Development of Pedagogical Blended Learning Model of Rural Schools

Edmer F. Aguilar

Email: aguilaredmer1992@gmail.com

Abstract— The rural schools, being in the quandary of development, have faced numerous challenges. This study is focused on the exploration of the constructs on pedagogical blended learning and the creation of good fit model. A sequential mixed exploratory design was used in the study. The qualitative data were obtained from the key-informant interviews and focus group discussions of the public secondary school teachers in rural schools, and later a survey questionnaire was formed. The data was subjected to exploratory factor analysis. The dimensions created were: (1) facilitating inclusive learning, (2) interaction with technology, (3) structuring student learning, (4) instructional strategies, and (5) utilizing online interaction. These dimensions were confirmed by structural equation modeling's confirmatory factor analysis-latent curve analysis. Fit indices criteria of SEM together with the dimensions having corresponding regression weights revealed that the 5-factor model is the best model for pedagogical blended learning model of rural schools in Davao del Norte.

Keywords— blended learning, confirmatory factor analysis, exploratory factor analysis, structural equation modeling.

I. INTRODUCTION

Due to the onslaught of coronavirus disease (COVID-19) pandemic, schools and other institutions throughout the world are closed as a preventive measure to prevent the spread of the virus. This prompted educational leaders to devise alternative learning such as blended learning for the continuity of student learning. This blended learning allows students to learn from home, and the use of technology such as computers and strong internet connections are highly needed. Rural schools, being in the quandary of development, suffered from this new learning delivery modality. Existing blended learning models are only applicable to metropolitan and urban areas, but not for rural schools (Alasuutari, 2020).

Blended learning becomes a problem for many educators, parents, and students. Most parts of the region are rural and some students live in the highlands with lower access to technology and houses were far from home. Report of Department of Education- Region 11 showed that the current number of students enrolled in the public schools is 1,059,160 for the school year 2020-2021, way lower than 1,161,883 in the previous school year, while there is also a drop of students in the private schools with 139,734 students for the school year 2020-2021 compared to 196,640 in 2019-2020 (Llemit, 2020). Aside from the transfer of students from private to public schools, the drastic decrease in enrollment is attributed to students who are unable to enroll due to poverty and fear of the effects of the pandemic.

Although there are several blended learning models, there is no model yet for blended learning in the context of rural schools. Additionally, this study will unearth the different constructs for the blended learning model in rural schools in Davao del Norte from the current situation and experiences on blended learning. Finally, there is an urgent need to pursue this research knowing that the educational sector has utilized blended lerning as a new learning delivery mode for the students, thus it is in the realm to understand this new modality and recommend new approaches for this blended learning to uplift the lives of the teachers, parents, and students especially those who belong to vulnerable and marginalized sectors in the rural areas.

Objective of the Study and Research Questions

The primordial objective of the study was to improve the blended learning among rural schools in order to provide a model that would serve as a guide in improving the pedagogy of rural schools. Successful blended learning implementation could only be achieved by providing a clear plan of the school through the development of blended learning model applicable for the rural schools given the dynamics of the pedagogy and teaching and learning process among the teachers, parents, and students in the rural schools in Davao del Norte. It would also explore relevant learning delivery policies to be implemented. Moreover, this research aimed to explore the pedagogical constructs of blended learning in the context of rural schools according to the following questions: (1) What are the perspectives of rural school teachers in Davao del Norte regarding blended learning? (2) What are the pedagogical constructs of blended learning among the rural schools in Davao del Norte? (3) What model best explains the pedagogical constructs of blended learning in the context of rural schools in Davao del Norte?

METHODS

This chapter presents the research design, research and sampling procedure, the research instrument, the data collection procedure, and the data analysis.

Research Design

This study used a sequential mixed exploratory design. Sequential mixed exploratory design is a continuum of elements both qualitative and quantitative approaches. This design is an approach of inquiry involving collecting both qualitative and quantitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical framework. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone (Creswell, 2014).

