowed audio recording. Relevant portions of the recording were transcribed for stimulated recall.

Each of the 10 pre-service English teachers was observed twice with a gap period of two to three weeks. A total of 20 lessons were observed. Stimulated recall interviews were done within 48 hours after the classroom observation. Teaching events noted during the observations were viewed or read by the researcher and the participant during stimulated recall. These teaching events involved relevant interactions in the classroom. For the video-recorded lessons, the recording was paused at the pre-identified points to discuss what the pre-service teacher was doing, thinking, or feeling. Instructional decisions made prior to and while doing the lesson were also discussed. For the audio-recorded lessons, the researcher and the participant went through transcribed portions of the lesson together. These stimulated recall interviews were audio-recorded and lasted from 6 to 20 minutes.

Semi-structured interviews with the participants were also conducted. The researcher sought the participants' consent by first discussing the objectives of the study. It was made clear that the classroom observations, stimulated recall, and interviews were done for research purposes and were not part of the graded requirements. The interviews engaged the participants in self-interaction by reflecting

on past and contemporary experiences. The participants were encouraged to make sense of relevant experiences that contributed to their learning how to teach. Five of the participants were interviewed at the end of the term after the completion of their practicum. The other five were interviewed after the second classroom observation by which time they had already been doing practicum for three months.

Reflective journals were also collected for document analysis. These journals were written by the pre-service teachers as part of their requirements in the practicum. The participants emailed a soft copy and/or scanned copy of their journal entries for the weeks when classroom observation was conducted.

Data Analysis

The study utilized typological analysis in examining data. "Typological strategies are generated from theory, common sense, and/or research objectives, and initial data processing happens within those typological groupings" (Hatch, 2002, p. 152). This type of qualitative analysis works for both interview data and document analysis given that the research objective clearly identified actors and social contexts. The steps in the typological analysis of qualitative data outlined by Hatch (2002) were adapted. The process began by identifying a typology and its sub-categories which were anchored to the research question.

The identified typology was Teacher Learning. Three sub-categories were determined based on sociocultural perspectives on teacher learning which was viewed as mediation and could be described through human mediation, mediation tools, and mediation space. Data were then read multiple times and coded using the identified sub-categories. Summary sheets for each participant were prepared for each data source: stimulated recall, semi-structured interview, and reflective journals. Similarities, differences, frequency, and causations were examined in finding patterns in the summary statements. These patterns of relationships led to themes that were used to re-examine the raw data. This entailed another round of analysis and coding to look for evidence that supported the identified themes. The process ended with the drawing of conclusions and writing of brief generalizations.

Results and Discussion

The pre-service English teachers' practicum experiences reflected how teacher learning was enabled through human mediation, the use of particular symbolic tools, and adapting to the mediation space. First, human mediation through relevant interactions with cooperating teachers supported teacher learning. However, tensions related to these interactions were also noted. Second, pre-service teachers identified symbolic mediation tools that informed their instructional decisions. These tools involved beliefs on language and language learning based on received knowledge and their own learning experience. Finally, the practicum context as a mediation space presented challenges that prompted the pre-service teachers to reflect on their experiences and explore ways to adapt to uncomfortable teaching-learning situations. These describe teacher learning which points

to implications for how pre-service teachers can be prepared for the unpredictable realities in the classroom.

Teacher Learning and Human Mediation Through Cooperating Teachers

Human mediation refers to the pre-service teachers' interactions with individuals and/or groups within the context of their learning. In the practicum context, the cooperating teachers proved to have supported teacher learning. The participants claimed to have learned teaching strategies from their cooperating teachers. They found it practicable to mirror what they perceived as their cooperating teachers' good practices in the classroom. They were also receptive to their cooperating teachers' feedback and suggestions. Supportive relationships were established through the encouraging and reassuring guidance of the cooperating teachers.

The support provided by cooperating teachers was evident in redirecting instructional planning. Gela, one of the pre-service teachers, taught comparing and contrasting to a Grade 8 class. She highlighted the grammatical forms using sentences about important events in Philippine history. It was noticeable in her discussion that, apart from questions on the grammar form, she also asked a number of questions on the students' opinions about historical events. During the stimulated recall, Gela shared that she got it from the modeling of her cooperating teacher who asked opinion-based and affective questions in both literature and grammar lessons. She further explained:

> [Sir (Cooperating Teacher) always comments about that (asking questions on themes). I was used to covering the technicalities of grammar because that is the only training we have. So, when it comes to (teaching) literature, the questions I ask are all technical. Then he (Cooperating Teacher) said add affective questions. That is how discussion in his classes flow, always opinions-based. Even in grammar lessons, he would ask questions about content (lesson theme). Actually, his specific comment to (sic) my lesson plan is that I was focused on comparison contrast that I forgot to focus on the content itself because those topics are relevant to them (students). You have to know where they stand to clarify certain beliefs that they have.]

Gela viewed her cooperating teacher's practice as a model and adopted it in her own practice. The cooperating teacher's suggestion was evident in his own practice. What he prescribed was justified by showing how workable it was in his class. This characterized his mediation in Gela's teacher learning. These interactions showed how in-service teachers were considered sources of model practices which pre-service teachers tended to imitate. This apprenticeship character of human mediation resonates macro-scaffolding conventions where teacher-mentors model or demonstrate an approach or activity which they want teacher-learners to do in their classes (Engin, 2014). The cooperating teachers scaffolded teacher learning not only by showing model practices but also by providing a rationale behind the practice. Their feedback made more sense to the pre-service

teachers since it was provided in the context of actual classroom experiences. These scaffolds contributed to how teacher-learners made sense of the strategies modelled and recommended by their cooperating teachers.

The cooperating teachers' support to teacher learning was not limited to providing suggestions on instructional practices. Pre-service teachers also shared how their cooperating teachers helped them in adjusting to the practicum environment. Stacey, who taught Grade 7 classes, admitted to being nervous during the first few days of her practicum. She was worried about establishing relationships with the teachers in the English Department. In the interview, she shared what worried her:

> Because they know so much more than I do. Obviously, I don't have anyone who is the same age as me. So, I was always so quiet that they thought I was timid. My heart was already raging, speak, speak. But it took only a few days to say "Ok, I'm ready for this" because my CT was very kind and cooperative and then she gave me a list of the things that I should do—her expectation. So, I actually knew where to go by that time. I still have the list.

Stacey quickly became comfortable with the other in-service teachers after overcoming the initial anxieties of being the only pre-service teacher in the English department. This was possible with the assistance from her cooperating teacher who specified her role in the school by giving her a list of duties and responsibilities. Evidently, the transition from course work to the practicum can be overwhelming; thus, emotional support from the cooperating teachers could help. This emotional support is a form of human mediation which goes beyond providing input on language teaching concepts. Affective factors in social interactions can support teacher learning. Addressing teacher-learners' emotional struggles is important to make the interaction between mentor and trainee more co-constructive (Yagata, 2017). Likewise, a "supportive" relationship is valuable in guiding teacher-learners' concept development (Childs, 2011).

The pre-service teachers generally described a supportive relationship with their cooperating teachers; however, this was not always the case. Among the participants, Ice was particularly consistent in sharing her struggles with her cooperating teacher. She admitted in one of her stimulated recall interviews that her confidence during practicum was "getting low." She explained that "…during practicum my confidence is getting low…. I wasn't able to hit my objective for the day and I get mostly improvement comments and suggestions from my CT (Cooperating Teacher)."

Ice detailed one instance where she admitted to taking her cooperating teacher's suggestions though she disagreed with them. In her observed lesson, she did a vocabulary exercise as suggested. Ice thought doing the vocabulary activity was not necessary and only consumed some class time. However, since she had been receiving criticism from her cooperating teacher, she had to follow her cooperating teacher's directive. This need to please the cooperating teacher may be attributed to the fact

that she is the one who gives the final rating for the pre-service teachers' practicum performance. The power dynamics in the established roles as mentor and student-teacher become evident. Though it was only Ice, among the participants, who shared struggles with her cooperating teacher, the tensions she described were realistic and relatable. This also affirms how a supportive relationship with the cooperating teacher evidently supports while tensions constrain learning. In a similar vein, sociocultural perspectives in SLTE recognize the value of dialogic interactions to support learning to teach language. Moreover, supportive human mediation contributes to developing one's teacher identity and own theory of pedagogy.

Teacher Learning Through Use of Mediation Tools for Teaching

Sociocultural perspectives claim that teacher learning is mediated by tools which can be physical or symbolic. Physical tools refer to concrete materials utilized in learning and practice while symbolic tools are the abstract tools used in the mediation process such as beliefs about language, language learning, and teaching.

One evident symbolic tool used by the pre-service teachers was their conceptual understanding of grammar concepts which informed how grammatical structures were explained to students. This was evident in Carla's Grade 8 lesson on transforming direct to indirect speech. Her discussion focused on pronouns and verb forms. In the stimulated recall interview, she shared that she believed it was important to highlight those structures as they were important in sentence transformation exercises. However, after going through the lesson, her students did not perform well in the exercise. Having realized that her students found it difficult to construct their own sentences, Carla thought that she could do better with contextualized sample sentences. She noted that "it is better to contextualize examples. You have a scene or situation, like a conversation, so they (students) can put themselves in the situation of the one reporting direct speech."

Carla's experience prompted her to take control of a symbolic tool- her understanding of direct and indirect speech. Her initial focus on the grammar forms was mediated by the fact that her learners failed to understand the lesson. This prompted her to look into the meaning and use of the target grammar forms to improve her presentation. The received knowledge on direct and indirect speech was appropriated to the context of experience. This reflects linking received and experiential knowledge. In the same way, related studies reported how concept development emerges through authentic learning experiences that directly connect concepts to contexts (Batchelor, 2012; Griffith et al., 2016; Hermann, 2015; Ramanayake & Williams, 2017). Contextualized application of content understanding supports teacher learning. Accordingly, this informs teacher preparation that emphasizes the inherent interconnectedness of content, pedagogy, and context.

Another symbolic tool that the pre-service teachers utilized was their understanding of language learning. Language learning beliefs were considered in the lesson

presentation. This was evident in eliciting target grammar forms from students. An example was how James used his knowledge about language learning in his inductive presentation of the different classifications of nouns. To elicit examples of count and mass nouns from his Grade 6 students, he first asked them to count chairs and strands of hair and then determine the difference between objects that could and could not be counted. After distinguishing the different examples from each other, he asked the students to come up with definitions for each noun classification. During the stimulated recall, James was asked why he did not immediately present the grammar terms and slowly elicited them from the students instead. James shared:

> I feel like learning is best if students are able to understand rules on their own. So that, for example, when they see nouns while reading a book or reading a piece of literature or maybe the news, they know what kind of noun it is because they understand in themselves what the rule is, instead of just telling them that "Oh, you need to look for nouns with capital letters and that's a proper noun." If they know how to make rules on their own, they will be able to understand concepts better.

Expressing what he "felt" was "best" reflected James' belief in language learning. He believed that inferring the meaning of each noun classification could provide a better understanding of the grammar form. He further explained that this could eventually help students transfer their understanding to authentic language experiences like reading literature or the news. Upheld beliefs are symbolic tools that readily inform practice, and the pre-service teachers brought these beliefs with them. Beliefs in language learning guided decisions on what to attend to in presenting the concepts in the English class. These beliefs stressed that language learning should be made meaningful for students. Hence, the pre-service teachers' beliefs made more sense when these were situated in the context of practice. This also reflects that teacher learning involves reconceptualizing practice in classroom instruction.

Apart from considering beliefs on language learning, the pre-service teachers also drew from their own experiences as language learners. They chose particular activities that helped them learn a language with the idea that it would also have the same effect on their students. For example, when Ice did a Grade 8 lesson on subject-verb agreement, she repeatedly mentioned the rules. Her tasks primarily focused on remembering the statements on subject-verb agreement rules. During the stimulated recall, she explained that she had students recite and remember the rules. She explained, "Because of my personal experience when I was in high school, up until now, I still know the rules, the 21 rules my teacher taught me. And I think I want them to do the same way." This illustrates how the pre-service teachers' experiences as learners informed their teaching practice. These learning experiences served as mediation tools in learning how to teach. The pre-service teachers capitalized on their past experiences as learners. Given their limited pedagogical knowledge and lack of teaching experience, drawing from their own language learning proved to be useful. Therefore, if prior learning experiences are a knowledge source that informs practice,

externalizing learning histories and how these influence teaching practices are viewed as viable to support teacher learning.

