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Praxis in Curriculum Indigenization by Mathematics Teachers of Public Junior High Schools in the Philippines

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Abstract: A culturally based education is critical for indigenous peoples' success in school, as well as in promoting self-determination and community protection. Several indigenous peoples' groups in the Philippines embraced this principle and worked to establish an indigenized curriculum in the educational system. This initiative aims to address the issues indigenous peoples in the country are facing. We conducted this study using the predictive method to identify factors influencing practices and classify teachers based on their curriculum's indigenization. 39 public junior high schools in Ifugao, Philippines, predominantly home to indigenous peoples' groups, hosted the study. Results show that the high school mathematics teachers have high regard for the aims of mathematics learning and its indigenization. They exhibit moderate confidence in implementing indigenized instruction, receive moderate support, and seldom engage in peer collaboration during their indigenization endeavors. Attendance in trainings significantly influences the level of practice on curriculum indigenization among teachers. Those who indigenise the curriculum have significantly higher levels of confidence to deliver indigenised instruction and received greater support from the school and community. Hence, indigenous teachers who could gain confidence in teaching an indigenised mathematics curriculum because of appropriate professional development and who would receive other forms of institutional support from the school and from the community could champion the cause of curriculum indigenisation in the province.

Keywords: curriculum indigenisation, ethnicity, confidence, support, and mathematics education.

1. INTRODUCTION

1. I Background of Study

Indigenous communities all over the world have challenges and concerns about their people's education. According to UNESCO (2004), indigenous peoples' situations are frequently characterised by a lack of access to education that respects their diverse traditions and languages. Educational materials that provide authentic and balanced information on indigenous peoples and their methods of life are also scarce. Similarly, many educational programs have failed to provide indigenous peoples with opportunities to participate in decision-making, curriculum design, teacher and teaching method selection, and standard defining (UNESCO, 2004).

Prior to the development of the Indigenous Peoples' Education framework in the Philippines, the education system was commonly known as the'mainstream school system'. The Episcopal Commission for Indigenous Peoples (2008) conducted a consolidated nationwide study that revealed additional aspects of education in the lives of indigenous peoples. Consequently, negative perceptions of education among indigenous peoples stem from unfavorable encounters, leading to the identification of three crucial factors. Firstly, schools have become sites of discrimination, where students have endured traumatic experiences. Secondly, the perception of schooling as a non-existent experience stems primarily from the perception of indigenous peoples' way of life as inferior, backward, and invalid in comparison to mainstream society. Lastly, books and discussions often confine the 'culture' of indigenous peoples to the surface, emphasizing artefacts and practices. Hence, surface culture limits the understanding of culture, as it associates indigenous peoples with objects rather than introducing them as a people (Episcopal Commission on Indigenous Peoples, 2008).

When contextualizing the teaching and learning of mathematics in the context of indigenous communities,

we should use the indigenous mathematics being practiced and the inherent knowledge in the community as references, as they offer ready concepts of school mathematics and the mathematics that is being practiced or observed. Making connections between abstract and practical concepts could aid learners in understanding and appreciating mathematics.

Victor and Yano (2015) examine indigenous groups in the Philippines, who advocate for education that is sensitive to and reflective of their cultural background, goals, and concerns. They emphasized that the indigenous communities' rising dissatisfaction with the government's educational system, as well as their strong desire to provide an education that is judged appropriate for their children and youth, fueled such advocacy efforts. Victor and Yano (2015) enumerated indigenous community issues that the Philippines' formal educational system has not addressed. Barriers to finishing school include access to and quality of education, as well as a high dropout rate among indigenous students. There are other hidden obstacles. Examples include: 1) Discrimination based on one's ethnic identity, which is considered "native" or "tribal." 2) Learning language issues because school language differed from home and community language. The inconsistency of the languages used hindered the development of learning skills and comprehension of the topics being discussed; 3) comprehension difficulties arose due to the significant differences between the social and cultural contexts of the lessons and the realities of the indigenous children's communities; and 4) cognitive dissonance and personal tensions arose, leading to tensions within the family and community. This was due to the school's negation of their identity and the way of life they practiced at home and in the community, which they considered primitive and backward

Indigenous people groups primarily inhabit Ifugao, one of the provinces in the Cordillera Administrative Region (CAR), with three main ethno-linguistic groups, namely Tuwali, Ayangan, and Kalanguya. According to Dulawan (2001), the Ifugaos possess a well-developed culture, just like most other Filipino ethnic groups. The Ifugaos are renowned for their distinctive culture and the rice terraces they inhabit in most of the municipalities (UNESCO, 2008).

