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Readiness of Students in Flexible Learning Modality: A Convergent Parallel Mixed-Methods Study

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ABSTRACT
This convergent-parallel mixed-methods study was conducted to examine students' readiness on flexible learning modality established in the local context based on Commission on Higher Education Memorandum Order No. 04 series of 2020 or the "Guidelines on the Implementation "Flexible Learning in the Philippines." A sample of 408 students participated in the study. The self-determination theory model and contextual approach to e-learning delivery (learning flexibility, online learning, study management, technology, modular learning, and online interaction) were used as theoretical underpinnings. Data collected using electronic surveys and information from semi-structured interviews were analyzed. The application of a descriptive survey confirms the low level of readiness among students. When compared across the population, the results provided no significant difference in the level of readiness among students when grouped according to sex and provided significant difference according to year level and Course. Interpreting the results together with qualitative analysis parallels the notion of difficulties among students in all dimensions of flexible learning. This research places the thrust of improving curriculum delivery by addressing flexible learning policies in the local context.

INTRODUCTION

A flexible learning modality is a global approach to education as the colleges and universities continue teaching and learning amidst the Covid-19 pandemic. According to Aytac (2020), the nature of cognitivism, constructivism, and performance support towards the level of acceptance among students are highly manifested with many factors in terms of learning content, technology, mental health, and economic conditions. Currently, there is a widening educational gap between our underserved student population and those communities with greater financial and technological resources. Equal access to education is a critical need, and this calls for equitable policies and guidelines in the implementation of flexible learning. Moreover, the academic community should analyze and assess the disruptions caused by this pandemic, document the best methods, note the increased evidence-based practices, and boost higher education learning for students (Mukherjee & Hasan, 2020). Contextually, readiness requires a positive attitude to the platform, and readiness covers the maturity level of the learner, her/his interests, needs, attitudes, motives, pre-learning, abilities, and general health conditions. Readiness is also the learner's state of being ready to learn physically, socially, and mentally (Hergurner, Son, Son, & Donmez, 2020).

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In Europe, students were very quick to adapt to the new changes, and that a mix of synchronous and asynchronous interaction and assessment methods are currently employed. However, this mix is quite limited relative to what is usually subsumed into online learning tools and indicates passive delivery and reduced interaction (Tartavulea, Albu, Albu, Dieaconescu & Petre, 2020). Thus, it is being believed that some universities lack the technology infrastructure needed for online teaching, and recommending a one-size-fits-all approach to teaching based on distance learning is incongruous if the learning delivery will not consider issues of equity and inclusion (Mishra, 2020). Other indicators suggested that the professors and students faced self-imposed obstacles and pedagogical, technical, and financial or organizational factors. The nature of learning delivery must overcome and understand these obstacles to benefit the students as a whole (Lassoued, Alhendawi & Bashitialshaaer, 2020).

In the Philippines, the Commission on Higher Education issued the Memorandum Order No. 04 series of 2020 or the Guidelines on the Implementation of Flexible Learning. Flexible learning is closely related to Blended Learning and Distributed Learning, and this describes the learning design perspective deeply rooted in the needs of students, with the main objective being to provide them with the most flexibility about the learning content, schedules, access, and learning styles as possible. A flexible learning design customizes learning environments to meet the needs of learners, using both technological and non-technological tools (Commission on Higher Education, 2020). However, with no one is ready in the concept of flexible learning, some issues and concerns need to be clarified in terms of delivery, the modification of learning outcomes as provided in the course pack, the training of teachers in making modules or lessons, availability of textbooks and journals, and as to the availability of technological tools like laptops and mobile phones. According to Barrera, Jaminal, and Arcilla (2020), since smartphones, laptops, and the internet are technical requirements for flexible learning, it is essential to establish the learning platform or the learning management system first. Thus, in the context of readiness of students in flexible learning, this learning platform should conform to mobile data as the source of internet connection, should have low usage of mobile data to lessen the students' expenses, and online class or use of modules or learning materials should also be an option for those students who do not have connectivity.