Data Sources and Research Instrument

The researcher of this study gathered data from various sources. In qualitative research phase, the researchers typically used variety of methods in gathering multiple forms of data, which include in-depth interviews, focus group discussions, along with observations and documents (Creswell, 2009). After gathering, data were reviewed and analyzed, and organized according to themes. There were 10 participants, and were equally divided into two, in order to have five (5) participants for the KII, and another five (5) participants for the FGD. In the KII, the participants were interviewed until the data were saturated. A KII typically requires between one to two hours, depending on the subject (Creswell, 2009). The interviewee should be encouraged to speak at length and give what they consider essential background information, to make sure that the discussion deepens understanding of the subject. For the quantitative phase, a self-constructed survey questionnaire was developed incorporating the different dimensions obtained from the KII and FGD. The questionnaire was subjected to content validity by panel of experts and reliability test using pilot test on 30 respondents, and the data from pilot test was subjected to Cronbach alpha for reliability test, and the result was 0.977. Results of the pilot test showed that the items of the survey questionnaire were reliable. Moreover, items were measured based on a five-point Likert scale, ranging from (5) strongly agree to (1) strongly disagree.

Participants of the Study

The participants of the study for the qualitative phase were the 10 public school teachers in the rural secondary schools of Davao del Norte. The five (5) participants had undergone KII, while the other five (5) participants had undergone FGD. The key informant interview (KII) involves gathering information directly from an individual who has extensive knowledge or experience on a subject of interest to the researcher (Creswell, 2009). For the FGD, the richness of the data emerges from the group dynamic and from the diversity of the group, and may help identify commonly held views among group members, including divergent views (Creswell, 2009). The composition of the group is important, depending on the sociocultural setting or age and gender. For the quantitative phase, the number of respondents was 325. Raosoft online sample size calculator was used to compute for the sample size from the population of 2,100 public secondary school teachers based on the data from the schools division of Davao del Norte.

Moreover, the participants of the study were chosen based on the following inclusion criteria or qualifications: (a) secondary teachers who are assigned in the rural schools in Davao del Norte; (b) teachers who have at least one year of teaching experience; (c) teachers who used blended learning as learning delivery modality in this new normal situation; and (d) teachers who are both in-school and work-from-home scheme. As to the exclusion criteria, those teachers who are using online only and modular only were excluded from the study. Furthermore, participants were chosen regardless of their age, gender, ethnicity, and household income.

Sampling Technique

In the qualitative phase of the study, purposive sampling was employed in getting the appropriate number of teachers in the rural schools in Davao del Norte. Patton (1990) stated that purposive sampling is used when you want to access a particular subset of people. In the quantitative phase of the study, sample was taken from the population following the sampling unit, sampling frame, sampling design, sampling technique, sampling error, sampling distribution, and sample size. The sampling unit of this study was the public secondary school teachers. Based on the data from the schools division of Davao del Norte, there are 2,100 teachers in public secondary levels scattered in eight school districts or municipalities. As to sampling frame, secondary school teachers in the rural schools of Davao del Norte have qualified based on the inclusion criteria that were included in the sampling drawn.

As to the sampling procedure, the public secondary schools per municipality were randomly selected. In the Municipality of Carmen, only four schools were selected out of eight schools; two (2) out of seven

schools in the municipality of Sto. Tomas; one (1) out of three schools in the Municipality of Braulio E. Dujali; three (3) out of six schools in the municipality of Kapalong; two out of five schools in the Municipality of Asuncion; one (1) out of three schools in the Municipality of Talaingod; two (2) out five schools in the Municipality of New Corella; and one (1) out of three schools in the Municipality of San Isidro. In each public secondary school, teachers were selected through random sampling. The researcher asked the help of the school principals to randomly select the teachers to whom they would send the link for the online survey. Out of 2,100 population of public secondary school teachers in the rural schools of Davao del Norte, only 325 respondents took the online survey test based on the Raosoft online sample size calculator.

As to sampling design, a stratified random sampling was used. Stratified random sampling is a method of sampling that involves the division of a population into smaller sub-groups known as strata (Creswell, 2014). This sampling technique was utilized because these subgroups or strata need to be included or represented. In this study, the public secondary school teachers in the rural schools of Davao del Norte were first divided into strata and then samples were randomly selected from the strata, where the strata in this study were the public secondary school teachers.

On the other hand, sampling errors could arise when the sample does not represent the whole population. According to Creswell (2014), sampling errors are deviations in the sampled values from the values of the actual population emanating from the fact that a sample is not representative of a population of data.

Moreover, a sampling distribution is a probability distribution of a statistic obtained from a larger number of samples drawn from a specific population (Creswell, 2014). In this study, the researcher obtained the data of the number of teachers in each school district or municipality. A Raosoft online sample size calculator was used to determine the sample size of the respondents per municipality or district. But as to the overall sample size, 325 public secondary school teachers, taken from the population of 2100, were used as respondents for this study.