Mathematics education in Ifugao posed challenges, as shown by their National Achievement Test (NAT) results, which are generally low compared to non-indigenous pupil/student counterparts, especially in the secondary level. The NAT shows that the mean percentage score (MPS) in mathematics is below the 75% national mastery level. Although the elementary level had a higher mark and even topped the region for 2006, 2007, 2008, and 2010, the MPS of Ifugao is still below the national mastery level. At the secondary level, Ifugao falls significantly short of the national mastery level, with MPS in mathematics for 2007, 2008, 2009, and 2010 standing at 38.26, 40.17, 40.00, and 39.05, respectively (DepEd Ifugao Bulletin of Information). These findings indicate that students need to enhance their understanding and mastery of the abilities outlined in the mathematics curriculum.

Recent developments in Ifugao in terms of education and culture are promising. In basic education, the province's Department of Education (DepEd) has been vigorously providing professional development to its teachers through trainings and workshops. These include more on Indigenous Peoples' Education (IPED). They aimed to equip teachers to effectively implement the curriculum while also preserving people's heritage and identity. Ifugao State University (IFSU), the lone higher institution in the province, has also included the subject Indigenous Knowledge Systems and Practices (IKSP) of the Ifugaos in some courses. Furthermore, a number of educators at the university are conducting research on IKSP and the education of Ifugao and its people. We hope to share and utilize the research outputs, particularly those that pertain to the education of the province's indigenous peoples.

Indigenizing the curriculum in the Ifugao province, which aims to educate and develop learners by connecting them to their cultural and environmental background, is crucial for achieving improved performance. In the Ifugao context, the goal of mathematics education is to understand the meaning of school mathematics by connecting it to the practices and observations in their community, which can be considered'mathematical.' Given that Ifugao is primarily home to indigenous peoples, contextualizing the teaching and learning of mathematics would necessitate indigenization and localization of the curriculum.

Despite the province's efforts to integrate Ifugaos IKSP into the curriculum and improve teacher training, little is known about the practices and obstacles that teachers face while implementing a contextualised curriculum. Therefore, we conducted this study to identify any significant regressors that could influence mathematics teachers' decisions to implement an indigenized curriculum.

2. LITERATURE REVIEW

2.1 Contextualization of Curriculum

Leite, Fernandes, Mouraz, and Figueiredo (2010) define curriculum contextualisation as a pedagogical process that aims to establish connections between disciplinary content and real-life situations experienced by students, while taking into account the students' characteristics, cultural background, habits, and the specific social context in which schooling takes place.

They went on to say that curricular contextualisation has the ability to improve the teaching and learning environment while also promoting student achievement, knowledge, and skill acquisition.

Culture-based education (CBE) is another term that could describe contextualization in schools. Kana'iaupuni, Ledward, and Jensen (2010) defined it as the "grounding of instruction and student learning in the values, norms, knowledge, beliefs, practices, experiences, places, and language" that form the basis of a cultural community. Kana'iaupuni, Ledward, and Jensen (2010) emphasized that traditional methods involve educating students about diverse cultures to foster awareness and tolerance towards diversity. However, they also noted a disparity between minority ethnic groups and the majority. Many indigenous groups and educators conceptualised culture-based pedagogy and strategies to enhance the educational experiences and achievement of learners (Kana'iaupuni et al., 2010). According to Nielsen et al. (2008), culturally responsive education aims to increase students' academic involvement in the learning process while recognising the value of Aboriginal viewpoints and worldviews.