Locally in Monkayo, Davao de Oro, the Monkayo College of Arts, Sciences and Technology, a Local Government Unit Operated College, implements the Flexible Learning Modality for the First Semester of Academic Year 2020-2021. At the outset of implementation, some students clamor on the nature of instructional delivery, availability of high-end gadgets applications, and weak internet infrastructure. Recently, the issue of lack of bandwidth for online learning has been a matter of concern. The institution thinks of ways to improve access to the internet and develop educational platforms to provide support to both students and teachers. It is essential to have a merging process that provides deeper insight and a complete understanding of the readiness among students in flexible learning when exploring the pragmatist approach. The researcher believes that interrogating the data from several perspectives aids in answering the phenomenon in both quantitative and qualitative aspects. The quantitative approach may show the explicit nature of the readiness level, whereas the qualitative data may expose a more in-depth picture of personal and other elements of readiness in flexible learning. This study's main goal is to take advantage of the current situation of reviewing higher education policies and guidelines towards creating a resilient system of education based on equity, excellence, and expansion in the delivery of flexible learning modalities for the students of this institution.

Theoretical Base

The Self- Determination Theory as the basis for online learning motivation (OLM) in the COVID-19 pandemic situation by Asibur Rahman, Uddin, and Dey (2021) and the Contextual Approach to E-Learning Delivery (Kolakowski, Hackbarth, Ebrahim & Walker, 2020) forms the theoretical base for examining the readiness of students in flexible learning modality in Monkayo College of Arts, Sciences and Technology, as it supports the exploration of the six (6) attitudinal elements of the flexible learning modality. The theory describes learning flexibility, online learning, study management, technology, modular learning, and online interaction as essential dimensions of readiness in flexible learning. *Learning flexibility* describes a learning perspective deeply rooted in the needs of students, with the main objective being to provide them with the most flexibility about the learning content, schedules,

access, and learning styles as possible. A flexible learning design customizes learning environments to meet the needs of learners, using both technological and non-technological tools (Deed, Blake, & Henriksen, et al., 2020). *Online learning* defines as a system that employs a variety of online tools, systems, and software, which place new demands on the technical competence of instructors (Coomey & Stephenson, 2001) and offers digital solutions for the teaching process (Velichová, Orbánová & Kúbeková, 2020). Live, "virtual" classrooms may also involve remote but instant feedback methods between student and instructor, facilitated through live chat, video/webcam interactions, and small-group "break-out rooms." Without adequate technological skills, instructors risk resolving technology-related problems during the live class, impacting student access to learning materials (Moore & Kearskey, 2005). *Study management or time management* can be defined as clusters of behavioral skills important in organizing the study and course load (Law, Sandnes, Jian, & Huang, 2009).

Empirical evidence suggests that effective time management is associated with greater academic achievement (McKenzie & Gow, 2004) as students learn coping strategies that allow them to negotiate competing demands. Students are tasked to juggle the work-life balance without much institutional support, and the way that higher education institutions are organized tends to lead to peaks and troughs in the student workload (Adams & Blair, 2019). Stewart, Miertschin, and Goodson (2020) stressed that the use of time management skills and student lifestyle variables in terms of employment, involvement in campus organizations, and perception of anxiety regarding spending time with friends and family has implications for student success and retention in post-pandemic times. *Technology* is defined as students' propensity to embrace and use new technologies to accomplish goals in academic life (Parasuraman, 2000). The construct measures an overall state of mind resulting from a combination of mental enablers and inhibitors to determine a consumer's preference to use new technologies (Parasuraman, 2000).