Data Collection Procedure

The researcher conducted the study beginning with extensive research and readings related to blended learning, policy on blended learning, and how the global health pandemic resulted in the creation of blended learning. Then, the research questions formulated would follow by selection of appropriate methodologies and the identification of the respondents. Afterwards, the researcher had communicated with various concerned agencies in the Department of Education on the intention of the study and the support needed to successfully finish the study. An invitation was sent to the selected participants of the KII. The KII was conducted in the different contexts and experiences of blended learning in rural schools through audio recording. The result of the KII was used in the formulation of the survey questionnaire. After the survey questionnaire was developed, validity and reliability tests were done by the expert validators. Online survey questionnaire through Google forms was sent to the respondents' Facebook Messenger accounts for safe and easy access to the data. Lastly, analyses and interpretation of data were conducted.

Data Analysis

Thematic analysis of the responses of the key informants was used in describing the current condition, issues, and problem of blended learning in the rural school context as well as the identification of the dimensions for the blended learning model in the context of rural schools.

Thematic analysis is a qualitative analytical method of extracting patterns of thoughts and ideas from the responses of the key informants (Braun & Clarke, 2006).

A theme captures something important about the data in relation to the research question and represents some levels of patterned responses or meaning within the data set.

The quantitative analysis in developing the pedagogical blended learning model in the rural schools context used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) using Structural Equation Modeling (SEM). Exploratory factor analysis (EFA) is an orderly simplification of interrelated measures used to explore the possible underlying factor structure of a set of observed variables without imposing a preconceived structure on the outcome (Suhr, 2015).

Confirmatory factor analysis (CFA), on the other hand, is a statistical technique used to verify the factor structure of a set of observed variables. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent exists. The researcher uses knowledge of the theory, empirical research, or both, postulates the relationship pattern of a priori, and then tests the hypothesis statistically (Suhr, 2015).

Furthermore, a Structural Equation Modeling (SEM) was used to test a variety of theoretical models and provides a practical tool for the researcher exploring the relationships in those areas (Suhr, 2015). Technically, SEM combines CFA used in apparent factor structures and path analysis generally used to explore causal relationships among sets of variables. In fact, SEM expands path analysis by constructing paths between latent variables that cannot be directly measured, and variables that are observed.

Ethical Considerations

The researcher followed the three principles of Belmont's report (Creswell, 2014) in addressing the ethical consideration involving humans, namely: respect for persons where the participants were treated as autonomous agents; beneficence where efforts were made to secure the well-being of the research participants, and to maximize the possible benefits and minimize its possible harm; and justice where fairness in distribution should be considered and also the equitable selection of participants. Moreover, the respondents were given the free will to participate without any sort of penalties, punishment or loss of benefits.

The researcher valued the views and opinions of the respondents and its decision whether or not they will participate during the process of gathering the data. Their rights to contribute to the body of information were carefully considered and adhered to after the intent and the benefits of the study are identified and explained to the respondents.

RESULTS AND DISCUSSION

This chapter showed discussions on the presentation, analysis and interpretation of data on the research objectives, specifically, on the perspectives of rural school teachers, the pedagogical constructs, and the model that best explains the pedagogical constructs of blended learning in the context of rural schools in Davao del Norte.

The Perspectives of Rural School Teachers

Qualitative data analysis revealed the following themes from the participants' responses in the interviews conducted: (1) limited technological access and knowledge, (2) poor management of the blended learning environment, (3) unclear implementation of blended learning assessments, (4) the need for good planning for blended learning activities, and (5) chaotic blended learning routines,
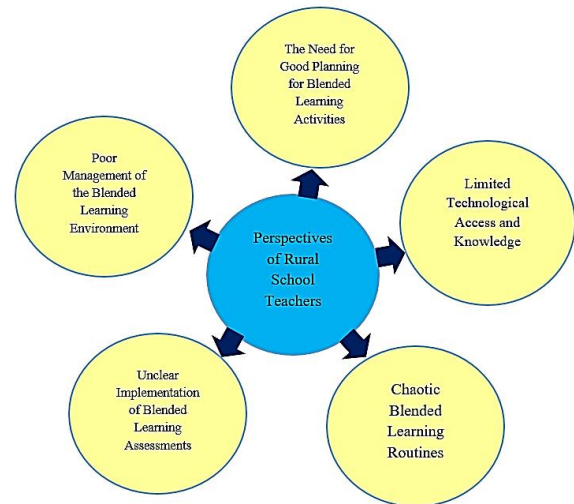