Contextualisation in education has been recognised to be helpful for teaching students to acquire the knowledge and skills demanded by 21st-century society. The Partnership for 21st Century Skills, 2008, Leite, 2013, Rutschow & Schneider, 2011, and CORD, 1999 all support this. Baker, Hope, and Karandjeff (2009) suggested contextualisation as a viable technique for actively engaging students and promoting increased learning and skill development. The Partnership for 21st Century Skills (2008) divides the 21st century skills into two categories: 1) Learning and Innovation Skills (creativity and innovation, critical thinking and problem solving, communication and collaboration), and 2) Life and Career Skills (flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility). These talents, once studied and mastered by students, will prepare them professionally for the sector as well as individually to embrace and survive societal demands.

Individuals must engage in meaningful inquiry-based learning that is valuable and relevant to them personally, as well as to their communities, in order to develop the higher-order thinking abilities required today. According to Baker et al. (2009), the concept of connecting subject matter to significant circumstances in students' lives is a viable method for helping students learn more successfully.

One can view contextualization as a means to achieve a desired outcome, which is for students to learn and acquire the knowledge and skills required in the globalized and highly technical society. Therefore, we anticipate that the acquired knowledge and skills will empower graduates to utilize them in various professional and personal settings. Gillespie (2010) posits that learners are most likely to transfer knowledge and skills when they are familiar with and understand both the facts and the "big picture"—the underlying concepts that they can apply to challenges in new situations. She believes that context and culture, not just the activity itself, determine learning.

The K-12 Curriculum Guide for Mathematics (2013) defines context as a location, circumstance, or collection of conditions that may influence Filipino learners' study and application of mathematics in order to build critical thinking and problem-solving abilities. Contexts also refer to beliefs, surroundings, language, and culture, which include traditions and customs, as well as the learner's existing knowledge and experiences. Thus, contextualisation as a teaching process connects students' contexts to formal classroom mathematics.

Indigenising education entails examining every topic at every level to determine how and to what extent present content and methodology reflect the presence of Indigenous/Aboriginal peoples and the valuable contribution of Indigenous knowledge (Castellano, 2014). Deer-Standup (2013), who posits that indigenous "cultural relevance" or "indigenous perspectives" refers to the incorporation and revival of indigenous histories, experiences, values, knowledge, and localized content in the curriculum, also aligns with this definition.

The Department of Education in the Philippines synchronised the definitions of contextualisation, localisation, and indigenization. Contextualisation is the educational process of connecting the curriculum to a specific context, scenario, or field of application in order to make the competences relevant, meaningful, and beneficial to all students (DO 32 s. 2015). Furthermore, localisation and indigenisation are concerned with the level of contextualisation. Localisation, as stated in the order, is the process of connecting curriculum-specific learning content to local information and materials in the learner's community.

2.2 Components of Contextualized Curriculum

Baker et al. (2009) highlighted the key components of contextualized teaching and learning design and execution. Here is a list and discussion of these components:

Faculty collaboration. To stimulate CTL innovations, teachers collaborate and develop partnerships across disciplines or functions, as well as with community groups and employers. Instructors collaborate on a variety of activities, including program design, curriculum and professional development, resource acquisition, and CTL practice assessment.

Curriculum and instructional material development. Most CTL techniques necessitate the creation of new teaching materials due to the artificial nature of traditional texts' applications and their lack of relevance to students. Practitioners frequently obtain educational materials from community partners or students' own work experiences. Faculty usually highlight the enormous effort and resources required to create, document, and produce these documents at the start of a new practice.

Relevant context. An authentic context serves as the foundation for all CTL practices, which might range from personal to professional. Faculty select a context in a variety of ways, including choosing one they believe is important for students, building the context with students, or providing a context from which students can choose depending on their educational or career interests. Faculty emphasize that a relevant context helps students understand the goal and value of basic skill development for academic or career success, thereby improving the learning process and facilitating students' comprehension of material.

Interactive teaching. The CTL implementation heavily relies on interactive instruction. Working with contextualized curriculum provides instructors with a variety of opportunities to create complex and engaging interactive activities for and with students, such as teamwork, peer-to-peer review, real-world data collection and problem solving, community-based experiences, authentic assessments, and reflective essays.