According to Lai (2008), this implies that a person's perceptions about a specific technology can consist of positive and negative aspects, which jointly influence whether or not an individual is ready to adopt a technology. The positive views will push individuals toward new technologies, and the negative views will pull them away (Parasuraman & Colby, 2015). Parasuraman (2000) and Parasuraman and Colby (2015) stated that such beliefs could be separated into distinctive dimensions: optimism, innovativeness, discomfort, and insecurity. While optimism and innovativeness can be perceived as affirmative dimensions (contributors), discomfort and insecurity are seen as undesirable dimensions (inhibitors) (Damerji, 2020*). Modular learning* is an approach that arranges information in a way that intelligently presents points, and it can be individualized according to learners' needs. Unfortunately, traditional course frameworks generally present information sequentially, and the learner's perception is monotony.

Traditional courses often intersperse quizzes after some prescribed reading or lecturing is offered. Modular courses tend to use learning objects more closely related to a holistic approach to information, often including a problem-oriented approach (Tseng, Su, Hwang, Hwang, Tsai, & Tsai, 2008). Suppan, Stuby, C.A.S., Carrera, Cottet, Koka, Assal, and Suppan (2021) explained that modular learning's most important consideration is the student, which can be acquired by e-module truly essential in improving asynchronous distance knowledge acquisition. The author explained that learners want a more individualized approach to the course content so that his/her prior knowledge and personal characteristics are taken into account. Further, modularization will generally allow a student to learn at his or her own pace (Friestad-Tate, Schubert & McCoy, 2014). *Online interaction* refers to student-to-student interaction and teacher-student interactions which are vital to building community in an online environment, supporting productive and satisfying learning, and helping students develop problem-solving and critical thinking skills (Kolloff, 2011).

Students who had high levels of interaction with other students reported high levels of satisfaction and learning. Students in an online course with a high level of interaction achieved higher performance than students in the same online Course with only a moderate level of interaction (Beaudoin, 2001). In the context of the Covid-19 pandemic, it refers to building online communities for students to reduce feelings of isolation and use various effective techniques such as debates or learning based on discovery and experience. In addition, providing services that help students and teachers learn about the latest policies adopted by universities and the government and encouraging collaboration between these institutions (Online teaching and learning in higher education during the coronavirus pandemic:

Students' perspective, 2020). The qualitative information obtained from semi-structured interviews and responses in the behavior section uncovered themes relating to the consistency of learning flexibility, online learning, study management, technology modular learning, and online interaction as readiness elements towards flexible learning.

METHODS

Research Design

This study utilized the convergent-parallel approach of mixed-method design. According to Edmonds and Kennedy (2017), the convergent-parallel approach is concurrent and involves the simultaneous collection of qualitative and quantitative data, followed by the combination and comparisons of these multiple data sources (i.e., the two methods are ultimately merged). This approach involves the collection of different but complementary data on the same phenomena. Thus, it is used to converge and subsequent interpretation of quantitative and qualitative data (Creswell, 2014). This approach is often referred to as the concurrent triangulation design (single-phase) because the data is collected and analyzed individually but at the same time. It supports a more pragmatic research approach and argues that combining qualitative and quantitative methods provides a more comprehensive view of the research problem than a single method (Creswell & Plano Clark 2011; Delaney, McCarthy & Beecham, 2017).

The research design provided an opportunity to examine (a) the readiness of students on flexible learning; (b) the extent to which the readiness provided the significant difference in terms of sex, year level, and Course among students; and (c) and determine if the qualitative information demonstrated convergent parallelism. Mixed-methods designs expand qualitative and quantitative processes in a study (O'Dwyer & Bernauer, 2014). The survey instrument provided a mechanism for collecting data from each participant, conducted without any internal or external influences. In addition, the semi-structured interview process using open-ended questions contributed to examining multiple perspectives. Figure 1 shows the convergent parallel-mixed methods design.