Figure 1: *Thematic Paradigm of the Perspectives of Rural School Teachers.*

Limited Technological Access and Knowledge

Qualitative analysis of key informant's responses on their perspectives of blended learning showed that limited technological access and knowledge could imperil the effectiveness of blended learning in the rural schools in terms of connectivity of both the students and teachers. Mozelius and Rydell (2017) affirmed this by stating that enhanced technology-based online learning requires a stable connectivity and information communication technology equipments among students and teachers. Moreover, a case study carried out by Mese and Dursun (2019) which claimed that teachers' perception of an online tools' case of use is directly connected to the teachers' sensation of lack of time, lack of knowledge, and lack of support to implement it.

Poor Management of the Blended Learning Environment

Rural public schools of Davao del Norte, according to the key informants, have failed to manage well the blended learning environments. The sudden implementation of blended learning due to the pandemic has caught the public school teachers unrehearsed due to lack of preparations, orientations, and directions. The pedagogical strategies in the context of blended approach were not clear, hence, they just did what was best for the students. Shand and Farrelly (2018), and Oliver and Stallings (2014) affirmed these findings stating that understanding blended learning requires specific knowledge of blended course design, with vivid focus on its benefits and challenges. An awareness to these benefits and challenges aids in the blended learning design process as it enables the teacher to make informed decisions about how to blend the online and traditional approaches and that there is much to learn from the successes and challenges experienced by

faculty who have developed, implemented, and assessed their courses in search of an effective model of blended learning instruction and the teachers who have challenges in experiencing blended learning directly (Parks et al., 2015).

Unclear Implementation of Blended Learning Assessments

The key informants' responses revealed the theme of unclear implementation of blended learning assessments. The modules distributed have answers key. As stated there was no verification mechanisms whether or not the students copied the answers from the internet. Reed (2014) confirmed these findings that the lack of trainings on assessment strategies for blended learning is the biggest barrier in implementing blended learning program in schools. Hughes (2007) also supported this claim by suggesting that the assessment on blended learning program would not be successful without the specialist training, cautioning that others wishing to introduce their own assessment strategies should ensure that the teaching staff are trainined to deal with the aspects of assessment on blended learning.

The Need for Good Planning for Blended Learning Activities

Thematic and content analysis of the key informats responses yielded a perspective that blended learning activities has to be well planned in terms of preparations and other logistical needs of the teachers. Students can use modules and communicate with teachers online when there are things that they need to ask and when they want to interact with their teachers.

This finding was confirmed by Kaur (2013) that challenges and difficalties of the teachers, parents and students are enormous if the blended learning is not well-planned. Moreover, Arnesen et al. (2019) and Ward (2016) supported this claim by pointing out that collaborative planning, as described by most teachers, provide opportunities to enhance and to develop teachers' instruction in a blended learning environment.

This helps teachers to ensure alignment of learning objectives with learning contents and activities; hence, it tends to be more realistic by integrating the instructional activities into wider teaching approach than of several smaller learning tasks.

Chaotic Blended Learning Routines

Qualitative analysis of the key informant's responses on their perspectives of blended learning showed chaotic blended learning routines of activities. Chaotic blended learning routines refer to the mechanisms of module distribution and technological concerns that followed since this is a blended approach.

The protocols to be observed in module distribution added burden to both the teachers and parents. Well, since this is in compliance to established protocols the parents have to be compliant otherwise they would not be able to receive the modules. What is very alarming is the fact that students cannot submit the modules on time and teachers need to follow up them through online.

These findings were confirmed by Liimatainen (2019) that there is a problem on blended learning routines especially when there is no right incorporation of technology and the use

of traditional methods of teaching and learning. Agirdag, Yazici, and Sierens (2015) also confirmed that understanding how to work with teachers to use technology to create and maintain blended learning routines in the classroom is complicated by some economic and geographical trends where some areas have uneven access to technology and resources.

However, Kazakoff, Macaruso, and Hook (2018) stressed that in making blended learning work well in specific contexts, teachers should experiment with and modify specialized classroom routines and organizations in their blended learning classrooms. They also mentioned that teachers should highlight their personal strengths in classroom designs for blended learning routines to fit their pedagogical goals.

The Pedagogical Constructs of Blended Learning among Rural Schools

The pedagogical constructs of blended learning among the rural schools in Davao del Norte were constructed based on the indicators generated from the qualitative phase of this study. The items formulated would be tested using exploratory factors analysis.