Professional development. Professional development, which is a cornerstone of all practices discussed in the primer, can help teachers with all elements of CTL design, development, implementation, and assessment. Professional development covers a wide range of topics, from better understanding and creating course content to researching how to teach in a contextualised manner. In other circumstances, academic and occupational professors "cross train," taking each other's classes or collaborating to uncover natural chances to teach fundamental skills in occupational courses.

Institutional support. Institutional backing can be critical to the success and viability of CTL breakthroughs. This assistance can take many forms, including administrative support for new course creation, free time for professional and curricular development, faculty sharing across departments, flexible scheduling, facility utilisation, and dedicated support personnel.

Continuous improvement. The integrated character of CTL highlights the significance of continuous reflection and modification. Faculty may experience significant learning within the first semester of implementation, with curriculum "gelling," instruction improving, and overall understanding of CTL deepening throughout multiple semesters—resulting in course and/or program changes.

Improved outcomes. CTL implementation can lead to better outcomes for students, as evidenced by a number of qualitative and quantitative indicators across practices. The most frequently stated effects are enhanced student involvement, motivation, and self-esteem, while quantitative measurements include better course completion, GPA, performance in college-level work, and employment.

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Educators, policymakers, and communities in the Philippines developed the indigenization framework through various consultations, which included two key dimensions: foundational dynamics and key elements of the Indigenous Peoples Education (IPEd) curriculum (DO 32, 2015).

In the context of IPEd, DepEd defines indigenisation as the process of integrating the national formal education curriculum and Alternative Learning System (ALS) curriculum with IKSPs and ILS. As defined in DO 32. s. 2015, it includes, but is not limited to, the following:

1) Plan and develop a curriculum based on the indigenous community's instructions, reflecting the interface between the community's IKSPs and ILS and the national curriculum;

2) Integrating the community's viewpoint and perspective into the framework and curriculum design of subject areas and learning standards

3) Acknowledging and integrating the community's context and values into the content, performance standards, and competencies

4) Acknowledging and enhancing the IKSPs and their components as foundational knowledge and context, upon which the subjects, learning standards, skills, and materials of the national curriculum can be based;

5) Enhancing the national curriculum in alignment with the community life cycle, while acknowledging the appropriate scope and sequence of competencies.

6) Linking the capabilities outlined in the national curriculum to community competencies can enhance both the curriculum and the teaching-learning process.

7) Integrative teaching of subjects that link to IKSPs and their elements and are relevant to the learner's culture;

8) Recognizing and incorporating the community's teaching-learning approaches and methodologies, as well as assessment methods, into the teaching-learning process.

9) Recognize the community as the larger place, environment, and resource for learning;

11) Integrating the community's narratives of local and national history, as well as current issues and concerns of indigenous peoples

12) creating a curriculum that is attentive to the community's needs, concerns, and goals.

Given the above literature, it is critical for mathematics instructors, particularly in the Philippines, to contextualize the curriculum to suit their pupils' requirements and desires. However, it is also crucial to identify the various elements that may contribute to curriculum indigenisation among mathematics teachers, particularly in the Cordillera Administrative Region (CAR) of the Philippines. Therefore, we conducted the study to identify potential combinations of relevant variables for curricular indigenization.

3. 0 RESEARCH METHODOLOGY

This study is considered to be predictive. This study is considered predictive as it can identify factors that predict whether mathematics teachers will choose to indigenize or not.

3.1 Research Environment

We conducted the study in the Schools Division of Ifugao, a landlocked province in the Cordillera Administrative Region (CAR). The Ifugaos, an Indigenous Peoples' group consisting of several ethnolinguistic groups, primarily inhabit the province in Northern Luzon, Philippines. Dulawan (2005) stated that the Ifugaos possess a well-developed culture. Most of the municipalities in Ifugao boast rice terraces, contributing to its unique culture (UNESCO 2008).
Three (3) major ethnolinguistic groups, Tuwali, Ayangan, and Kalanguya, inhabit the 11 municipalities that make up the province of Ifugao.