Teacher Learning in a Challenging Mediation Space

Mediation spaces make up another construct that contributes to teacher learning. These spaces are complex environments that can present tensions between upheld beliefs and realities. It is important to determine the context of these learning environments that can also afford opportunities for strategic mediation. The practicum school as a mediation space presented notable challenges to the pre-service teachers. The concerns are particularly on the physical environment and students' language abilities.

First, the pre-service teachers dealt with limitations in the physical environment including physical layout, teaching equipment, and even students' noise. Second, learner factors, particularly learners' language abilities, appeared overwhelming. Students' limited English proficiency and engagement in the lessons became a constant challenge for the teacher-learners. Dealing with these challenges required them to make adjustments. Describing these adjustments reflected how the difficulties presented learning opportunities. Teacher learning involved recognizing difficulties and trying out ways to address those difficulties. Doing so entailed modifying instructional materials and classroom activities, reflecting on teacher roles, and examining the workability of prescribed practices.

Challenges in Physical Environment and Classroom Management

One of the recurring challenges faced by the pre-service teachers concerned the limitations of the physical environment in the practicum school. Carla, who did her practicum in an urban public school, mentioned in the interview that one of her difficulties was her classroom which was located next to the canteen. Apart from the noise coming from the outside, the classroom was dark, and the armchairs needed repair. She admitted that the classroom affected her motivation to teach. She also understood why many of her students were distracted, making it difficult for her to catch and keep their attention. She noted that engaging students was her constant struggle. Likewise, Monica shared her difficulty concerning her classroom. There was limited equipment available for technology-based materials, and the armchairs needed fixing. There were also a big number of students in one classroom. Monica dealt with these by making adjustments to her activities. For example, instead of having her students copy lectures from the blackboard, she distributed printed handouts or sent soft copies of those handouts to her students. She also made an effort to make her traditional visual aids more appealing to make up for the lack of technology use in her classroom.

Another common difficulty for the pre-service teachers was handling students' noise. Stacey, who taught Grade 7, admitted that this was the most challenging issue for her.

She said that calling attention of and sometimes reprimanding students consumed a lot of her class time. Handling students' noise was also a concern of Arvin. He had to rely on his disciplinary skills and patience which he admitted were challenged by the situation. Difficulty in classroom management also prompted the teacher-learners to reflect on how they approached the challenges they met. For instance, Ben, who taught Grade 6, shared concerns and adjustments in her reflection log:

> Classroom management has always been my weakness, partly because I don't like imposing authority right away on students but mostly because I want them to like me. But after spending more time with my students, I am starting to realize that it is now necessary to remind them of where they stand. Sure, I can still joke around with them and listen to their stories, but when they begin to disrupt the lesson is where I will draw the line.

Addressing her problem with students' noise prompted Ben to reflect on her role as a teacher. She was then able to make adjustments on how to deal with her students. It appeared that the pre-service teachers valued establishing a good connection with their students, and this made discipline and classroom management issues complicated. However, having to deal with the problem of students' noise allowed the pre-service teachers to reflect on themselves and learn more about patience and teacher roles.

In addition to handling discipline issues, another difficulty relating to classroom management concerns facilitating activities. The pre-service teachers admitted that managing group work was particularly challenging. Challenges in managing classroom activities prompted them to make prior and in-the-moment instructional decisions to manage their classes better. The problem in classroom management was also noted in studies that examined practicum challenges of pre-service teachers (Abas, 2016; Gan, 2013). This may be attributed to lack of experience and limited exposure to real classroom situations. Addressing difficulties in classroom management made the practicum schools a mediation space where conditions and social interactions presented tension. Since such problematic situations prompted the pre-service teachers to think of solutions, the mediation space afforded learning opportunities.

Challenges with Learners' Language Proficiency

Another challenge posed by the practicum context relates to students' limited knowledge about English and limited proficiency in the language. When asked about the challenges encountered during practicum, Ira shared:

> It all falls under the prior knowledge of students. The moment I transferred from (Name of Laboratory School) to (Name of Practicum School), I have noticed that this set of students are not really prepared for the higher level… and I assumed that "Oh they're already Grade 8. They know this." They already know what a verb is. But then, when I ask them what a verb is, they don't

> know the answer. So, I couldn't proceed to my lesson because I have first to discuss what a verb is, what are tenses, before I move into our topic, the topic that is assigned for the day.

Gela, who taught in a laboratory school, described a similar challenge as she found it difficult to elicit responses from her students. She noticed that the same students recited, so she sometimes just provided the answers to her questions so that they could move forward with the lesson. Moreover, she lamented that her students were slow in doing the tasks which prompted her to make adjustments in her lesson. These concerns from the pre-service teachers show how learning how to teach requires making constant adjustments to respond to the demands of different and challenging teaching-learning situations.

Therefore, the practicum school as a mediation space made teacher learning possible because of the challenges it presented. It prompted the pre-service teachers to make necessary adjustments to address their concerns about the limitations of their classrooms and the abilities of their students. First, limitations in the classrooms in terms of space and available equipment prompted adjustments. The pre-service teachers modified the format of activities to accommodate the number of learners and address their concomitant classroom management problems. They also came up with alternatives by drawing from their knowledge of designing activities. Second, the relatively low English proficiency and limited engagement of students led to realizing the importance of knowing the learners and their abilities. The adjustments made showed how the challenging mediation space made learning possible. However, the unpredictability and the discomfort in teaching situations are realities of practice. Despite these being realities, the pre-service teachers were still stupefied to encounter them during practicum. Though the difficulties allowed making adjustments and afforded learning in the process, they reflect certain gaps that teacher preparation can address.

Insights on Teacher Learning and Implications for Preparation of Pre-Service English Teachers

The pre-service teachers' recall of and reflection on their practicum experiences revealed relevant interactions and realizations that described teacher learning. Human mediation from cooperating/supervising teachers was characterized by feedback that guided the pre-service teachers' instructional decisions and reassuring support that addressed emotional concerns. The participants' use of symbolic mediation tools, such as conceptual understanding and beliefs about learning, was evident in their observed teaching practices. The practicum school as a mediation space presented challenges given the unpredictability of the classroom experience. These insights point to the value of recognizing an understanding of teacher learning in relation to contextual factors in the educational settings where the practice is situated.

Explicit integration of sensemaking in teacher learning and understanding the context of practice should be embedded in teacher preparation. First, pre-service teachers' beliefs and received knowledge should be looked into not only to examine how they inform teaching but also to address probable misconceptions. Given the lack of teaching experience, it becomes plausible that pre-service teachers' understanding of learning theories may be purely theoretical, and earlier experiences on language learning may be relative. Therefore, theories and concepts should be tackled in the context of real-life teaching-learning situations. Teacher-learners should also be guided in externalizing their own beliefs. These strategies can stimulate making sense of received knowledge by providing opportunities to clarify misinterpretations and problematize the application of abstract concepts in content and pedagogy.

Second, the consideration of the context of teaching should always be explicitly integrated with teacher preparation. The challenges in the practicum setting enabled teacher learning. The problematic situations prompted the pre-service teachers to modify what they learned during coursework and improvise. This demonstrates that theoretical and procedural concepts make better sense if contextualized. Therefore, teacher preparation needs to be more connected to the realities of the teaching-learning environment. This entails a problem-posing approach so that pre-service teachers may be guided in anticipating and reflecting on realities of practice that are often unpredictable and unsettling.

The insights on teacher learning drawn from this study primarily banked on pre-service teacher perspectives. The research design is practitioner and context-driven; thus, it is necessary to view the participants' accounts of their experiences as "constructed in particular social and institutional settings and therefore are not neutral but constitutive of these settings" (Johnson, 2009, p. 97). Though context-specific, perspectives capture relevant insights on transformations a teacher-learner undergoes as he/she makes sense of lived experiences. The data also externalize the pre-service teachers' reflective process which can inform how their learning can be supported. The teacher-learners' perspectives also reflected their pertinent knowledge sources which teacher educators can tap to deepen conceptual understanding. A deliberate inquiry into how one learns how to teach can evidently inform practice in SLTE.

Conclusions and Recommendations

Examining pre-service English teachers' practicum experiences showed that teacher learning is a sensemaking process that entails externalizing understanding that informs practice. This implicit aspect of teacher learning is enabled by experience. Recalling and reflecting on practicum experiences revealed the pre-service teachers' upheld beliefs on language teaching and learning, understanding of subject matter content, received knowledge on language teaching strategies, and experiences as language learners. A certain degree of internalization is reflected on how these conceptual knowledge sources informed instructional decisions. SLTE coursework should draw from this

sense-making process to support teacher learning. Pre-service teachers need to be guided in reconceptualizing language teaching concepts by connecting them with their prior beliefs, theoretical knowledge, and past learning experiences. Teacher education programs can explicitly frame approaches to teaching which are informed by teacher-learners' varied ways of knowing.

Further, uncomfortable experiences in complex teaching-learning contexts proved to enable teacher learning. This is made evident by how the pre-service teachers dealt with difficulties met during practicum. Challenges prompted them to examine and consider learner factors and the learning environment. Trying out solutions to problems allowed them to gain an understanding of their roles as teachers. This supports the need to situate language teaching concepts in the unsettling contexts of practice. SLTE programs should actively engage pre-service teachers in learning opportunities that are situated in contexts of practice. This can be done by tackling the applicability of methodology to complex teaching and learning situations. Workability of language teaching strategies should also be problematized during course work to promote an adaptive instead of an imitative application of received knowledge.

In the area of teacher education research, a longitudinal inquiry on teacher learning may be explored. Documenting a pre-service teacher's journey from different stages of teacher preparation can provide insights on relevant aspects of learning how to teach. Taking foundation courses, content courses, methods courses, and the practicum, and eventually transitioning to practice as novice teacher can reflect a comprehensive perspective on the socially- and internally-mediated process of teacher learning. Accordingly, understanding teacher learning can serve as critical input toward teacher preparation for adaptive practitioners.

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Internationalization Towards Fostering a School Culture of Quality: Practices and Perceived Impact

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ABSTRACT

Across the globe, internationalization has influenced the emphasis of educational institutions on international engagement and standardization aligned with global competencies. As Philippine higher education also aimed for internationalization, many universities were tasked to enhance their quality assurance framework by ensuring sound graduate mobility and strong international linkages. With these changes in education, this current study tried to identify existing internationalization practices and their perceived impact in three selected autonomous universities in the country. This study determined how these practices generated an educational paradigm shift toward a culture of quality through internationalization. Employing a qualitative-descriptive approach, structured online interviews were conducted with selected participants (n=14) closely associated with internationalization policies and initiatives in their respective universities. Based on a thematic analysis, the participants identified strategies involving incentivizing and strengthening of international linkages as effective practices for internationalization. Additionally, participants explained how these practices not only enhanced their skills but also enabled them to have international recognition. The findings provided grounding and insights on how to achieve a culture of quality through internationalization.

Keywords: ***internationalization, internationalization practices, culture of quality, higher education, school culture***

Introduction

In ensuring global competitiveness and quality assurance of many educational institutions, the internationalization of higher education has been widely promoted. Internationalization can be understood in two specific processes: 1) the transnational contract between students and teachers, researchers, universities, and states that can be represented in the mobility initiated to engage in international activities that offer new experiences and diverse insights; and 2) the

ability to obtain educational facts, systems of higher quality, and standardization of capabilities (Curaj et al., 2015; de Wit, 2020; Garson, 2016). Furthermore, this process involves incorporating intercultural, global, and international elements into the institution's purposes and traits, research agenda, and transfer of quality learning (Aerden, 2015). It can be a broad collection of intellectual and experiential undertakings designed to promote understanding of the global setting, to collaborate across borders, and to obtain cultural, social, and political systems from other countries. Internationalization, for its intended purpose, is a systematic effort and means of responding to globalization requirements, educational innovation, and continuous development of policies, practices and programs (Alhalwaki & Hamdan, 2019; Lumby & Foskett, 2016; Szyszlo, 2016). It also entails incorporating international dimensions into teaching and learning experiences, extension services, and research agenda. This process provides a potential innovation that may result in the development of new and relevant practices, and policies that adhere to national and global standards (Gao et al., 2015).