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity

Table 1 presents the calculated Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

The KMO computed value of .974 which indicates an adequate sample thus factor analysis is appropriate. The computed chi-square of Bartlett's Test of Sphericity of 15412.026 is significant at .000.

Table 1: Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.974
Bartlett's Test of Sphericity	Approx. Chi-Square	15412.026
	df	1225
	Sig.	.000

Total Variance Explained. Exploratory factor analysis has identified five (5) linear components as displayed by the eigenvalue in terms of the percentage of variance explained (Table 2). It should be clear that the first few factors explain a relatively large amounts of variance (especially factor 1) whereas subsequent factors explain only small amount of variance. These extracted factors passed the criteria of principal component analysis on the power to explain its identity as factor generated by the analysis. Hence, the five factors extracted initially explain the dimensions that could fit the pedagogical blended learning framework which accounted to 68.231 percent.

Table 2: Total Variance Explained

Components	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	28.048	56.097	56.097	10.880	21.760	21.760
2	2.601	5.202	61.299	8.126	16.252	38.013
3	1.327	2.654	63.953	5.521	11.041	49.054
4	1.098	2.196	66.150	5.211	10.423	59.477
5	1.041	2.082	68.231	4.377	8.755	68.231

Extraction Method: Principal Component Analysis

There were five dimensions of Pedagogical Blended Learning Model in Rural Schools. The five dimensions are facilitating inclusive learning, interaction with technology, structuring student learning, instructional strategies, and utilizing online interaction.

Component 1: Facilitating Inclusive Learning. Principal component analysis using varimax with normalization as rotation method with a rejection value of .50 (items with score less than .50 were rejected in the rotation)

resulted to the extraction of six (6) attributes of the facilitating inclusive learning. Table 3 presents the summary of the six (6) attributes with the corresponding score. Discussing the items that students find difficult to understand through chat, text, or call is very important for instruction and supervision under the blended learning model in rural schools. Allowing students to choose their preferred modality in pursuing mastery of the lesson at their own pace received the lowest score implying that students cannot choose the modality as blended learning is supervised by the education department and is uniform in all schools in the country.

Table 3: Attributes of Facilitating Inclusive Learning dimension.

Item Number	Items/Attributes	Factor	Dimension
29	Ensure that students are comfortable communicating with their teachers through chats, text, or calls.	.768	Facilitating Inclusive Learning
31	Help rural school students to select what type of learning modality they are comfortable with (e.g. online or offline/modular).	.726	
37	Allow students to choose their preferred modality in pursuing mastery of the lesson at their own pace.	.659	
41	Monitor student learning by facilitating constant communication with students.	.797	
42	Establish a flexible time for students when they answer activities.	.724	
50	Discuss the items that students find difficult to understand through chat, text, or call.	.819	

Component 2: Interaction with Technology. The principal component analysis yielded five (5) items under the interaction with technology dimension as shown in Table 4. Item on teachers and students can access to the internet during their blended classes got the highest score of .693 which implies the importance of internet connection during the blended learning classes, and thus strengthening the internet connection could improve the blended learning classes of students in this new normal. The item on creating learning avenues where students can learn how to become responsible in the use of technology got the lowest score of .627. This implies that teachers have a limitation in terms of creating learning avenues since not all students have the access to the technology and some of them are new to the learning platform.

Table 4: Attributes of Interaction with Technology dimension.

Item Number	Items/Attributes	Factor	Dimension
2	Teachers and students can access to the internet during their blended classes.	.570	Interaction with Technology
3	Using the technological tools found in online learning resources.	.680	
6	Mastering online learning software.	.652	
7	Ensure access to online learning activities for all students.	.647	
11	Create learning avenues where students can learn how to become responsible in the use of technology.	.627	

Component 3: Structuring Student Learning. Presented in Table 5 are the four (4) attributes of the dimension of structuring student learning. The indicator on the integration of existing online and offline educational materials into learning activities got the highest score of .613. This was followed by the item which is to determine when to use online assessments, such as video presentation, and paper-based assessments such as the use of modules with a score of .607. It is then followed by the item on being adaptive to various learning tools (e.g. modular, online) with a score of .555. Lastly, the item with the lowest score of .554 is the item on strategically combine online and modular components to help students develop communication and collaboration. Though it has the lowest score, it is still important indicator in planning blended activities and assessments dimension because it is important also to have a strategy in combining online and modular components in the blended learning modality.