According to the DepEd Ifugao Division, there are 39 public junior high schools in the province, including annexes and extensions clustered into two (2) districts. Geographically, the two districts divide, with Tuwali dominating District 1 and the Ayangan group dominating District 2. The Kalanguya ethnic group comprises a minority and is mostly located in the municipality of Tinoc.

3.2 Respondents of the Study

Secondary mathematics teachers in the Division of Ifugao participated in the study. We used three criteria to select the respondents: 1) have at least a year of teaching experience in the Division of Ifugao; 2) have taught in any

10) Including culture bearers and/or IKSP holders as co-facilitators in the teaching and learning process;

of the public schools included in the study; and 3) have taught any mathematics subject at any grade level in junior high school. According to the complete enumeration, there were 77 mathematics teachers who participated.

3.3 Instrument of the Study

Survey Form. We formulated the survey questionnaire in the study by drawing from relevant documents in the literature. We adopted and slightly modified some of the items from policies and standards (DO No. 50 s. 2016, DO No. 51 s. 2014, DO No. 32 s. 2015), as well as from previous studies conducted (UNESCO, 2016 and CORD, 1999). We slightly modified the items to align with the study's objectives. The Cronbach's alpha for the different sections ranges from 0.824 to 0.957. The sections have internal consistency that is moderate to relatively high. The final survey form has 73 items. A panel of math and education professionals also addressed the instrument's face and content validity during its presentation and evaluation.

4. DATA ANALYSIS

We conducted binary logistic regression to identify the significant predictors of junior high school teachers' decision to indigenize the curriculum or not.
The researcher used binary logistic regression analysis and the forward conditional method of variable selection to study predictors and determine the attributes of teachers who have attempted or are currently indigenizing the mathematics curriculum, compared to those who have never attempted to indigenize. The analysis endeavors to combine four nominal variables. The dependent variable is the respondents' status in terms of whether they are likely to actively or less actively indigenize the mathematics curriculum.

The researcher used multivariate discriminant analysis with the stepwise method of variable selection to try to find predictors or discriminators of teachers in the Division of Ifugao who might fight for making the math curriculum more Filipino.

5. RESULTS AND DISCUSSION

5.1. Extent of Confidence and Support of Mathematics Teachers

This section examines the extent to which mathematics teachers in public junior high schools in Ifugao rate their confidence in teaching mathematics content standards through indigenised instruction. Additionally, we present the community and

administration's level of support for the implementation of the indigenized curriculum.

Confidence to teach mathematics through an indigenous instruction

Table 1 shows the teachers' level of confidence in teaching mathematics through indigenised instructio

Table 1: Mean Ratings for Confidence Level to Teach Mathematics through an Indigenized Instruction

No.	Indicators	Mean	SD	Qualitative Interpretation
1	Answering students' questions about mathematical content.	3.80	1.077	Much Confident
2	Answering students' questions about what is 'mathematical' on the indigenous practices and materials of the Ifugaos.	3.32	1.131	Moderately Confident
3	Show students a variety of problem solving strategies like constructing knowledge from their experiences.	3.42	.951	Moderately Confident
4	Integrate desirable Ifugao values and traditions in my mathematics classes.	3.45	1.156	Moderately Confident
5	Relate the topics to the culture and situation of the Ifugao people and their place.	3.39	1.177	Moderately Confident
6	Develop life-long skills among my IP students through varied strategies.	3.37	1.162	Moderately Confident
7	Relate mathematics in the local setting to national and global context.	3.51	1.067	Much Confident
8	Prepare instructional materials and learning experiences that are contextualized/indigenized.	3.10	1.148	Moderately Confident
	Over-all Mean	**3.42**	**.972**	**Moderately Confident**

Legend: 4.50-5.00 Very Much Confident 1.50-2.49 Slightly Confident
3.50-4.49 Much Confident 1.00-1.49 Not at All
2.50-3.49 Moderately Confident

Generally, the respondents are moderately confident to teach mathematics through indigenised instruction, as revealed by the results in the table with an overall mean of 3.42. With a scale from 1 to 5, the teachers' confidence appears to be in the middle, not strong but not low either.