In the process of triangulation, the mixed-methods approach contributes to the interpretation of the data collected. According to Willis (2007), triangulation contributes to the validity and reliability of research. Incorporating and analyzing the qualitative data from the sample of students provide an alternative perspective to the uniqueness of the research (Creswell, 2014). Moreover, as to the appropriateness of design, the use of a convergent parallel mixed-methods design to examine the dimensions of readiness was appropriate in understanding influences on students' attitudes. The convergent parallel design element was appropriate for examining the overall readiness of students. Creswell (2014) supports using qualitative information in analysis, exploring comments not captured in the survey. A semi-structured interview process was appropriate to gather information. As noted by Creswell (2014), the semi-structured interviews assisted in collecting qualitative information to gain further insights.

Research Locale

The study was conducted at the Monkayo College of Arts, Sciences and Technology located in Monkayo, Davao de Oro, Philippines. Monkayo College of Arts, Sciences, and Technology is one of the local colleges in the Davao Region, operated by the Local Government Unit of Monkayo under the Municipal Ordinance No. 19-2008. The Commission recognizes the institution on Higher Education and a recipient of Free Tuition Law/Unifast and the Tertiary Education Subsidy. It is also recognized as level I accredited by the Association of Local Colleges and Universities- Commission on Accreditation (ALCUCOA), and some of its major programs are now working for Level 2 accreditation. In addition, it is one of the top 30 performing schools in the Philippines during the 2019 Licensure Examination for Teachers for both the elementary and secondary level by the Professional Regulation Commission (PRC). For the Academic Year 2020-2021, the total population of the local college is 2,151.

Population

The researchers distributed an adapted survey questionnaire to 327 to 425 students (with a 30% non-response rate) across all Monkayo College of Arts, Sciences, and Technology degree programs.

These degree programs are Teacher Education, Bachelor of Science in Business Administration, and Bachelor of Agricultural Technology. Samples of respondents were drawn based on the population of each department randomly. The actual demographic characteristics of the participants are 408 respondents, with 72% being females and 28% being males. Regarding year level, 43% are the first year, 31% are the second year, 19% are the third year, and 7% are fourth-year students. According to discipline, 50% are under the Business Administration, 35% are from Teacher Education, and 15% are from Agricultural Technology. In addition, since this study included semi-structured interviews for the qualitative aspect of the study, the purposive sampling method was applied to choose among participants who can provide in-depth and detailed information about the phenomenon under investigation.

Sampling Techniques

Stratified Random Sampling was utilized in determining the respondents of this study. When analyzed across the entire population, the scale of each stratum was proportionate to the population size of the strata. Since the target population was identified based on natural groupings and some groups have more respondents than others, the sampling approach was stratified based on the population distribution. Hence, this study used the population of the students for the First Academic Year of 2020-2021 as the sampling frame to determine the respondents. The identification of each sample was based on the percentage of distribution across the number of students per discipline. The majority of the respondents in this study are from the Business Administration since the department comprised 50% of the total population of the college.

The researcher utilized Slovin's (1960) sampling formula, applied in large populations with the intent of generating a representative sample size, as the basis in determining the sample size per student's category (sex, year level, Course) and per Course (Teacher Education, Business Administration & Agricultural Technology). The study employed per Course and not on specific discipline or major. This sampling formula was employed mainly by determining a sample from 2,151 students in Monkayo College of Arts, Sciences, and Technology.

Data Analysis

In presenting, interpreting, and analyzing the data gathered, various statistical tools and techniques were used. Statistical Package for Social Sciences (SPSS) version 23 was utilized in the analysis of the data. Descriptive statistics such as frequency counts and percentages were used to determine the respondents' profiles. Grouped mean score comparisons were made across the respondent's profile attributes (sex, year level, and Course) using Analysis of Variance (ANOVA) and t-test. In the qualitative research question composed of sub-questions, the readiness elements associated with learning flexibility, online learning, study management, technology, modular learning, and online interaction served to code raw data collected during the interviews. The qualitative information was used to conduct thematic analysis, open-coding, and successive approximation. The goal of the qualitative component was to ensure the application of a second approach in examining the data collected.