Table 5: Attributes of Structuring Student Learning dimension.

Item Number	Items/Attributes	Factor	Dimension
12	Strategically combine online and modular components to help students develop communication and collaboration.	.554	Structuring Student Learning
14	Integrate existing online and offline educational materials into learning activities.	.613	
23	Determine when to use online assessments (e.g. video presentation) and paper-based assessments (e.g. modular).	.607	
25	Being adaptive to various learning tools (e.g. modular, online).	.555	

Component 4. Instructional Strategies. Table 6 presents the five (5) items extracted to constitute the attributes of the instructional strategies. Organizing the learning set-up in utilizing technology for blended learning is a major indicator under the organizing blended learning routines with a score of .599. Configuring the virtual space as needed to support the planned online- and modular-based activities is also an important indicator of organizing blended learning routines with a score of .582. Another important indicator is to prepare clear plans for transitioning between online and modular learning activities with a score of .572. Having a clear plan in having online and modular learning is essential for students and teachers to have an organized and systematized blended learning routine. Developing strategies for organizing and maintaining blended learning materials is also an important indicator for organizing blended learning routines. Although the item on establishing procedures for how students should seek help when learning both online technology and modular learning got the lowest score of .560, it is also vital to create steps and ways when students can learn how to deal with the technology and when to utilize modules during blended learning classes.

Table 6: Attributes of Instructional Strategies dimension.

Item Number	Items/Attributes	Factor	Dimension
35	Prepare clear plans for transitioning between online and modular learning activities.	.572	Instructional Strategies
36	Establish procedures for how students should seek help when learning both online technology and modular learning.	.560	
40	Organize the learning set-up in utilizing technology for blended learning.	.599	
43	Configure the virtual space as needed to support the planned online- and modular-based activities.	.582	
44	Develop strategies for organizing and maintaining blended learning materials (e.g., modules, online documents, pdf files and resources, etc.).	.562	

Component 5. Utilizing Online Interaction. In this area, analysis of data revealed three (3) attributes and factor scores using principal component analysis as extraction method. As shown in Table 7, the attribute extracted that has the highest score was the use of social media to monitor students' progress with a score of .628. Ideally, during the blended learning classes, students were monitored using social media, especially Facebook and Messenger, in order for the teachers to check on how far have they learned using the modules or in the online platform. This was followed by the indicator on using the learning management system to monitor student activity with online educational materials to determine

if they are working on with the task with a score of .578. Learning management system is an educational platform used by DepEd to create virtual classes where they can assign the activities that the learners go through, monitor if the activities have been completed, and conduct online quizzes to assess comprehensions in conditions where face-to-face classes are not allowed. The last indicator is to monitor students' online interactions with each other to ensure quality participation with a score of .565. Students were also monitored using online or virtual classes through Zoom or Google Meet. Attendance of the students were also checked.

Table 7: Attributes of Utilizing Online Interaction dimension.

Item Number	Items/Attributes	Factor	Dimension
27	Use the learning management system to monitor student activity with online educational materials to determine if they are working on with the task.	.578	Utilizing Online Interaction
28	Monitor students' online interactions with each other to ensure quality participation.	.565	
30	Use the social media to monitor students' progress.	.628	

Null/Working Model. A null/working model was first constructed to be able to proceed with the analysis of data. The working model typifies the flow of relationships and interactions among variables treated in the study. These latent factors were facilitating inclusive learning, interaction with technology, structuring student learning, instructional strategies, and utilizing online interaction (Figure 2). 5-Factor Model. From the null/working model, the pedagogical blended learning model specification was developed using AMOS 18 licensed version. Figure 3 presents model 1 generated. The obtained Chisq/df (Chi-Square/degrees of freedom) value of 5.738, NFI (Normed Fit Index) of 0.790, RMSEA (Root Mean Square Error of Approximation) value of 0.121, CFI (Comparative Fit Index) of 0.818, and TLI (Tucker Lewis Index) of 0.778. The 5-Factor

Model (Figure 3) confirmed that all of the dimensions were determinants of pedagogical blended learning model.
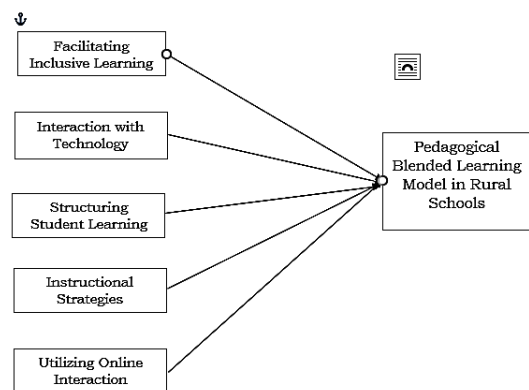

Figure 2: Null/Working Model: Pedagogical Blended Learning Model of Rural Schools.