The respondents rated their confidence level with the top three of the indicators as follows: 1) answering students' questions about mathematical content (m = 3.80), 2) relating mathematics in the local setting to national and global context (m = 3.51), and 3) integrating desirable Ifugao values and traditions in my mathematics classes (m = 3.45).

Although the mathematics teachers have a generally moderate level of teaching confidence, they have the highest confidence in mathematical content. This could be supported by a fact presented earlier under the profile of the respondents: almost 95% of the respondents specialised in mathematics. The province's practice of assigning mathematics specialists to teach the subject could be considered commendable. Specialisation during the college years often has a big impact on the content and pedagogical knowledge of the teacher.

The results further imply that the mathematics teachers are moderately confident in relating their topics to the local context of the indigenous learners. The department should aim for an excellent level of confidence in teaching through an indigenized curriculum if it wishes to strive for quality education for the IP communities. In addition, integration of Ifugao values and traditions is also on a moderate level with the teacher's confidence. Because the ideal focus is a wholesome education for all learners, improved teacher confidence in incorporating the values and traditions of the IP communities is essential.

On the other hand, "preparing instructional materials and learning experiences that are contextualized/indigenized" has the lowest mean (M = 3.10). This suggests that teachers have the least confidence in their ability to create indigenized instructional materials. The few indigenised IMs prepared

by the teachers are evidence that the confidence of the teachers to make IMs could have been contributory.

Hefferman's (2012) findings, which show little progress in teacher training and confidence in their ability to create and implement successful post-secondary transition plans, are similar to the teachers' moderate confidence results.

Administrators and teachers themselves should conduct more interventions to boost their confidence levels. DepEd should effectively implement and monitor the institutionalized Learning Action Cells (LACs), which aim to develop and support successful teachers by nurturing their knowledge, attitudes, and competencies in terms of curriculum, instruction, and assessment in their work stations (DO 35 s. 2016). This could facilitate collaboration among teachers, particularly in preparing contextualized lessons and learning materials, a common challenge among them.

The extent of support received from the community and administration

Table 2 presents the level of support mathematics teachers received from the community and administration in implementing an indigenized curriculum in their classrooms.

Table 2: Mean Ratings for Extent of Support received from Community and Administration

No.	Indicators	Mean	SD	Qualitative Interpretation
1	The school is located in an accommodating neighborhood.	3.88	1.113	Strongly Supportive
2	The IKSP holders or elders in the community are approachable.	3.42	1.499	Moderately Supportive
3	The IKSP holders are generous in answering questions and sharing their ideas.	3.21	1.510	Moderately Supportive
4	I do not experience difficulty of getting information from the IKSP holders.	2.74	1.394	Moderately Supportive
5	Opportunities to attend seminars, workshops and conferences on contextualization/indigenization is provided to all mathematics teachers.	2.35	1.280	Slightly Supportive
6	I receive adequate support from my supervisor and administration for the indigenization of mathematics curriculum.	2.62	1.377	Moderately Supportive
7	The school head see to it that indigenous concepts of the Ifugaos are integrated in our instruction.	2.89	1.251	Moderately Supportive
	Over-all Mean	**3.01**	**1.123**	**Moderately Supportive**

Legend: 4.50-5.00 Very Strongly Supportive 1.50-2.49 Slightly Supportive
3.50-4.49 Strongly Supportive 1.00-1.49 Not at All
2.50-3.49 Moderately Supportive

The result in Table 2 shows that the teachers, with an over-all mean of 3.01, have received moderate support from the community and administration for the implementation of an indigenised mathematics curriculum in their classes.

It could be further observed in Table 2 that the location of the school in an accommodating neighbourhood was a strongly supportive factor towards ndigenization. This could imply that the teachers feel that the community is helpful to them, especially when asking and gathering information on indigenous knowledge and practices. Interviews revealed that the IKSP holders are highly accommodating when they engage with the community. This could also mean that the community is helping to implement an indigenised curriculum.