In the Philippines, internationalization is anchored in the Commission on Higher Education (CHED) Memorandum No. 55 s. 2016, titled "Policy Framework and Strategies for the Internationalization of Philippine Higher Education Institutions (HEIs)" which was written in compliance with RA 7722, or the "Higher Education Act of 1994," and other government-initiated policies on internationalizing Philippine higher education. In this mandate, universities are tasked to pursue a holistic approach in implementing and integrating strategies on internationalization such as: (1) implementation of enhanced assurance framework; (2) execution of sound mobility and market access; and (3) strengthening of international linkages and partnerships. These internationalization efforts of Philippine higher education are aligned with the ASEAN (Association of Southeast Asian Nations) Qualifications Reference Framework or the AQRF (see Figure 1) which enables the comparisons of educational qualifications among ASEAN member-states (AMS) (ASEAN Secretariat, 2020). This framework aims to improve and promote higher quality of educational qualifications among graduates which then facilitates the mobility of various professionals within ASEAN countries by recognizing eligible qualifications, obtaining experiences, and granting certifications as part of the ASEAN Mutual Recognition Arrangements (MRA) (ASEAN Secretariat, 2020). With this increasing development of internationalization in the Philippines and other ASEAN nations (Madula, 2018), much of the documentation and reports that reflect this development come from figures of foreign tertiary graduates, local and global collaborations, international graduate education institutions, cumulative scholars, ASEAN rankings, and a number of research publications. Having a number of components which represent the movement towards internationalization, it is also important to analyze the influence of this process on the quality of education in the schools.

Figure 1

ASEAN Qualifications Reference Framework

It should be assumed that internationalization is not merely an aim, but a vital means to realize quality. A quality culture connotes a school's culture that promotes meaningful and successful teaching and learning (Yeboah, 2015). The term "school culture of quality" is both an outlook and a belief influencing the whole community and every aspect of the institution on how the school realizes its purpose. A quality culture is one in which all members of a community, not only the top managers and academic leaders, are accountable for ensuring that excellence is maintained. It is composed of philosophy, beliefs, feelings, characters, and shared values that determine how the school works (Yusof et al., 2016). Moreover, a culture of quality in relation to change can potentially impact student achievement (Schoen & Teddlie, 2008). The assessment of realizing a culture of quality in education has to be embedded and linked to various school assurance initiatives and internationalization efforts (de Wit, 2015; Moodley, 2019). Higher educational institutions, which are directed to promote and implement quality strategies for sustainable development (Dziminska et al., 2018), should focus not only on producing economic rationales but also on shaping quality teaching and learning, promoting effective leadership and management, and culture of quality (Yusof et al., 2016).

With the increasing interest in studying internationalization in the country (e.g., Cinches et al., 2017; Rosaroso et al., 2015), this investigation believed that assessing the impact of internationalization practices on a school culture of quality among autonomous universities would help many higher education institutions (HEIs) to innovate and achieve excellence by aligning with international standards. Institutions granted autonomous status by the Commission on Higher Education (CHED) demonstrate exceptional excellence through quality audit systems and program outcomes. Self-governing HEIs also manifest outstanding performance consistent with their institution's objectives and agenda (Margaret & Kavitha, 2018). Promoting and fostering quality culture will require a strengthened contextual investigation of how one perceived and understood a school's culture of quality. With the assumption that the internationalization of HEIs directly affects and upholds quality systems of instructional and learning processes, and of leadership and management, this study identified internationalization practices that allowed institutions to realize this culture of quality. The study also established contributory results and insights that further expanded the understanding of the implications of internationalization of HEIs. Moreover, the study's in-depth analysis aimed at providing a basis for a paradigm shift toward the adoption and implementation of internationalization for the fostering of a culture of quality and achievement of international standards.

Around the globe, many countries have integrated internationalization practices and policies in their HEIs. The Netherlands, for example, invested in its internationalization process of teaching and research through its Dutch Universities of Applied Sciences (UAS). UAS considered internationalization of education to increase the value of quality in education and research which enhances students' socialization and personality development (Vereniging Hogescholen & VSNU, 2018). As a result, this direction toward internationalization of education has turned out to be a key aspect of policy discussions related to realizing the requirements of the labor market and to increasing innovation capacity (Matei et al., 2015). For other European countries, the process of internationalization and development in HEIs (e.g., student mobility and other cross-border initiatives) resulted from the Bologna Process. The Bologna Process is an attempt for HEIs in Europe to structure and systematize their educational component to be more organized, compatible, and competitive for many European citizens and scholars around the globe (Morosini et al., 2017). Additionally, through the European Action Scheme for the Mobility of University Students (ERASMUS), there have been approximately millions of international students that have studied in many European universities and received firsthand learning experiences about European cultures and values (Kaleja & Egetenmeyer, 2017; Morosini et al., 2017). Internationalization of European HEIs has allowed international and intercultural teaching, learning, and research (Aerden, 2017).

In Australia, internationalization of education became a commercial enterprise that focused on increasing international scholars as a source of revenue (Sá & Sabzalieva, 2018). The country recognized the financial motivations of global students which helped

Australian academic institutions develop practices and policies. Internationalization efforts were successful in terms of recruiting students around the world, giving support for these students, providing international opportunities for domestic students, and continuously improving internationalization at home. Internationalizing curriculum provided possibilities for the development of discipline-specific programs which led to greater academic legitimacy. According to Adams et al. (2012, as cited in Sá & Sabzalieva, 2018), Australia recognized student recruitment and mobility as key features of their economy and expenditure towards a more coordinated internationalization principle. Canada's long-term goal and principle on internationalization, meanwhile, were closely related to their educational quality assurance (Anderson, 2015; Guo & Guo, 2017). In Canada, policies for securing international scholars as possible permanent residents have been initiated to increase Canadian universities' profile which can produce possible linkages to other countries and generate possible income revenue. In Kenya, internationalization principles focused on faculty development, international quality programs, faculty and student exchange, and joint research projects (Mukhwana et al., 2017). Information Communication Technology has been associated with Kenya's success in internationalization.

In Asia, the ASEAN University Network (AUN) was developed to strengthen the existing linkages of support among leading universities and colleges in Southeast Asia. Primary principles of internationalization among ASEAN countries are related to student exchange, readiness and innovation, institutional mobility program, and research collaborations. ASEAN countries, such as Brunei, Indonesia, Malaysia and Thailand, emphasized their educational institutions that produce high-performing graduates with international capabilities (Madula, 2018; Songkaeo & Yeong, 2016). Singapore, as a standard in achieving international objectives as it is ahead of other ASEAN countries, focused on honing and strengthening abilities in ways to generate linkages and collaborations with recognized universities and colleges abroad (Songkeo & Yeong, 2016). With Singapore's support, Vietnam and Malaysia have also built a substantial international education which increased their market labor and strategies by recruiting brilliant scholars and highly-recognized faculty across their regions into their universities and colleges (Killingley & Llieva, 2015; Nguyen et al., 2016). In other Asian regions, Japan's and Taiwan's objectives include refining the overall quality of all their HEIs which involved improving their ranking in the global market and enhancing students' international knowledge and skills, with focus on recruiting foreign students and scholars (Ho et al., 2015). Furthermore, internationalization in countries under the Gulf Cooperation Council (GCC), such as Bahrain, Saudi Arabia, and UAE, provided remunerations for educational knowledge and values through global exposure, transmission of expertise, and creation of universally proficient professionals which led to an emerging manpower for economic rationale (Alsharari, 2018; Vardhan, 2015).

With the increasing internationalization efforts among HEIs, it is important that there is an assessment embedded and linked to realizing the culture of quality in education (de Wit, 2015; Moodley, 2019). HEIs, which primarily implement quality

strategies for sustainable development (Dzimińska et al, 2018), should not only focus on economic development but also promote educational development that aims to achieve a culture of quality in teaching, learning, leadership, and management (Yusof et al., 2016). Even with this apparent significance, there has been limited work that supports the influence of quality international initiatives on the school's culture of quality. In the study of Lewis et al. (2016), it was revealed how a culture of quality highly influenced organizational productivity and individual efficiency. The study uncovered how the school culture impacted academic and instructional leaders that promoted creative thinking and academic achievement. Moreover, Brockerhoff and colleagues (2016) posited how establishing a culture of quality could lead to a higher quality of teaching and meaningful learning engagement. It was found that academic staff were highly engaged in integrating teaching achievements and that leaders did have a higher tendency in implementing innovative changes in institutions that implemented a culture of quality work. Through internationalization efforts and the implementation of a culture of quality, it is not only academic leaders and staff who benefit from this but also students. The abilities of students are developed academically, socially, and emotionally because of these school initiatives. As the experiences of students broadened, their values, relationships, studying practices, and personal objectives have also improved and deepened (Darling-Hammond & Cook-Harvey, 2018; Kane et al., 2016).

To understand school culture of quality indicators there have been investigations that tried to assess various factors that might be of critical importance in the development of quality culture. For Yeboah (2015), there is a solid association between the school's characteristics and background, and its performance in creating a culture of quality. It is to be presumed that effective schools feature good interpersonal relationships, teamwork, and great participation among stakeholders in decision-making. Thus, the quality culture of schools must consider the teaching-learning process, students' behavior and performance, teachers' development and participation, management decisions and leadership, and attainment of the school's objectives and purposes. For Hall and Hord (2015), a culture of quality can be assessed through the following practices: personal mastery (i.e., individual vision applied through participation), team learning (i.e., collaborative decision-making), and sharing and working on the common vision. On the other hand, for Brockerhoff and colleagues (2016), quality culture is said to be affected by perceptions, values, and beliefs of individuals, and their motivational factors. In summary, a culture of quality gives meaning to the educational core objectives, the teaching-learning process, the school's achievements, innovativeness, effectiveness, and continuous improvement.

Based on the aforementioned discussion, it is vital for HEIs to deliver this type of learning environment to provide and maximize their stakeholders' (i.e., students and teachers) skills and abilities. This study believes that understanding the impact of internationalization practices on the school culture of quality among autonomous universities will help new and promising HEIs to innovate and achieve excellence and be at par with international standards.

The study anchored its analysis on the impact of internationalization on quality culture to Hofstede's Multi Focus model (1998, as cited in Warter, 2019). The model consists of dimensions aimed at helping organizations to become more successful in effectively improving and continuously ensuring a detailed culture of quality in the organization. In context, organizational culture is defined as the way individuals interact with and share information with one another as well as their work experiences both inside and outside the organization (Warter, 2019). The model provides an overview of the six dimensions of organizational culture: 1) Means-oriented vs. Goal-oriented (i.e., reflects on organizational effectiveness); 2) Internally- vs. Externally-driven (i.e., customer satisfaction, students in the case of the study); 3) Easygoing work discipline vs. Strict work discipline (i.e., amount of internal structuring, control, and discipline); 4) Local vs. Professional (i.e., identity of the employees); 5) Open system vs. Closed system (i.e., accessibility of the organization); and 6) Employee-oriented vs. Work-oriented (i.e., management philosophy) (Bhatt, 2020). In the study, the model enabled the analysis of the degree to which universities' and colleges' internationalization policies were implemented and employed to influence the delivery of the overall school culture of quality. By adapting the dimensions of the model in understanding the organizational culture of universities in integrating internationalization, the study identified meaningful instructional delivery and effective school governance that established the culture of quality. It is important to understand that, when quality culture is emphasized in education, it becomes imperative and necessary to develop a receptive internationalization strategic design that acknowledges the present organizational culture and stakeholders of the school community. Further, quality culture will be a significant result when internationalization approaches are greatly accomplished and realized (Dzimińska et al., 2018).

The study aimed to answer the following questions:

1. What are the internationalization practices implemented in the selected universities that helped in realizing and achieving the institution's culture of quality?
2. How do these internationalization practices impact the realization of a culture of quality?
3. How do these internationalization practices inform educational paradigm shifts towards a culture of quality?

Research Methods

Design

Following an interpretivist paradigm, the study employed a qualitative-descriptive approach. This provided an in-depth analysis and understanding of the impact of internationalization on the attainment of a culture of quality. The purpose of the descriptive study was to holistically examine any occurrence of internationalization and its features as experienced by the school community. This qualitative design allowed

a holistic approach with flexible guidelines for personal views and perceptions of the participants.