Data Collection Procedure

The respondents were selected to participate in an adapted survey questionnaire where they were asked to provide answers in the most precise and insightful manner possible. The respondents were randomly selected in each Course of this institution. The survey took two weeks to complete and collect all the required data, and the researchers also utilized google forms as electronic means. There was a minimum of 3 enumerators who assisted in the conduct of the study. Enumerators underwent an orientation on the purpose of the study, the process of the random sampling distribution, the number of respondents required in each specific department, the questionnaire items, and to ensure consistency of the data collection method.

Quantitative data was used to present the profile of the respondents. A 6-point Likert scale was utilized to determine the level of readiness among the students towards flexible learning modality and analyze the demographic variables comparatively. The indicators for each factor were assessed and evaluated using the Likert Scale as follows (Table 1):

Table 1. Description of Rating Scale Used for the Survey Questionnaire Tool

Rating Scale	Mean Score Range Interval	Response Anchor	Descriptive Level	Qualitative Interpretation
6	5.20 to 6.00	Strongly Agree	Extremely High	A very great manifestation of readiness for flexible learning.
5	4.36 to 5.19	Agree	Very High	A great manifestation of readiness for flexible learning.
4	3.52 to 4.35	Somewhat Agree	High	Moderate manifestation of readiness on flexible learning
3	2.68 to 3.51	Somewhat Disagree	Low	Fair manifestation of readiness on flexible learning.
2	1.84 to 2.67	Disagree	Very Low	Little manifestation of readiness on flexible learning.
1	1.00 to 1.83	Strongly Disagree	Extremely Low	No manifestation of readiness on flexible learning.

For qualitative analysis, the semi-structured interviews were transcribed prior to the parallelism. The interviews were then reviewed based on what was transcribed. Phase 1 included open coding while searching for patterns based on the study's directly linked to the student's readiness for flexible learning. According to Goodson (2012), the second phase of the qualitative process should include thematic analysis, wherein, for this study, six nodes were created (learning flexibility, online learning, study management, technology, modular learning, and online interaction) served as the framework for the final analysis and triangulation efforts. Prior to the final analysis, as Neuman (2011) and Smith (2019) indicated, a successive approximation can be used to examine the relevance of what concepts were discussed by participants and how they may align with the main purpose.

Since the study is a convergent parallel mixed-methods, triangulation was incorporated in a study's framework and design. The process enhances the transferability and interpretation of the quantitative and qualitative data. Triangulation was used to reach conclusions based on the data analysis, connections based on the comments section of the survey, and interviews to assist with understanding the attitudes of the research participants. The collection of multiple forms of data, while not only being limited to the comment section, provides information based on the students' overall perceptions. Triangulation plans included reviewing recent literature regarding students' readiness for flexible learning and incorporated in the interpretive phase based on QUAN (qual) information (Creswell & Plano Clark, 2011; Smith, 2019).

Ethical Considerations

The research study complied with the standards set by the Monkayo College of Arts, Sciences, and Technology's Guidelines for Ethics in Research. The researcher strictly adhered to the maximum level of ethical action or consideration in the scientific research approach. Research ethics involved with requirements on actual data gathering, the protection of the respondents, and the publication of the information were in adherence to the guidelines set by the college. The compliance with these guidelines assured the respondents' rights, dignity, safety, and welfare.