Table 2 shows that the two items with the lowest means were the support and opportunities provided to teachers. Item 5: “Opportunities to attend seminars, workshops, and conferences on contextualization/indigenization are provided to all mathematics teachers," and Item 6: “I receive adequate support from my supervisor and administration for the indigenisation of mathematics curriculum." Teachers play a major part in the implementation of an indigenised curriculum. This could imply that the teachers need more opportunities to learn more about curriculum indigenization. Support and initiatives from school heads

are essential to help their teachers be more capable and confident in indigenising their lessons.

Meany and Evans (2012) argued that mathematics education must take seriously its responsibility to support indigenous students to gain school mathematics and also to help maintain the use of traditional mathematical ideas. If this does not happen, mathematics educators will contribute, intentionally or unintentionally, to the loss of indigenous knowledge.

The result is in contrast to Furuto's (2014) assertion that educators need support throughout their careers to hone their practices in order to teach standards, meet the needs of a diverse set of students, and create a positive classroom culture. Therefore, the administration and stakeholders should provide more support to the teachers, as this ultimately benefits the students who are the ultimate beneficiaries of the process.

Moreover, the low support for opportunities provided to all the teachers from the administration does not fully manifest the DepEd's commitment to "support the continuing professional development of its teaching personnel based on the principle of lifelong learning and the view of the teaching profession as one that requires teachers expert knowledge and specialised skills, acquired and maintained through rigorous and continuing study" (DO 35 s. 2016).

In the quest for a quality indigenised mathematics curriculum for Ifugao students, 'an improved teacher's content knowledge, pedagogical skills, assessment strategies, and professional ethics lead to student learning and holistic development' (DO 35 s. 2016).

5.2. Binary Logistics Regression on the Praxis of Indigenising Mathematics Curriculum

Binary Logistic Regression Analysis with Forward Conditional Method of Variable Selection was performed to determine the attributes of the teachers who are likely to actively indigenise the mathematics curriculum as compared to those who are likely to less actively indigenize. The result of the binary logistic regression analysis in the following table revealed which of the factors could significantly predict or classify teachers on whether they are likely to actively or less actively indigenise the curriculum..

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 3[c]	Civil status	2.724	1.239	4.832	1	.028	15.234	1.343	172.769
	Confidence to indigenized	2.148	.854	6.321	1	.012	8.568	1.606	45.722
	Support received	1.114	.562	3.934	1	.047	3.047	1.013	9.163
	Constant	-12.533	4.040	9.622	1	.002	.000		

R^2(Cox-Snell)=0.456, R^2(Nagelkerke)=0.613, Model X^2(3)=34.671, p-value<0.05, Hosmer-Lemeshow X^2=11.930, p-value=0.103

The table shows the binary logistic regression model using forward conditional variable selection. Among the six (6) variables that were entered, only the civil status with wald = 4.832, df = 1, p-value = 0.028, confidence to indigenise with wald = 6.321, df = 1, p-value = 0.012, and support received with wald = 3.934, df = 1, p-value = 0.047 can significantly predict whether the junior high school teachers will indigenise the mathematics curriculum. We found that teachers' sex, ethnicity, whether they belong to Tuwali, Ayangan, Kalanguya, or other ethnicities, age, and perception are not significant predictors of indigenizing the mathematics curriculum. This implies that female teachers have the same likelihood as male teachers, Tuwali teachers have the same likelihood as Ayangan or Kalanguya teachers, and both old and young teachers have the same likelihood of indigenizing the mathematics curriculum they implement.

The results further suggest that civil status, confidence, and support received influence the teachers' likelihood of indigenising mathematics curriculum. Assuming all others are constant, if the teacher is single, the likelihood of indigenising mathematics curriculum increases 15 times. This may be attributed to the fact that single teachers are active and may have more time in indigenising the curriculum due to their eagerness to explore different techniques of teaching the discipline. Conversely, confidence measures the average level of self-assessed confidence teachers have in teaching mathematics through indigenized instruction. Support from School and Community: A measure of the average level of support that the teachers receive from the school

administration and community may predict the math teachers who are likely to actively indigenise their instruction. We can observe that teachers' confidence in using indigenized instruction serves as a powerful indicator of whether they will indigenize their lessons or not. Lastly, for the teachers who received support from the school and community, the likelihood of indigenising the curriculum increased three times.