Participants

The research study was conducted in three autonomous universities in the National Capital Region (NCR). From these universities, the participants (n=14) who were selected in the interview process were four (4) administrators, four (4) faculty members, and six (6) students who were directly involved and had participated in internationalization initiatives and quality assurance programs of the institution. The basic criteria for determining the administrator-participants were 1) they should have been in the institution for 5 years or above, and 2) must have handled a significant position related to internationalization efforts and accreditation of the institution. While for faculty and students, the criteria were 1) participation in an internationalization effort and quality assurance initiative, and 2) three-year residency or working experience. The administrators interviewed in the study were a Quality Assurance Director (Admin1), an Associate Dean for Student Formation (Admin2), a Director for Communications (Admin3), and an Executive Director of International Student Affairs (ISA) Office (Admin4). The faculty members in the study participated in internationalization projects of their respective institutions such as academic participation in research conferences (Faculty1, Faculty2) and industry training (Faculty3, Faculty4). On the other hand, all the students in the study joined student internships and on-the-job training abroad (Student1, Student2, Student3, Student4, Student5, Student6). They were purposively identified using the sampling criteria. Participants were enlisted because they met the pre-selected criteria related to the research objectives and were available at the time of the study. To protect the participants' identities, each of them was given a pseudonym. All participants gave their informed consent to take part in the research.

Procedures and Instruments

The qualitative-descriptive method involved naturally-occurring data, including perspectives and opinions, that were difficult to be manipulated and would require deeper understanding (Nassaji, 2015). Following this method, a structured interview using open-ended guided questionnaires was conducted (see Figure 2). Computer-assisted structured interviews (e.g., use of Google forms) were used as a technique to collect information. According to Creswell (2013), this data collection procedure achieves a better rate of response to sensitive and important queries than other techniques would have. Structured online interview is more cost and time efficient and affords participants personal time and space flexibility that allows clearly thought-out responses. The questions were derived from Hofstede's Multi-Focus Model on Organizational Culture which guided the analysis to see clearer details of the impact of internationalization strategies on a culture of quality.

Figure 2

Interview Guide

a. How do students and employees relate and participate in internationalization practices in terms of home-based and cross border engagements?

b. How do students and employees relate and participate in the university's culture of teaching and learning, and leadership and management?

c. How ready is the university for change (internationalization of education vis-à-vis culture of quality)?

d. What is the actual way of working (the implementation of internationalization practices) and the desired way of working (institution's objectives) aligned with the optimal culture (culture of quality in terms of teaching and learning, and leadership and management)?

e. How well does management use its practices to set an example (strengths in implementing internationalization of education in terms of home-based engagements and cross-border initiatives)?

f. How do indirect change initiatives assist in ensuring a better fit between the actual way of working and optimal way of working (impact of internationalization practices to realizing culture of quality)?

Prior to the data collection, several approvals were acquired from CHED, the Private Education Assistance Committee (PEAC), and the management of the chosen schools to ensure the ethicality of the study. Participants were emailed the interview tool in the form of a Google Form where informed consent was presented in the first section of the tool, followed by the open-ended questions derived from the research objectives. The collected answers in the extracted Excel file were transferred to paper, separating the participants' feedback. Responses were analyzed, reduced thematically, and the essence was uncovered using themes. Data were securely kept by the researchers by ensuring that only they can have access to these unless the participants requested their own data.

Analysis

Grounded in the qualitative-descriptive approach, thematic analysis was employed in the study. This was used to have an in-depth analysis and to elucidate themes on the impact of internationalization practices on a school's culture of quality. Thematic analysis, as suggested by Nowell and colleagues (2017), included key phases: a) familiarization with data gathered by storing gathered online interviews in well-organized archives, reading them repeatedly, and highlighting thoughts about potential themes; b) generation of initial codes through coding, reflexive journaling, and audit

trailing of highlighted key thoughts and answers possible for themes; c) search and review of themes by reviewing initial codes, diagramming to make sense of words and code connections, and keeping detailed notes about highlighted concepts; and d) definition and naming of themes, writing of the implications through analysis and coding of audit trail, and thorough review of related literature for possible comparison or negation (Nowell et al., 2017).

Below is the actual response of a participant to the question, "What is the main impact of internationalization of higher education implemented and practiced in your institution's culture of quality, in general?" and the participant's answer:

> "Impact is on the way the school is able to gain a wider perspective resulting from international linkages, and how the school is able to provide a world-class education which allows graduates to enter the world of work, and in their own fields create an impact for the betterment of society and the world, and to help those most in need."

Open Code: The impact of internationalization is how schools gain a wider understanding of international linkages that leads to providing quality education that helps students create their own impact in their chosen fields and the world.

As a general rule in coding, there should be only as few inferences as possible about the meaning of the data to remain as close to the participant's perspective. From the generated codes, a review was done to identify core categories that systematically connected to other codes and validated their similarities and relationships. After label refinements, themes were developed after the coding process where words and phrases that summarized the general message of the categories were used.

Results

Internationalization Practices of Institutions

Based on the interviews and subsequent thematic analysis, four themes emerged as existing internationalization practices of the selected institutions, and these were named the "4Is in Implementing Internationalization Initiatives in Institutions." The 4Is were: (1) Incentivization and subsidization of internationalization initiatives; (2) Involvement and collaboration of students and faculty; (3) Innovation and quality assurance of the university; and (4) Intensified international linkages and networks. The findings represented the perspectives and opinions of school administrators, faculty members, and students regarding the university practices of internationalization. To summarize, Table 1 presents the themes from the gathered qualitative data of the study.

Table 1

Themes that Represent the Best Internationalization Practices

Category	Themes
"4Is in Implementing Internationalization Initiatives in the Institutions"	1. Incentivization and subsidization of internationalization initiatives 2. Involvement and collaboration of students and faculty 3. Innovation and quality assurance of the university 4. Intensified international linkages and networks

Incentivization and Subsidization of Internationalization Initiatives

In line with the literature, one effective practice among the selected institutions was the institutional support in providing financial resources in implementing internationalization initiatives. This claim is emphasized by the literature on internationalization of higher education (e.g., Tanhuenco-Nepomuceno, 2019). Based on the insights of the participants, the process of incentivization and subsidization of these initiatives could be observed through the funding of both faculty and student participation in international academic or non-academic events such as research conferences and work internships. For these universities, these initiatives were aligned with their Philosophy, Vision, and Mission (PVM) in improving their international reach and linkages. Admin1 discussed how these initiatives were partly anchored in their university's internationalization framework. She also mentioned how internationalization practices could be observed through students' international on-the-job programs. She explained:

> "The university subsidizes participation of employees and students to international events, seminars, conferences, and research. The university provides an internationalization framework as stated in the university's PVM. Students were engaged in OJT programs abroad."

Another administrator agreed to this type of effort in strengthening internationalization. Admin4 discussed internationalization efforts that could also be seen in the participation in international research conferences and study trips of both faculty members and students. Through university subsidies, he explained how faculty development and student workshops could also be performed by international partner institutions in the United Kingdom (UK). He stated:

> "Internationalization efforts include hosting the recent International Research Conference on the UN SDGs and the 4th Industrial Revolution, student experiences like international study trips and collaboration with peer student organizations in partner institutions. Cross border initiatives include faculty training by international partner institutions, seminars, lectures, and workshops led by UK faculty for PH students, and cross-border research collaboration."

The accounts from the administrators from different universities reflect how important allocation of resources and funding is in strengthening internationalization practices. These resources help not only the research engagements of faculty members but also the overall student learning experiences that can only occur through international work exposure.

To supplement the perspectives of school administrators, insights and experiences of faculty members were also elicited as evidence for this practice. Faculty1 shared how she and her students experienced university-funded international travel as part of their student training. She said:

> "The University provides hotel and accommodation with travel allowance. The University also helps in acquiring visas by giving endorsements."

Based on this account, faculty members were able to participate in various international events, most likely to be research conferences, through various internationalization initiatives of the university. Students were also able to acquire learning experiences abroad through subsidies that were anchored in the internationalization framework of these universities. Student2, a university alumna who currently was engaged in community development projects at the time of the research, shared how she got to experience her internship abroad because of these initiatives. She also mentioned how her teachers conceptualized practices of internationalization. She expounded:

> "We were able to do student internships abroad and also receive interns from other countries. The university coordinated the whole experience and curriculum. The teachers are also trained to be able to implement internationalization practices."

Involvement and Collaboration of Students and Faculty

Another practice of the universities in their internationalization efforts was their constant student and faculty involvement. It is noteworthy to remark that successful internationalization of higher education is linked to the creation of practices that engage and empower productive faculty and staff (Kirk et al., 2018). Internationalization practices should manifest collaboration and teamwork among its stakeholders to foster an environment of communal excellence and accountability. Admin1 best described this when she said:

> "Everyone is becoming compassionate and collaborative in the university's engagement towards excellence. Learning becomes effective and everyone becomes aware of their responsibility. It encourages teamwork and effective communication. If there is quality in terms of teaching and learning, and leadership and management that secures (most likely, everyone becomes confident) that the university is gearing towards quality culture (excellence in the system, happy customers, and globally engaged stakeholders)."

She continued that school administrators also elicited recommendations and consensus from the university student body as many of the initiatives generally concerned students, from implementation of curriculum like outcome-based education (OBE) to evaluation of learning activities. This sentiment is seconded by Admin2 when she emphasized the significance of having the participation of employees and students in crafting internationalization policies and activities. She added:

> "Participation of employees in international events helps augment the attainment of quality instruction and the learning process. For students, it enhances their learning by giving them a global perspective."

From the faculty's perspective, Faculty4 shared how her university created programs and activities that involved the whole school community, not only teachers and students but also parents and alumni. These programs involved other stakeholders by allowing them to participate in activities that enriched the internationalized experiences in schools like outreach programs, fundraising, and outside training and workshops. She expounded:

> "We have institutionalized programs, clubs, and activities to address the requests of the stakeholders particularly the students. We have several activities and initiatives that do not only involve teachers and students but the entire school community like outreach, non-teaching staff appreciation, batch events, etc. They involve students, teachers, academic heads, alumni, parents, and many more."

Based on the interviews, it is clear that allowing the participation of other university stakeholders, such as students and faculty members, provides a wider perspective on how to better implement internationalization practices. Through this participation, universities can develop more relevant activities on internationalization that address first-hand issues and needs of their community.

Innovation and Quality Assurance of the University

To further improve internationalization practices, universities also highlight the significance of the constant need for innovation and quality assurance of their programs

and policies. One particular process that universities exercise is participating in various accreditation processes. Recognized as an internationalization strategy, accreditation is an important aspect of creating and maintaining quality assurance among initiatives and policies. Admin1 explained how her university put importance on ensuring their programs were all accredited by a legitimate accrediting body. She mentioned:

> "Accreditation is highly prioritized – as everyone clearly supports the promotion of customer delight. Professional development enables academic leaders and managers to ensure [the] impact on the delivery of meaningful learning. Leaders are all accountable and proactive towards the realization of the university's mission."

The universities were able to participate in various accreditation processes through its quality assurance office. This office became a major part in strengthening internationalization initiatives. Faculty3 explained how her university quality assurance office ensured that their internationalization initiatives were implemented effectively and appropriately implemented by their stakeholders. She expounded:

> "We have a quality assurance office, which provides checklists and timetables to help us navigate any engagement. The university also has its own internationalization office to help it with various internationalization initiatives."

In reviewing internationalization practices, it is imperative to consider the initiatives of universities in pursuing accreditation of their programs and activities. Based on the participant interviews, the process of accreditation ensures the effectiveness of initiatives and evaluates whether these programs consistently promote faculty and student development.

Aside from accreditation, innovation, and quality assurance are reflected in the consistent review and evaluation of the internationalized curriculum of programs of the university. The literature presented how one of the best strategies in internationalizing education is through developing internationalized curriculum, and teaching and learning processes, like the creation of experiential events (Ho et al., 2015; Vaught, 2015). This was explained by Admin1 when she said:

> "As for quality teaching and learning – plans and changes are research-based. Curriculum enrichment is done through curriculum evaluation. Teachers are given training and opportunities toward professional development. As for leadership, academic leaders, supervisors, and managers are fully aware of their duties and functions. Graduate programs are 100% free for them, international activities such as presentations and publication of research are supported, and other professional development opportunities are given to them. Everyone is involved in accreditation and community extension services.

> Deans and academic heads ensure the realization of the program education objectives."

Clearly, consistent curriculum evaluation and enrichment are a commendable practice of innovation and quality assurance that not only improves the internationalization process of the university but also helps in adjusting to educational changes in the next decades to come.