It also guaranteed the credibility of the research results and the ethical principles of beneficence, justice, and autonomy. Hence, the researcher adhered to the full compliance to the standards of conducting institutional research and corresponding ethical review following the study protocol assessments and standardized criteria. It was with the highest sense of responsibility that the researcher complied with the requirements of the ethical standards not limited to:

1. *Voluntary participation*. All respondents were given the free will to participate without any form of force or intimidation. The respondents were carefully considered and adhered to the purpose and benefits of the study voluntarily.
2. *Respect for anonymity and confidentiality*. The confidentiality and anonymity of all respondents were strictly adhered to in this research. The rights of beneficence, respect for dignity, and fidelity were of utmost consideration in the conduct of this study. The researcher assumed full management of private information in order to protect the respondents' identity.
3. *Informed consent process*. Respondents offered their approval in this research knowingly, willingly, and intelligently, and in a clear and manifested manner. Free and informed consent needed in this study incorporates an introduction to the study and its purpose and an explanation about the selection of the research respondents and the procedures followed. The questionnaire produced by the researcher was free of difficult terms and was readily understood by the research respondents. After conducting the research offered a clear perspective of the advantages that the researcher can produce to the general public and the Monkayo College of Arts, Sciences, and Technology. The questionnaires were administered with the college authority's approval and support. Therefore, no study questionnaire was provided without authorization from the authorities that the vital elements of the informed consent process administered clear disclosure, understanding, competency, and voluntariness of respondents.
4. *Risks*. The research was no intention of difficult circumstances on physical, psychological, or socio-economic implications among the respondents during the conduct of this study.

RESULTS

Level of Readiness on Flexible Learning Modality among Students

Table 2 shows students' readiness level on flexible learning modalities, flexibility, online learning, study management, technology, modular learning, and online interaction. Results show that the level of readiness among students in flexible learning modality is low in all areas with learning flexibility (2.95), online learning (3.13), study management (2.96), technology (3.44), modular learning (2.72), and online interaction (2.98). The overall mean is 3.03, with a descriptive equivalent of low. It implies that the level of readiness among students in flexible learning modality is fairly manifested.

Table 2. Level of Readiness among Students in Flexible Learning

Dimensions	Mean	Descriptive Level	Qualitative Interpretation
Learning Flexibility	2.95	Low	Fairly Manifested
Online Learning	3.13	Low	Fairly Manifested
Study Management	2.96	Low	Fairly Manifested
Technology	3.44	Low	Fairly Manifested
Modular Learning	2.72	Low	Fairly Manifested
Online Interaction	2.98	Low	Fairly Manifested
Over-All Mean	**3.03**	**Low**	**Fairly Manifested**

Test of Significant Difference on the Level of Readiness among Students when respondents are grouped according to sex

Table 3 summarizes variables that resulted in significant differences in respondents' responses when grouped according to sex. Testing the data through the t-test resulted in no significant difference among responses in terms of readiness towards blended learning modality, primarily identified under Levene's Test (p-value of .036 equal variances assumed). Thus, there were no significant differences between male and female responses regarding readiness towards blended learning modality (p-value of .663 under equal variances not assumed on t-test for equality of means) at a .05 level of significance.

Table 3. Summary of Significant Difference on the Respondents' Level of Readiness towards Flexible Learning Modality when grouped according to sex

Sex		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Interval of the	
									Lower	Upper
Readiness on Flexible Learning	Equal Variances Assumed	**4.427**	**.036**	**-.387**	**398**	**.699**	**-.0089416**	**.0230775**	**-.0543106**	**.0364274**

Test of Significant Difference on the Level of Readiness among Students when respondents are grouped according to Year Level

Presented in Table 4 is the ANOVA summary of significant differences in the level of readiness among students on flexible learning modality when grouped according to year level. As shown on the p-value of .000, it significantly differed in readiness towards learning modality when grouped according to year level. Thus, the null hypothesis, "Ho3: There is no significant difference in the level of readiness towards flexible learning modality when analyzed based on year level," was rejected.