In general, single mathematics teachers in the Division of Ifugao who likely indigenise their instruction are teachers who have relatively greater teaching confidence and have been receiving greater support from school administration and the community about indigenised instruction. Hence, it could be inferred that the teaching confidence and the support of the teachers by the institution and community can predict their action to implement a mathematics curriculum that is indigenized. The results showed that teachers who have a higher level of the attributes identified are the ones who indigenize their lessons. Similarly, those who have less desirable levels of teaching confidence and are not receiving support from the school or from the community would likely less actively indigenise their lessons.

Furthermore, in terms of the goodness of fit of the binary logistics regressions, the Omnibus Tests of Model Coefficient show the overall fit of the model in terms of the goodness of fit test. The tests revealed that the prediction model can significantly fit the data with a p-value<0.05, which means the model is good. The model summary shows that the model with three (3) regressors can explain roughly 45.6% (Cox and Snell R Square) up to 61.3% (Nagelkerke R Square) of the variations. Moreover, the Hosmer and Lemeshow test reveals that the model fits the data (p > 0.05). Also, the contingency table reveals that the observed and expected values are almost identical, which implies a good fit.

In terms of predictive power, the summary of the correct classification rate reveals that the model can correctly classify 84.2% of the teachers who tend to indigenise the mathematics curriculum. This implies that the three-variable logistic regression model can correctly predict curriculum indigenisation in 8 out of every 10 mathematics teachers.

Finally, we derived the following binary logistic regression probability function from the binary logistic regression model to help estimate the likelihood of teachers indigenizing mathematics curriculum.

$$\pi_i(Indigenize) = \frac{1}{1 + e^{-(-12.533 + 2.724 * Civil\ Status + 2.148 * Confidence + 1.114\ Support\ Receieved)}}$$

Where

$\pi_i(Indigenize)$ = Probability of i[th] teacher to indigenize the mathematics curriculum

e= natural number, i.e. 2.7182818285…

$$civil\ status = \begin{cases} 1\ if\ married \\ 0\ if\ single \end{cases}$$

$$Confidence = \begin{cases} 5, if\ very\ much\ confident \\ 4, if\ much\ confident \\ 3, if\ moderately\ confident \\ 2, if\ slightly\ confident \\ 1, if\ not\ at\ all \end{cases}$$

$$Support\ received = \begin{cases} 5, if\ very\ stringly\ suppotive \\ 4, if\ strongly\ supportive \\ 3, if\ moderately\ supprtive \\ 2, if\ slightlt\ supportive \\ 1, if\ not\ at\ all\ supportive \end{cases}$$

6. CONCLUSION

Junior high school mathematics teachers in the Division of Ifugao come from a diverse range of demographics, as well as social and cultural backgrounds. Very few have indigenised instructional materials and attended any trainings related to curriculum indigenization. Moreover, factors such as the teacher's civil status, their confidence in using indigenized instruction, and the level of institutional and community support they receive can significantly influence their decision to indigenize their lesson. Therefore, we could use the profile variables and cultural backgrounds of the Ifugao mathematics teachers as a baseline to identify those who required the most assistance in implementing the indigenised curriculum in the division. We should plan and implement capability trainings and reflection activities for the teachers. Moreover, strengthening the support of school administrators and the community is crucial. We should conduct specialised trainings for mathematics teachers to enhance their understanding of curriculum indigenization,

thereby ensuring confidence and developing appropriate competencies. We should provide all teachers with

opportunities to attend relevant trainings. We should provide assistance to mathematics teachers, particularly those who are unfamiliar with the Ifugao ways of life and culture. We should guide and assist the teachers in their quest to provide their indigenous students with the education they deserve. It would also be very helpful to these mathematics teachers if they familiarise and immerse themselves in the community so they can learn and gain knowledge from the people and the environment.

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