Intensified International Linkages and Networks

Finally, one of the most recommended practices for internationalization is the collaborative internationalization partnership and arrangement with universities across the globe. The literature is clear in presenting how important it is to have international linkages and networks. It posits that having international linkages among universities outside the country enables the facilitation of networks and the promotion of a school's competitiveness (Ziyatdinova et al., 2016). This idea is followed by the universities in the study as explained by Admin3. He said that:

> "The school is most ready for implementing internationalization practices. Networks and international linkages are most extensive, for student and faculty exchange…. There are over a hundred institutions around the globe that we partner with. There are also government agencies, private agencies, and schools within the country which enter into agreements with our university for research collaboration, teacher-training, and offshore offerings of programs."

From the perspective of students, there have been several advantages in having an internationalized community in the university. Student5 expounded how having this type of learning environment helped him develop his skills in communicating and connecting with people from other countries and cultures. He discussed:

> "Well, the main support is that the school itself is an international school. Diplomas and certificates are completely autonomous from the Philippine system, and our school is one of the first and only to offer such courses. In this case, as a student I grew up in an internationalized community, this has allowed me to build and create relationships that have developed into advantageous opportunities for both me and my school. I grew up abroad so I can create connections and communications that build and grow the local and international social sphere."

In accordance with the literature, the participants highlighted the importance of international networks for collaboration and benchmarking to help improve not only the marketing reach of the university but also students' learning experiences, especially those which develop skills for adapting to different people and cultures.

Perceived Impact of Internationalization on the Culture of Quality

On the attainment of a culture of quality, there were three themes that emerged and were highlighted as the 3Es of the perceived impact of internationalization on school culture of quality. These are: (1) Empowerment of university stakeholders; (2) Enhancement of skills and competencies; and (3) Endowment of more international recognition. The highlighted perceived impacts of internationalization are concurrently supported by the literature on internalization (Lewis et al., 2016; Yeboah, 2015). Data revealed that internationalization increased engagement and collaboration among the school and community members. This initiated curriculum transformation and educational innovation and facilitated skills and competency development among students and teachers, thereby improving the institution's reputation and its ranking in the global academic arena (Dzimińska et. al., 2018). These impacts provided organizational effectiveness and competitiveness as one way to measure culture of quality.

To summarize, Table 2 presents the themes from the gathered qualitative data of the study.

Table 2

Themes that Represent the Perceived Impact of Internationalization

Category	Themes
"3Es of the Perceived Impact of Internationalization towards School Culture of Quality"	1. Empowerment of university stakeholders 2. Enhancement of skills and competencies 3. Endowment of more international recognition

Empowerment of University and College Stakeholders

As highlighted by one internationalization practice among universities, the majority of the initiatives allowed the involvement of various institutional stakeholders (e.g., students, teachers, and non-academic staff) in the process of planning, implementing, and evaluating. Through this process, participants determined that this practice hav empowered the members of the school community to decide, process, and support initiatives that concerned the internationalization of the university. Admin1 clearly explained how this practice impacted learners and teachers. She maintained that:

> "Learners and teachers enjoy the teaching and learning experiences. Everyone is reinforced to collaborate, become more productive and become responsible for their own learning. Teachers and students understand their

> functions and relevance in the learning process. Faculty and learners are empowered to construct their own learning with a wide scope from the international arena. Everyone contributes to the delivery of the university's purposes and objectives."

This impact was also observed by the student-participants. Student1, an alumna who was working as a flight attendant during the study, enumerated positive outcomes of having an internationalized university. She said that:

> "[t]he positive characteristics of internationalization include better-quality academic, internationally interested and oriented learners, faculty and non-teaching, and national and international citizenship for learners and staff from underdeveloped nations. For progressed states, income production and brain gain are impending advantages."

The findings indicated how internationalization efforts enabled stakeholders like faculty members and students to participate in the process of planning, preparing, and implementing such activities. This initiative reflects how these types of activities can develop good interpersonal relationships and collaborative decision-making among university stakeholders. These developments are directly linked as an indicator toward fostering a culture of quality (e.g., Hall & Hord, 2015; Yeboah, 2015).

Enhancement of Skills and Competencies

With many stakeholders becoming empowered and exposed to an internationalized curriculum, there is an inevitable growth of skills and competencies among them. For school administrators and leaders, they broadened their perspectives on international practices, hence maximizing their decision-making and communicating skills. Admin1 expounded:

> "Administrators and supervisors become more aware and skillful in applying varied perspectives learned from the international initiatives that they have engaged and participated in. Competencies are well-maximized. Quality management systems are communicated and executed. Academic leaders and managers promote a conducive environment where everyone maintains harmonious relationships with one another. Everyone takes part in the decision-making and the delivery of improved services."

Aside from the school administrators, students were also able to benefit from these initiatives. For example, Student2 mentioned how these initiatives helped in making students more knowledgeable of international standards and perspectives. She said:

> "The students are able to broaden their perspectives. They can adapt to changes quickly and are able to troubleshoot and problem solve well."

Based on the findings, it was revealed how internationalized activities and curricula of the universities helped in developing not only the personal and professional competencies of students but also the knowledge of academic staff and leaders. This demonstrates how these efforts greatly influence the stakeholders' productivity and efficiency (Asberry et al., 2016). It is clear that internationalized school initiatives led to a better quality of teaching and learning as experienced by the participants in their respective institutions, a finding supported by the literature (e.g., Brockerhoff et al., 2016).

Endowment of More International Recognition

An observable impact of internationalization among universities is their international recognition as a result of their international linkages and reach. Admin3 explained this when he said that:

> "Impact is on the way the school is able to gain a wider perspective resulting from international linkages, and how the school is able to provide a world-class education which allows graduates to enter the world of work, and in their own fields create an impact for the betterment of society and the world, and to help those most in need."

As a result, these recognitions have become advantages to the students and the graduates as they become known as globally competitive skill workers and professionals locally and internationally. Student6 explained:

> "It solidifies and cements ourselves as one of the institutions at par with international standards that produce graduates who are globally competitive in their chosen field."

As found by the literature (e.g., Ho et al., 2015; Killingley & Llieva, 2015; Nguyen et al., 2016), the participants highlighted the importance of having international networks for collaboration and benchmarking to help improve not only the marketing reach of the university but also the learning experiences of students, especially in developing their skills in adapting to different cultures and people.

Discussion

Based on the results, participants were able to identify the various internationalization practices that they experienced in their respective institutions. They considered these practices- incentivization of school initiatives, involvement of stakeholders, educational innovation, and intensification of international linkages- to be an effective and good manifestation of their university's direction towards a quality culture of instruction, research, and extension services. Among these recognized practices, it is clear that the internationalization of higher education is enhanced if stakeholders, both students and faculty, were engaged and involved in its planning and implementation. The findings were

similar to the position of Kirk and colleagues (2018) who explained how empowered and enthusiastic faculty and staff with appropriate knowledge of internationalized instructional delivery and effective resource allocation contributed to the success of internationalization thrusts of universities. Moreover, student mobility, as argued by Helms and Rumbley (2016), encouraged and facilitated the educational and economic agenda of many academic institutions toward global exposure and international linkages. Similar to Japan's and Taiwan's internationalization practices of higher education (Ho et al., 2015), the results showed how many Philippine universities' capabilities for integrating internationalized curriculum provided directions toward a multicultural academic campus.

These internationalization practices were possible partly because of the academic leaders who spearheaded policies and mandates focused on internationalizing the various university-related activities of all the stakeholders. As posited by Vaught (2015), effective leadership enables and supports the successful execution of different schools' initiatives that drive efforts on internationalization. He mentioned how academic leaders who recognized the significance of the internationalization of education created more opportunities for innovative service learning, proposed more collaborative research and development projects, and allocated generous funding towards the internationalized agenda of education. With effective academic leaders at the helm of internationalizing higher education, this entails focusing a university's vision and mission on transnational efforts, well-planned and designed strategic and operational plans, supportive administrative and financial provision, and clear communication process and workflows (Nguyen et al., 2016; Tanhuenco-Nepomuceno, 2019; Ziyatdinova et al., 2016).

Aside from the internationalization practices of Philippine universities, the study also revealed some of the perceived impact of these practices on the participants, from the administrators down to the students. The study identified how these practices empowered university stakeholders, enhanced their skills and competencies, and resulted in the universities' international recognition. These fruits of internationalization promoted healthy and constructive teaching and learning processes that led to a culture of quality in the school. As Yeboah (2015) argued, a school's quality culture manifests from its strong and productive community where every stakeholder, from the leaders to the students, shares a sense of purpose and commitment toward effective teaching-learning experiences. Moreover, quality school culture not only improves teacher performance but also positively impacts student learning and achievement (Schoen & Teddlie, 2008). Aside from reflecting high-quality teaching and learning engagement, the school's culture of quality represents the quality work of school staff usually supported by professional development and the operation of an effective management system that is grounded from relevant managerial vision and communication structures (Brockerhoff et al., 2016). With internationalization practices contributing to the school's culture of quality, there can also be improvement in organizational productivity that creates better academic achievement and quality services and individual efficiency that encourages employees to be more creative and innovative (Lewis et al., 2016). Lastly, as one's school culture improves, school climate is also highly influenced, prompting a more positive

physical atmosphere, meaningful experiences during the teaching-learning process, and an accommodating sense of how people in the community interact and relate with one another (Darling-Hammond & Cook-Harvey, 2018).

Conclusions

The execution of strategies for internationalizing education has been positively perceived as a contributing factor toward quality culture in terms of both teaching and learning, and leadership and management. As revealed in the results, some effective practices were the provision of resources and incentives on the linkages of students, faculty, and administrators in other countries, and the clear shared responsibility of increasing healthier collaborations and community involvement. As internationalization practices indicate a school culture of quality, it can be assumed that these strategies empower the participation of various institutional stakeholders particularly students, faculty members, non-academic staff, and administrators. Equally, internationalization practices enhance and augment the growth of skills and competencies of stakeholders.

Critical reflection in planning and carrying out processes aligned with CHED's mandates can be of great help to institutions in framing their internationalization strategies, with structures aimed at enriching quality assurance and innovation, mobility and market access, and international linkages and networks. For academic leaders and managers, they should broaden their viewpoints on internationalizing processes, maximizing their full potential in communication and decision-making. Shifting directions toward constructive changes in internationalizing higher education is important as it delivers a culture of quality, orchestrated in every dimension of the school and among stakeholders. Shifting the educational paradigm on effective internationalization of higher education should be a significant task for the entire school community requiring their full commitment and effort towards achieving a culture of quality.

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Data Availability Statement

The data used in this paper are available upon written request addressed to the corresponding author of the paper. This request will be evaluated by the authors before responding.

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Characterizing the Application of Mathematical Thinking in Citizen Science

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ABSTRACT

Mathematical thinking is important for citizens to develop not only for academic purposes but also more importantly for participating responsibly in society. This paper describes the features of the application of mathematical thinking processes in citizen science. Mathematical thinking involves processes such as problem-solving, reasoning and proof, communication, connections, and representation. Citizen science, on the other hand, is an emerging research activity in which the public can participate. In contrast to conventional science, individuals in citizen science participate in research activities rather than as subjects of study. Purposive sampling and a grounded theory approach were used in this investigation. In this study, 15 citizen science projects were considered as the sample. The findings suggest that problem-solving and connection are the most commonly practiced mathematical thinking processes in citizen science. Furthermore, the study reveals that individuals involved in citizen science demonstrate problem-solving, reasoning and proof, communication, and representation as primary tasks in the various research activities. Connection, on the other hand, is mostly used as a subprocess. These findings suggest that persons engaged in citizen science can execute all mathematical thinking processes. However, among these processes, problem-solving is the most widely implemented and hence most developed through citizen science.

Keywords: ***Mathematical thinking, citizen science, grounded theory, problem-solving***

Introduction

Mathematical thinking is not just important and applicable in an academic setting. As argued by Goos et al. (2020), mathematical thinking centers on mathematical processes rather than content. For this reason, mathematical thinking can also be useful and

practiced in various real-life experiences, fields, and circumstances. Hence, the development of mathematical thinking is essential not just for individuals who work in the fields of mathematics. In fact, it is now vital for every citizen to have well-developed mathematical thinking.

In this research, mathematical thinking is defined as the ability of an individual to practice standard mathematical processes and apply them to different activities and/or fields. The National Council of Teachers of Mathematics (NCTM) (2000) published process standards for school mathematics which characterized how learners or individuals learned and applied mathematical content knowledge. These process standards are the following: *problem-solving*, *reasoning and proof*, *communication*, *mathematical connections*, *and representations*. These five process standards were used as the framework of mathematical thinking in this study.