Analysis showed Chisq/df (Chi-Square/degrees of freedom) value of 2.734, NFI (Normed Fit Index) of 0.907, RMSEA (Root Mean Square Error of Approximation) value of 0.073, CFI (Comparative Fit Index) of 0.938, and TLI (Tucker Lewis Index) of 0.919.

This 5-factor model was selected as the best mathematical model of Pedagogical Blended Learning Model in Rural Schools in Davao del Norte context because it passed the requirements of model fit indices.
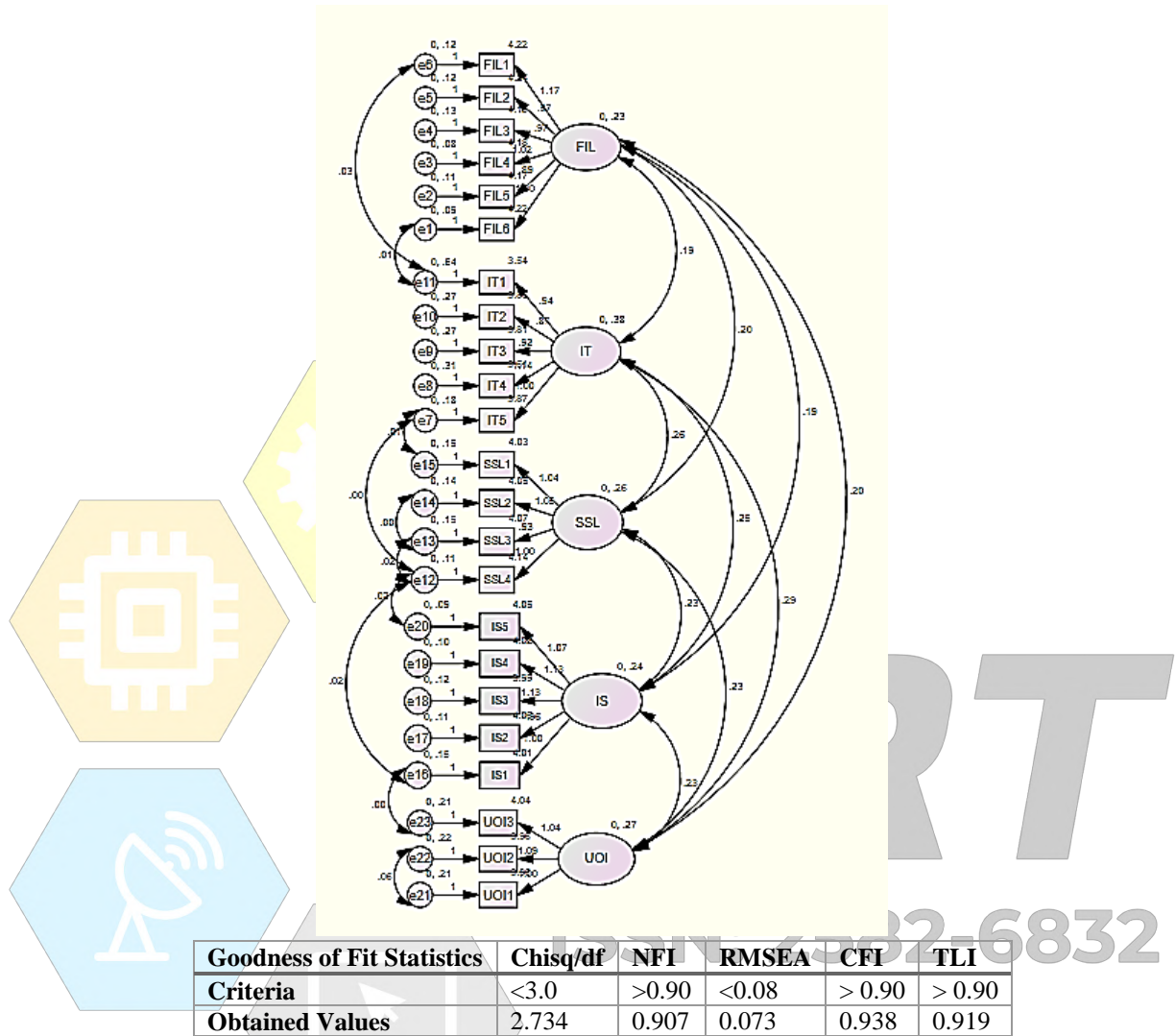