The need to open mathematical thinking to the public can be solved by the opportunities offered by an emerging scientific activity called citizen science. Citizen science is differentiated from traditional science by its two distinct characteristics: (1) its openness for the public to participate; and (2) its openness to sharing the intermediate results with the public (Koch & Stisen, 2017; National Geographic, 2012). However, only a few studies investigated the potential of utilizing citizen science in developing the mathematical thinking of individuals. As a consequence, this paper studied the application of mathematical thinking in citizen science projects, specifically the characteristics of the application in different citizen science projects. This article is part of a wider study, which investigated the convergence of mathematical thinking and citizen science including the opportunities and challenges that emerged from it. This wider study also explored the differences between citizen science projects from other countries and those from the Philippines.

Mathematical Thinking

Regardless of the wide range of experts who recognize the importance and role of mathematical thinking, there is no one unified definition of the concept found in the literature (Drijvers et al., 2019). Notwithstanding this, some researchers found two descriptions that could summarize the most frequent definitions of mathematical thinking. Watson (2001) and Isoda (2012) identified two popular descriptions of mathematical thinking: (1) centers on problem-solving heuristics and mathematical processes, and (2) focuses on conceptual development. It is worth noting, however, that the descriptions presented are not exclusive of each other.

Some of the experts who define mathematical thinking using the first description are Burton (1984), Stacey (2006), and Bal et al. (2020). Burton (1984) defines mathematical thinking as “operations, processes, and dynamics of mathematical thinking” (p. 36). Stacey (2006), on the other hand, stated that mathematical thinking was centered on processes. Likewise, Bal et al. (2020) said that mathematical thinking was associated

with mathematical processes. Among the various mathematical thinking frameworks, the process standards of NCTM encompassed the different mathematical processes from other frameworks. The process standards of NCTM comprehensively listed the processes that were part of mathematical thinking.

The first mathematical process from NCTM's process standards is problem-solving. According to NCTM (2000), problem-solving is considered both a goal and a method of learning mathematics. This process allows the integration and application of various mathematical concepts and ideas (Tarim & Öktem, 2014). The next process standard is reasoning and proof. In the application of this process, NCTM (2000) said that certain structures and principles in a mathematical context and daily life were identified. Individuals execute this process as they compare and contrast, generalize and conjecture (Vale et al., 2017), and justify and explain (Mata-Pereira & Ponte, 2017). The third process standard is communication. In this process, learners share their ideas and prove their understanding (NCTM, 2000). Connection is the fourth process. This is crucial as the different strands and standards of mathematics are integrated and connected, and not separated from each other (NCTM, 2000). According to Eli et al. (2013), connections are the various links among mathematical ideas and concepts. Finally, representation completes the five process standards. Bal (2014) and Cai (2005) characterized this process as the formation of mathematical concepts and their relationships through visualization employing pictures, physical objects, tables, graphs, and charts.

Citizen Science

Citizen science, despite being considered an emerging way of conducting research, is not something new. Levasseu (2021) argued that the public already had the opportunity to help the scientists in research, specifically in collecting data. She explained that citizens gathered data during the locust outbreaks in ancient China. Ferran-Ferrer (2015) also mentioned that certain individuals who were interested in biodiversity participated in scientific research related to this during the 19th century. Moreover, Silvertown (2009) explained that, for a century now, citizens had been participating in collecting data from nature in different fields such as archaeology, astronomy, and natural history.

However, the term "citizen science" was only coined in the 1990s (Vohland et al., 2021). According to Vohland et al., the Oxford English Dictionary (OED) reported that the term "citizen science" was first recorded in an issue of MIT Technology Review in January 1989. The first official use of the term "citizen science" referred to the production of scientific knowledge, bringing in the general public to participate, and addressing societal matters.

One of the main features of citizen science that defines and separates it from traditional science is the participation of the public. According to National Geographic (2012), the general public in citizen science collaborates with experts or scientists. Further, Wehn et al. (2020) explained that the participation of the general public in citizen science

entailed being involved in different processes and parts of scientific research. In this scientific activity, citizens are no longer subject to scientific study. Instead, they are now collaborators who also perform the data gathering and analysis (Koch & Stisen, 2017).

The last feature of citizen science that differentiates it from traditional science is its "openness in participation and disclosure of intermediate results" (Koch & Stisen, 2017, p. 1). According to Franzoni and Sauermann (2013), in citizen science projects, the "images, videos, audio tracks, and arrays and intermediate solutions or data produced by project participants" (p. 9) are shared and disclosed.

Clustering of Citizen Science

Wiggins and Crowston (2011) organized current citizen science projects into five clusters, namely, action, conservation, investigation, virtual, and education. The first cluster, the Action Cluster, is characterized as a group of projects that addresses local community problems and promotes civic agenda. The Conservation Cluster, on the other hand, is defined as a cluster of projects focused on natural resource management. Next is the Investigation Cluster which, according to Wiggins and Crowston, is the collection of data in any physical environment to explain and predict different phenomena. Comparable to the Investigation Cluster is the Virtual cluster. However, instead of using a physical environment, Virtual Cluster requires the investigation of phenomena using ICT tools and relies on algorithms and a large number of evaluations. Finally, the Education Cluster aims to educate citizens and connect with other academic institutions for the engagement of teachers and students.

The majority of research, such as those featured in this study, exclusively considers mathematical thinking and citizen science as separate entities. There is a little literature on the application of mathematical thinking to citizen science, specifically studies that discuss the nature and breadth of mathematical thinking and citizen science convergence. Thus, this paper aims to describe the features of the application of the five mathematical thinking processes in the participation of individuals in citizen science.

Methods

Research Design

This paper utilized a qualitative method, specifically the grounded theory method. This method is the most appropriate for studies that still have little knowledge generated (Hutchinson, 1986). In this study, the specific grounded theory approach used was the constructivist approach. Charmaz (2006) determined the features of this approach. Some of these characteristics are adopted in the methodology of this study, specifically: (1) Sampling's goal is to construct theory; (2) data collection and analysis are executed concurrently; (3) comparison analysis is employed at all stages of analysis; and (4) additional sampling is employed to further develop ideas.

Sampling

A purposive sampling method was employed in this research. This sampling method was chosen because of the principle that sampling in grounded theory focused on the development of a theory and not on the statistical representation of the population. Thus, in selecting the sample for this study, purposive sampling assisted to make sure that the characteristics of the sample were able to generate appropriate and applicable data for theory construction.

The sample in this study were citizen science projects that (1) provided opportunities for citizen scientists, the general public, to participate not as subjects of the study but as contributors in different parts of the research (e.g., in data collection and analysis), (2) had available documents or information that determined the participation of the citizen scientists (e.g., field guides, participation manuals, and tutorials), and (3) shared the intermediate data or result of the project as open access.

In selecting the sample for this study, the research added a criterion to the characteristics mentioned above. The criterion required a citizen science project to have an application of two of the five mathematical process standards in the participation of the citizen scientists. There are a total of fifteen citizen science projects chosen as part of the sample of this study.

Data Collection

After selecting the fifteen citizen science projects as the sample of this research, data collection was employed. On the website of each of the citizen science projects, documents, such as volunteer guides, manuals, videos, tutorials, educator's resources, and other information were downloaded and/or extracted. Additionally, interviews with the project leaders and citizen science coordinators were conducted. A total of seven project leaders or citizen science coordinators were interviewed. All interviewees signed the consent form which indicated the recording of the interview and the process of handling and analyzing the data collected from the interview.

Since this paper employed a grounded theory approach, data collection, and analysis were concurrently done. Adopting Charmaz (2001)'s approach, additional data were gathered. After initial coding and focused coding, additional sampling was executed by going back to the websites of the citizen science projects or the original documents collected.

Data Analysis

This research employed three levels of coding for the first phase of analysis based on Charmaz (2006). The first level of coding was called qualitative coding. Charmaz explained that this level of coding aimed to "separate, sort and synthesize the data"

(Charmaz, 2006 p. 3). Specifically, this coding was executed by sorting the texts from the documents according to what mathematical thinking processes were applied. The sorting was based on the open-ended questions in one of the instruments, the Mathematical Thinking Process Checklist. This instrument was used in capturing the absence or presence and the scope of mathematical thinking processes in the sample citizen science projects.

The next level of coding was initial coding, which entailed the construction of codes. The codes at this level were in gerund form and were executed by answering the questions included in the Mathematical Thinking Process Checklist. For example, one of the parts in the tutorial of CrowdWater states, "Take a picture of the site and mark the location your observations refers to using the arrow and/or the circle. This way, others can see where exactly you did the observation." To answer the question, "How are mathematical concepts, ideas, or relationships represented?", the initial codes assigned to the text were "Taking an image and marking it using arrow or circle to represent the exact location of observation" and "Taking a picture of the site and mark the location your observations refers to using the arrow and/or the circle. This way, others can see where exactly you did the observation."

The last level of the first part of the coding was focused coding. At this level of coding, the codes summarized and described the chunk of the parts of the data (Charmaz, 2006). Moreover, various comparisons were conducted, data to other data, data to codes, and focused codes to data.

After the three levels of coding, the data and the codes were interpreted and analyzed. This part of the grounded theory method is called "memo-writing" (Charmaz, 2006). Comparisons among the codes and data were employed. Codes were analyzed within each cluster and among the five different clusters. Memos (see Table 1) were written in both paragraph form and bullet form. These memos were initial interpretations, written in an informal format, and were drafts of the initial interpretations.

Because of the concurrency of data collection and data analysis in the grounded theory approach, theoretical sampling was also employed. Theoretical sampling was conducted to fill the gaps and questions that arose from the memo writing. Additional texts were extracted from documents or the websites of the citizen science projects and from the interview responses. Texts, tables, graphs, and images attached to the texts were also collected.

The memo-writing and the theoretical sampling led to the last phase of coding in the data analysis, which is the theoretical coding. Theoretical codes were developed from the pattern that emerged in the focused codes and the memos. In the theoretical codes, each mathematical thinking process was assigned a two-letter code as follows: PS or ps for Problem-solving; RP or rp for Reasoning and Proof; CM or cm for Communication; RE or re for Representation; and CO or co for Connection. The categories developed

determined if the two-letter code was written in uppercase or lowercase. Uppercase letters were assigned to a mathematical thinking process that was applied as the primary task performed by the citizen scientists in this phase of their participation. Lowercase letters, meanwhile, were used for a mathematical process that was only a step or a procedure done to apply the primary task. Most of the phases of the citizen scientists' participation required them to apply more than one mathematical thinking process. Thus, two-letter codes of the combined mathematical thinking processes were also combined using hyphen/s. After the theoretical coding, all the data were compared and analyzed again.

Table 1

Excerpt from an Example Memo

Title of Memo	Excerpt from the Memo
The Four Phases of Participations that Applies Problem-Solving and Connection [Conservation cluster]	There are four phases of participation where citizen scientists are applying mathematical problem-solving while also applying connection. These four phases are the following: • Sampling • Collecting data and measurements using tools, equipment, and/or instruments • Calculating measurements • Interpreting data While calculating measurements, one of the main tasks the participants do is to solve sets of operations which can also include averaging, solving for rate of change, and solving for proportion to the standard criteria. These processes provide opportunities for the participants to connect mathematical concepts like average, ratio and proportion, order of operations, logarithm, radius and volume to real-life contexts. The mathematical content strands these concepts and the other concepts used in this phase of participation belong are number and number sense, measurement, patterns and algebra and geometry.

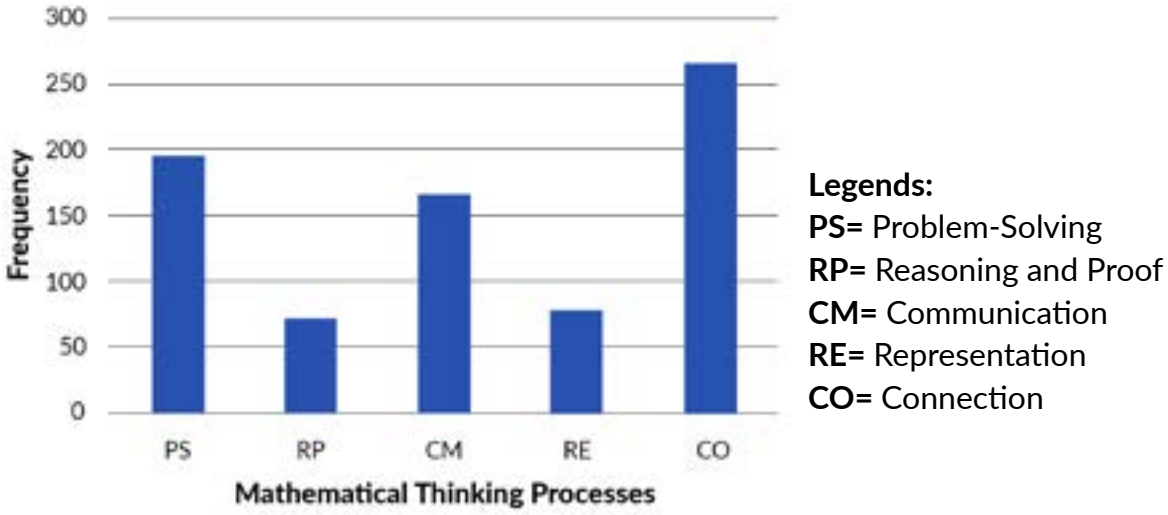
Results

The findings of this study showed that the five mathematical thinking processes, namely, Problem-Solving, Reasoning and Proof, Communication, Representation, and Connection, were all executed by citizen scientists as they performed different research activities. Of the tasks assigned to the citizen scientists, Connection was the most frequent process that they were required to perform. Ninety-two percent (92%) of their tasks expected them to link mathematical concepts either to real-life contexts,

to concepts from another field, or to another mathematical concept. Secondly, 68.06% of the participation of citizen scientists provided an opportunity for them to apply Problem-Solving. Then, this was followed by Communication which was executed in 57.64% of their total tasks. Finally, citizen scientists used Representation and Reasoning and Proof to a relatively similar amount of activities. Representation was applied in 27.08% of all the tasks while 24.65% of all the tasks practice Reasoning and Proof. Figure 1 shows a summary of the number of times each mathematical thinking process has been completed in the tasks provided to citizen scientists.

Figure 1

Frequency of the Mathematical Thinking Processes that Emerged in the Tasks of Citizen Scientists



Connection

Research activities performed by citizen scientists are always contextualized in real life. Hence, the majority of these tasks require the application of a mathematical idea or concept. As a result, the bulk of the activities performed by citizen scientists required individuals to use Connection as a mathematical thinking process. They practiced linking their knowledge of mathematical concepts to the real-life situations of the tasks citizen science projects demanded them to perform. Some of the mathematical concepts that were utilized by citizen scientists were function, number sense, ratio and proportion, scale, area, percent, angles, measurements, average, the four basic operations such as addition, subtraction, multiplication, and division, and some geometric figures namely points and lines. Table 2 shows examples of some tasks citizen scientists in which they apply Connection and the focused code for each task.

Notably, Connection was not just applied in citizen science as citizen scientists linked mathematical concepts to real-life situations. It was also executed as they related a mathematical concept to another mathematical concept. Some of the concepts that were linked together were variation to the graphs of a function, ratio, and proportion

Table 2

Examples of Tasks of Citizen Scientists Applying Connection

Text	Focused codes	Mathematical concept
Zooplankton data are reported as µg L-1 which is calculated as follows: Volume of water filtered: V1 (liters) = (π x r^2 x h) x 0.001 Where: π = 3.14 r = radius of plankton net (cms) h = height of plankton tow (cms) Volume conversion factor: Con.V = V2 / V1 Where: V2 = volume of ZAPPR (60 mls) V1 = volume of plankton tow (529.87 mls) *(U.S. Environmental Protection Agency, 2021, p. 61)*	Calculating a certain measurement of real-life objects, that is the final biomass, by performing a set of operations and applying the concept of radius and volume.	Radius and Volume
7. Give the frame time (eg 20:18 or 2018) and x and y values for each position for at least two observations in LASCO C2, and three ob servations in LASCO C3. Click the "Add Another Item" button to add more frames. Please note that a comet must ultimately be visible in at least 6 or 7 consecutive images for us to be able to confirm it! *(The Sungrazer Project, n.d., Introduction Guide section)*	Reporting the positions of real-life objects, those are positions of comet, using the concept of x and y coordinates of a point of a rectangular coordinate system.	Rectangular Coordinate System and Coordinates of a point

to the concept of conversion of measurement, fraction, and percentage to quartile and interquartile range, and law of exponents when multiplying or dividing scientific notations. Moreover, the result of the theoretical coding of this study revealed that Connection was dominantly executed as a Subprocess, suggesting it was used as the only technique for another mathematical thinking process.

Problem–Solving

The second most frequent mathematical thinking process practiced in citizen science was Problem-Solving. Citizen scientists engaged with a wide variety of tasks in relation to this mathematical thinking process. Some of the key action words related to Problem-Solving that were observed in this study were calculating, estimating, investigating, sampling, interpreting, measuring, identifying, averaging and brainstorming.

Furthermore, citizen scientists participated in several types of research activities that allowed them to create, evaluate, and execute strategies in solving problems. Initially, they had the opportunity to develop and identify specific strategies to solve the problems of the citizen science project. For example, in Chesapeake Monitoring Cooperative, the citizen scientists could propose their study design by filling out a template in which they were to determine the research question/s and the monitoring methods to answer the questions and accomplish their objective. The tasks in other citizen science projects where they employed problem-solving strategies were defining methods to clean data, designing equipment to be used in data collection, and brainstorming to develop a plan for communicating ideas and solutions.

Not as extensive as creating strategies, citizen scientists had fewer opportunities to evaluate problem-solving strategies. Some of the few examples for this were evaluating the draft of the communication strategy to be used for sharing the project's results and information and assessing the auditing protocol of the citizen science project.

Fundamentally, among the subcomponents of Problem-Solving, executing strategies was the most common application. There was a wide range of tasks the citizen scientists performed. Take for example the following type of activities, selecting sample or sampling area, installing instruments, calibrating instruments, averaging values, estimating measurements, calculating values or measurements, measuring or collecting data from the physical environment, investigating the site of study and objects of the study while applying mathematical concept, evaluating data, and interpreting data. Table 3 contains examples of activities completed by citizen scientists using Problem-Solving and the encoded task's focused code.

Most crucially, problem-solving was used not only in many types of citizen science research activities but also as a primary task for citizen scientists. In addition to being the second most common mathematical thinking process, much of the participation of the citizen scientists directly required them to employ Problem-Solving rather than as a subprocess of another mathematical thinking process.

Communication

Problem-Solving was followed by Communication as the third most commonly applied mathematical thinking process in citizen science. This process was often carried out by

citizen scientists that participated in data-gathering activities. Some of the action words that emerged as keywords in Communication were filling out, representing, reporting, sketching, drawing, uploading, explaining, recording, submitting, and storytelling.

Table 3

Examples of Tasks of Citizen Scientists Applying Problem-Solving

Text	Focused codes
4. Gross Area: Perimeter of entire area of invasive species present may contain significant parcels of land not occupied by invasive species. You can enter Gross Area for plants, insects, diseases, and wildlife. You can either draw the gross area by clicking on the little blue marker next to "Gross Area" and drawing a polygon of the area. This will automatically add the sq. feet or acres to the form. You can also manually enter the estimated area and choose the unit area from the drop-down menu as acres, hectares, square feet, or square meters *(Rawlins et al., 2018, p. 28)*	Estimating and communicating the area of extent of the object of study with proper unit of measurement
Analyze data Compile and analyze results. Data analysis tools are freely available. Some project websites offer specific ways to compare your results with other citizen science data. Mapping the project location helps place the results in context. The How to Participate section of project listings indicates which data and mapping tools are available. *(EcoSpark 2018, p. 13)*	Compiling and analyzing data using free data analysis tools.

citizen scientists that participated in data-gathering activities. Some of the action words that emerged as keywords in Communication were filling out, representing, reporting, sketching, drawing, uploading, explaining, recording, submitting, and storytelling.

Critically, although this mathematical thinking process was observed in more than 50% of the tasks in citizen science, it was scarcely used extensively. In most of the cases, Communication was only practiced in filling out data sheet templates or recording data gathered. To illustrate the practice of Communication, Table 4 shows examples of activities of citizen scientists that employ Communication and the focused code for each activity.

In addition to the aforementioned result, it was worth noting that Communication was applied in citizen science as a primary task but was commonly integrated with

other mathematical thinking processes. Take for example the second task included in Table 4. The citizen scientists participating in Community Collaborative Rain, Hail, and Snow Network were required to perform both Problem-Solving and Communication in this specific activity. Similarly, in the third example, citizen scientists that were involved in The Sungrazer Project integrated Reasoning and Proof with Communication as they justified their observation.

Table 4

Examples of Tasks of Citizen Scientists Applying Communication

Text	Focused codes
Measuring Total Snow ! on the Ground! • Snow is rarely uniform in coverage, so take several measurements and average them to obtain your total depth of snow. • Slide snow ruler through all layers of snow (new and old). • Read value on snow ruler and record (values are to the nearest ! *(Colorado Climate Center, n.d., p. 45)*	Measuring, calculating and communicating the measurement while applying mathematical concepts
STEP 5: Measure the comet positions To submit a comet report, we need to know the dates and times of the images you're looking at, and the x and y pixel positions of the object you are reporting. This is where the photo editing software is particularly useful. You'll recall that in "STEP 3" (above) we opened the images as "Layers". We now need to view those Layers and selectively turn them on/off - that is, toggle their visibility - so we can measure the comet positions. *(The Sungrazer Project, n.d., Cosmet Measuring Tutorial section)*	Justifying the observation by Identifying and communicating the coordinates of the positions of the object

Reasoning and Proof

There were a fairly adequate number of types of tasks that applied Reasoning and Proof in the participation of citizen scientists. Some of the action words that emerged

in the execution of Reasoning and Proof were comparing, generalizing, justifying, explaining, analyzing, evaluating, conjecturing and interpreting. Among these action words, comparing was the most prevalent form of activity in Reasoning and Proof. More opportunities for data comparison were being provided to citizen scientists. They either compared their obtained data with their other data sets or their data to data collected by other citizen scientists participating in the same project. Table 5 shows examples of tasks where citizen scientists apply Reasoning and Proof and the focused code for each task. Importantly, Reasoning and Proof was a mathematical thinking process that was generally executed both as a primary task and as a subprocess.

Table 5

Examples of Tasks of Citizen Scientists Applying Reasoning and Proof

Text	Focused codes
Work in Small Groups Classrooms are busy places. Having 24-31 students makes garden observation difficult. It is best to divide the class into small groups of 6-12 people. They would then work in pairs to record data on three to six plants. When one group is finished taking observations, another group could follow. Having several groups collect data on the same plants allows the class to compare data collected and can help validate the accuracy of the observations. They will likely not be exactly the same, but a trend will be obvious and that's what is most important. *(CleanAIRE NC, 2019, p. 9)*	Comparing data collected by different groups of participants, then later on generalize the pattern/s on the data collected to help in validating the accuracy of observations
The Night You Hatched Behavior Overtime How has the sea turtle population changed overtime? As the cities grow… The number of lights increase, As the light pollution increases… The turtle population decreases As the… What other changes overtime occur because of the LP? *(National Optical Astronomy Observatory, n.d., p. 8)*	Investigating, generalizing and communicating the pattern in the change of measurement overtime, using the concept of mathematical concepts

Representation

Representation is the least observed of the five mathematical thinking processes. The majority of the tasks in which they used Representation were connected to capturing pictures, sketching, drawing, and graphing. Table 6 contains examples of activities of citizen scientists that employ Representation and the focused code for each activity. Furthermore, it was notable that Representation was usually applied with another mathematical thinking process. In addition to that, there were also observations in which it was applied as a subprocess of other mathematical thinking processes.