Goodness of Fit Statistics	Chisq/df	NFI	RMSEA	CFI	TLI
Criteria	<3.0	>0.90	<0.08	> 0.90	> 0.90
Obtained Values	2.734	0.907	0.073	0.938	0.919

Figure 3: *The Five-Factor Model of Pedagogical Blended LearningFigure 3. The Five-Factor Model of Pedagogical Blended Learning*

Furthermore, Table 8 presents the regression weights for the 5-Factor Model of Pedagogical Blended Learning.

Table 8: *5-Factor Model of Pedagogical Blended Learning*

Factors			Estimate	S.E.	C.R.	P	Label
FIL6	<---	FIL	1.000				
FIL5	<---	FIL	.891	.051	17.401	***	S
FIL4	<---	FIL	1.022	.050	20.315	***	S
FIL3	<---	FIL	.972	.056	17.356	***	S
FIL2	<---	FIL	.973	.055	17.757	***	S
FIL1	<---	FIL	1.173	.059	19.956	***	S
IT5	<---	IT	1.000				
IT4	<---	IT	1.139	.073	15.632	***	S
IT3	<---	IT	.924	.064	14.464	***	S
IT2	<---	IT	.875	.063	13.985	***	S

IT1	<---	IT	.936	.087	10.806	***	S
SSL4	<---	SSL	1.000				
SSL3	<---	SSL	.930	.054	17.207	***	S
SSL2	<---	SSL	1.046	.060	17.488	***	S
SSL1	<---	SSL	1.042	.061	17.067	***	S
IS1	<---	IS	1.000				
IS2	<---	IS	.964	.059	16.344	***	S
IS3	<---	IS	1.127	.066	17.115	***	S
IS4	<---	IS	1.125	.063	17.867	***	S
IS5	<---	IS	1.066	.060	17.750	***	S
UOI1	<---	UOI	1.000				
UOI2	<---	UOI	1.094	.066	16.669	***	S
UOI3	<---	UOI	1.038	.075	13.777	***	S

CONCLUSION

On the basis of the findings, the researcher concluded that the current condition of Pedagogical Blended Learning in the Rural Schools in Davao del Norte is marred with challenges, and lack of institutional planning due to the sudden change of delivery of learning modality brought by the COVID-19 pandemic, thus creating difficulties and struggles for the teachers and students. The dimensions associated with the pedagogical blended learning model in rural schools in Davao del Norte were facilitating inclusive learning, interaction with technology, structuring student learning, instructional strategies, and utilizing online interaction. There was a significant difference between the null and independent in terms of pedagogical blended learning model of rural schools in Davao del Norte as confirmed by confirmatory factor analysis-latent curve analysis.

RECOMMENDATION

On the basis of the findings, it is recommended that the Department of Education should strengthen the pedagogical blended learning especially in rural schools. The department shall capacitate teachers in providing intensive trainings, seminars, and programs that will improve their skills in dealing with this new learning modality, and by providing them with knowledge on the proper use of technology for blended learning. This continuous intensive training is expected to increase literacy levels of the teachers on the utilization of technology as well as troubleshoot in case of some technical problems. Likewise, the department shall provide a program enhancement that will utilize the five factors provided such as improving the inclusivity of blended learning in a way that it will be more reachable to all students even in the remotest and mountainous areas where more children in the vulnerable sector can benefit. Moreover, the department shall also provide adequate resources such as technology, strong internet connections, and error-free printed materials and modules that would improve the teaching and learning process especially with the teachers in rural areas. The rural areas, being in the quandary of development, has been battling in terms of equal access of education especially in this pandemic. The struggling teachers in the rural areas shall be equipped with resources and knowledge in the implementation of blended learning in a way that the government and other sectors shall work collaboratively with the educational sector and the teachers in providing quality education to the students in rural schools. This help and cooperation with several agencies become the voice of the rural schools in their plight for quality and equal access to education especially with this blended learning modality. However, this recommendation is also true to urban schools since there are also few schools, especially small schools who have been struggling in terms of the implementation of blended learning. Further research may conduct a follow-up study on the effectiveness of the pedagogical blended learning model of rural schools in Davao del Norte once the model is adopted.

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