Table 6

Examples of Tasks of Citizen Scientists Applying Representation

Text	Focused codes
Take a picture of the site and mark the location your observations refers to using the arrow and/or the circle. This way, others can see where exactly you did the observation. *(CrowdWater, n.d, Temporary stream: New Spot section)*	Communicating and representing the exact location of the site of the study by drawing a geometric figure
Site drawings A hand-drawn map illustrates major stream and landscape features, entry to the site, landmarks and the sampling area. This map is used as a guide for site revisits, indicating how to get to the site and the sampling location and for interpretation based on habitat features. 1. Draw a map (aerial view) of your sample reach on the field sheet in the appropriate space. 2. If the channel is irregular, sketch a profile of the channel in addition to the aerial view. *(Her Majesty the Queen in Right of Canada, represented by the Minister of the Environment, 2011, p. 20)*	Communicating pertinent features and sampling area and sketching a map using a prescribed view or perspective and adding some notes on the sketched map

Discussion

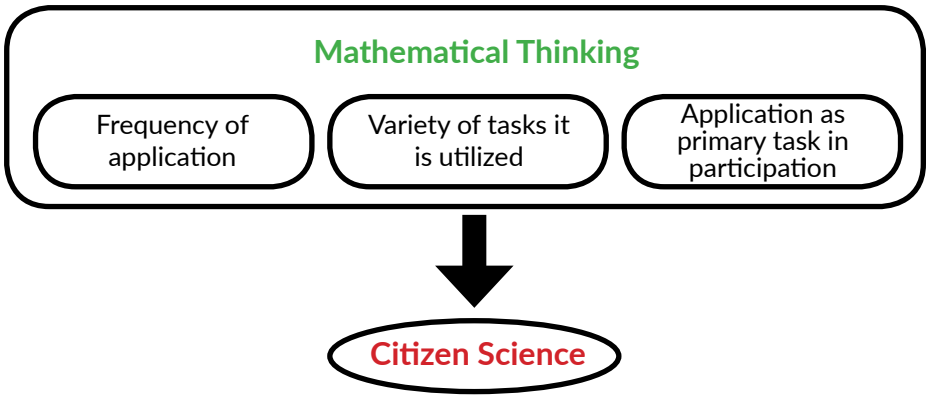
The result of this study revealed that Connection is the most frequently applied in citizen science. However, the result also showed that it was applied only as a Subprocess. This process was not the primary task the citizen scientists were required to perform in their participation, which indicates that the quality of the application of Connection was less extensive than the other mathematical thinking process applied as Main Processes. Problem-Solving, on the other hand, was seen to be used as a Main Process in almost all of the tasks of citizen scientists, while being just the second most commonly used process. This finding suggests that this mathematical thinking process may be used more broadly in citizen science. It indicates that, when compared to the other mathematical thinking processes, citizen scientists have the most opportunity to practice Problem-Solving. On the contrary, despite being comparable to Problem-Solving in terms of frequency, Communication was only applied in a limited depth. Citizen scientists generally only communicated measurements or values, and not explanations, interpretations, or narratives.

For the fourth process, the number of tasks that executed Reasoning and Proof was comparable to the number of tasks that applied Representation, but this number was almost only half or fewer than for those of Connection, Problem-Solving, and Communication. Moreover, the result of this study revealed that Reasoning and Proof can be applied either as a Main Process or a Subprocess. The citizen scientists were given tasks that directly required them to perform Reasoning and Proof, but they were also given tasks that required them to apply another mathematical thinking process, specifically Problem-Solving, that utilized Reasoning and Proof as a procedure to complete the primary tasks.

Finally, this study revealed that Representation was not the focus of most of the tasks citizen scientists executed. It was the least employed mathematical thinking process in citizen science, not only in terms of frequency of application in citizen scientists' assignments but also in terms of the characteristics of its application in their involvement.

Figure 2

Framework in Characterizing Mathematical Thinking in Citizen Science



Framework in Characterizing Mathematical Thinking in Citizen Science

The results and findings about the application of mathematical thinking in different citizen science projects can be synthesized in a framework. This framework, as shown in Figure 2, highlights the features that determine how mathematical thinking processes are utilized in citizen science. The application of mathematical thinking processes in different citizen science projects can be evaluated and described by three features: the frequency of application, the variety of tasks utilized, and the application as the primary task in participation of citizen scientists. These features primarily show how extensive the application of a mathematical thinking process in a citizen science project is. Hence, it can be used as a lens for individuals who want to evaluate the possibility of developing mathematical thinking through participating in a citizen science project.

Conclusion

Based on the results and analysis of the data, this study concluded that the five mathematical thinking processes were applied in the participation of citizen scientists. It may also be stated that the extent to which mathematical thinking processes were applied varied. In the discussion, three attributes are used to characterize the application of each mathematical thinking process, namely, the frequency of process execution in citizen scientist tasks, the variety of tasks that apply a process, and the classification of a process based on whether it is a primary process or a subprocess. Considering these attributes, it could be inferred that Problem-Solving was the most extensively used in citizen science. Problem-Solving was second to the most executed by citizen scientists, but citizen scientists engaged in diverse kinds of tasks that applied Problem-Solving. Moreover, this mathematical thinking process was applied as the primary process in most of the activities citizen scientists performed. Each of the next two mathematical thinking processes, Connection and Communication, had a distinct benefit over the other. Connection had an advantage over Communication since it was the most frequently used in citizen scientist assignments. Communication, on the other hand, was more valuable than Connection since it was used as a fundamental process. However, it should be highlighted that the extensiveness of its applications was still not comparable to that of Problem-Solving because it was generally used in conjunction with other mathematical thinking processes and was seldom used alone. Lastly, Reasoning and Proof, and Representation were relatively comparable only with regard to their frequency of application in the tasks of citizen scientists. However, Reasoning and Proof emerged with an advantage over Representation in terms of the variety of the tasks where it was performed. Given these points, the ranking of the extensiveness of application of mathematical thinking processes in the participation of citizen scientists was as follows: 1) Problem-Solving, 2) Connection and Communication, 3) Reasoning and Proof, and 4) Representation. Given the opportunities to develop mathematical thinking through citizen science despite its slow development and emergence in the Philippines, it opens new possibilities for an integrative pedagogy and implications for curriculum development, assessment, teacher professional development, and community engagement.

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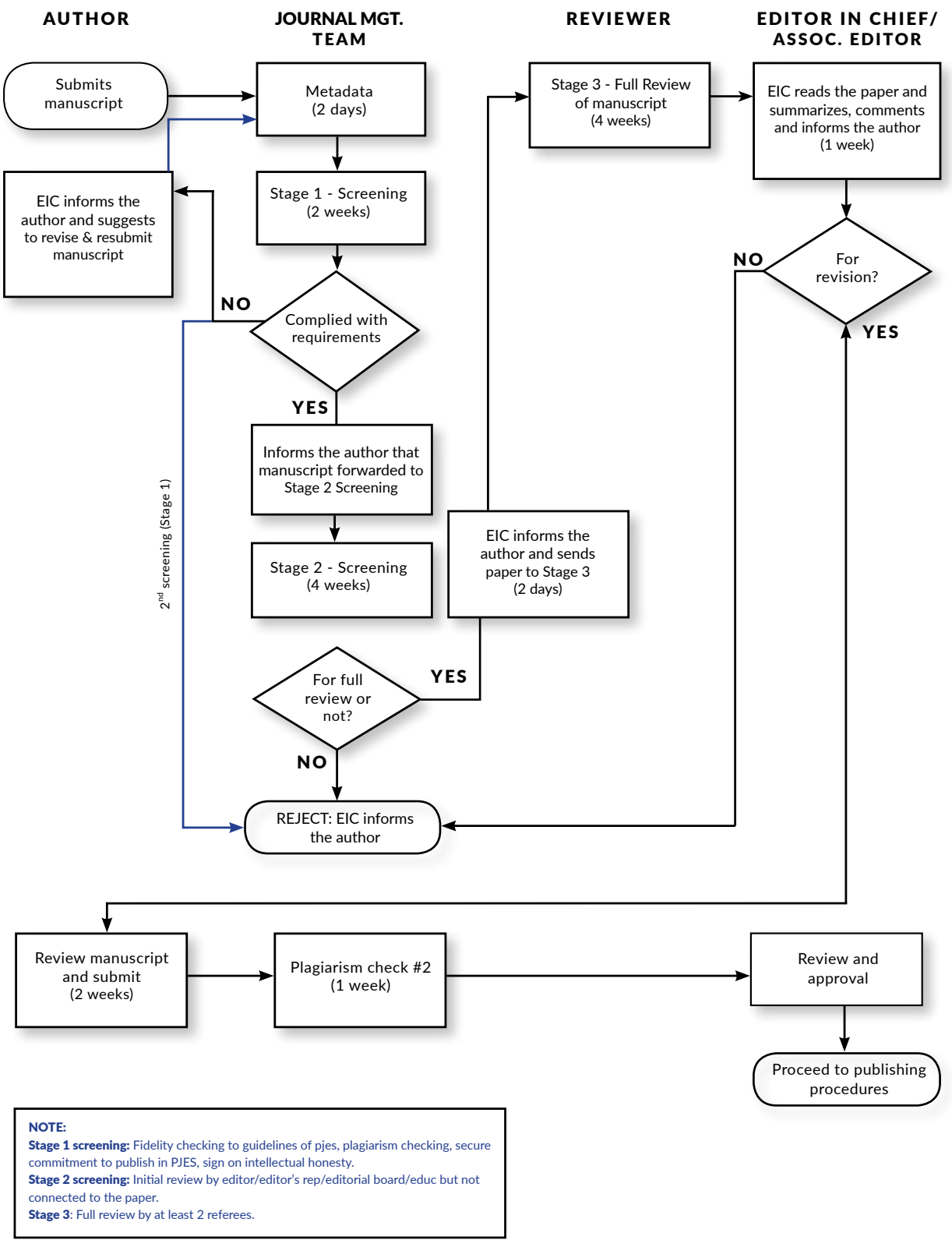

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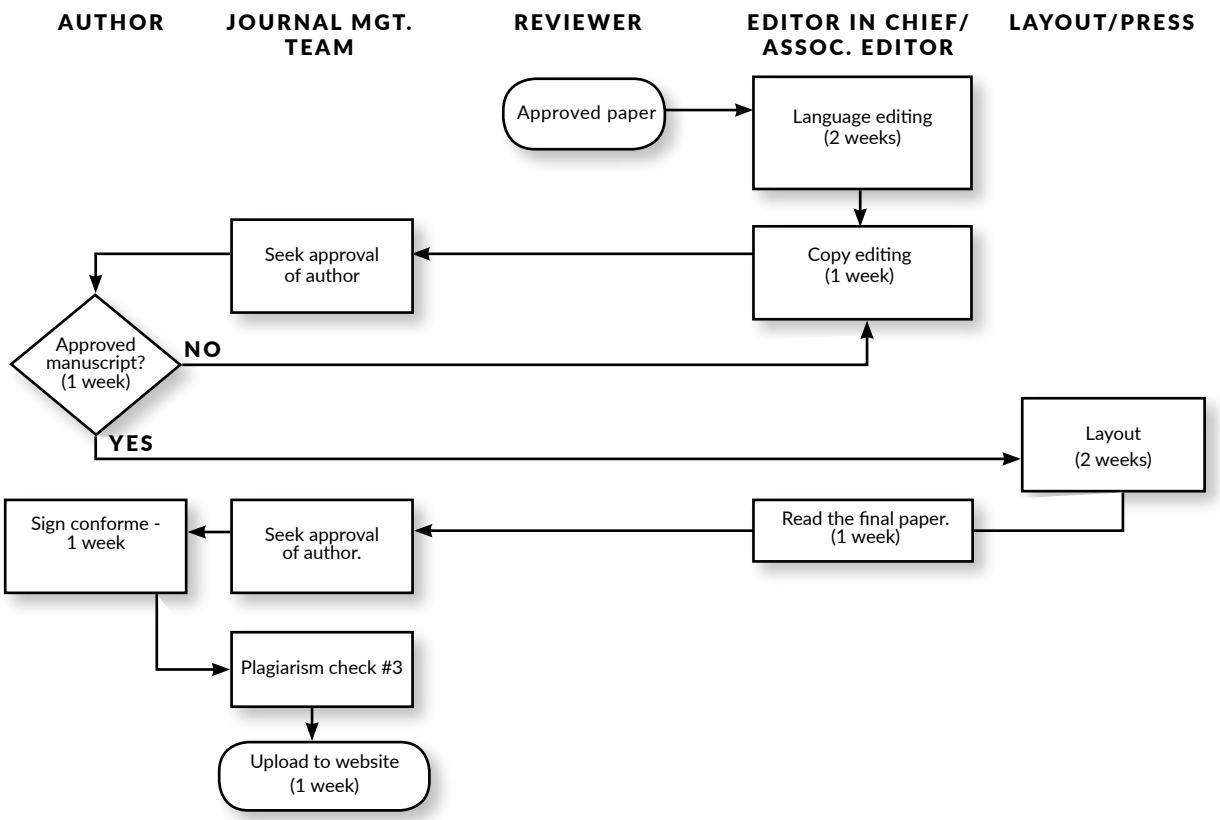

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