Table 4. Summary of Significant Difference on the Respondents' Level of Readiness Towards Flexible Learning Modality when respondents are grouped according to Year Level

Year Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.963	3	.311	7.968	.000
Within Groups	15.948	396	.040		
Total	**16.910**	**399**			

On the other hand, Table 5 shows the homogeneity of variances on the readiness towards a flexible learning modality. This test was used to analyze what method of post hoc comparison would be used. If the Sig of the Levene statistic was greater than 0.05, and equal variance was assumed, Tukey would be used for posthoc analysis; otherwise, an equal variance was not assumed, and Tamhane would be used. From Table 5, Year Level had Sig higher than 0.05, thus equal variance was assumed, and Tukey was used for post hoc analysis.

Table 5. Test of Homogeneity of Variance

Levene Statistic	df1	df2	Sig.
2.045	3	396	.107

Table 6 illustrated a significant difference in the level of readiness towards blended learning modality when grouped according to the year level.

Table 6. Post Hoc Analysis

Readiness on Flexible Learning	(I)Year Level:	(J) Year Level:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey/HSD	First Year	Second-year	**-.02370**	**.02370**	**.001**	**-.154**	**-.031**
		Third-year	**.092802672212767***	**.02764**	**.088**	**-.136**	**.001**
		Fourth-year	**-.065068193740162**	**.04028**	**.001**	**-.254**	**-.046**

Readiness on Flexible Learning	(I)Year Level:	(J) Year Level:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
			-.150227211975405*				
	Second Year	First-year		**.02370**	**.001**	**.032**	**.154**
		Third-year	**.092802672212767***	**.02928**	**.779**	**-.048**	**.103**
		Fourth-year	**.027734478472605**	**.04143**	**.509**	**-.164**	**.049**
			-.057424539762639				
	Third Year	First-year	**.065068193740162**	**.02764**	**.088**	**-.001**	**.136**
		Second-year	**-.027734478472605**	**.02928**	**.779**	**-.103**	**.048**
		Fourth-year	**-.085159018235244**	**.04380**	**.211**	**-198**	**.028**
	Fourth Year	First year	**.150227211975405**	**.04028**	**.001**	**.046**	**.254**
		Second year	**.057424539762639**	**.04143**	**.509**	**-.049**	**.164**
		Third year	**.085159018235244**	**.04380**	**.211**	**-.028**	**.198**

***.The mean difference is significant at the 0.05 level**

The readiness towards flexible learning modality among the first year is significantly different from the second year (p-value of .001); the readiness towards flexible learning modality among the first year is not significantly different from the third year (p-value of .088); the readiness towards flexible learning modality among the first year is significantly different from the fourth year (p-value of .001). On the other hand, the readiness towards flexible learning modality among the second year is not significantly different from the third year (p-value of .779); the readiness towards flexible learning modality among the second year is not significantly different from the fourth year (p-value of .509). Finally, the readiness towards flexible learning modality among the third year is not significantly different from the fourth year (p-value of .211).

Therefore, the null hypothesis of no significant difference in the level of readiness towards flexible learning modality:

1. Between the first year and second year is rejected.
2. Between the first year and third year is not rejected (or accepted).
3. Between the first year and fourth year is rejected.
4. Between the second year and third year is not rejected (or accepted).
5. Between a second year and fourth year is not rejected (or accepted).
6. Between a third year and fourth year is not rejected (or accepted).

Test of Significant Difference on the Level of Readiness among Students when respondents are grouped according to Course

Presented in Table 7 is the ANOVA summary of significant differences in the level of readiness towards flexible learning modality when grouped according to Course. As shown on the p-value of .000, it significantly differed in readiness towards flexible learning modality when grouped according to Course.

Table 7. Summary of Significant Difference on the Respondents' Level of Readiness Towards Flexible Learning Modality when respondents are grouped according to Course

Course	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.000	2	.500	12.474	.000
Within Groups	15.911	397	.040		
Total	16.910	399			

On the other hand, Table 8 shows the homogeneity of variances on the readiness towards flexible learning modality. This test was used to analyze what method of post hoc comparison would be used. If the Sig of the Levene statistic was greater than 0.05, and equal variance was assumed, Tukey would be

used for posthoc analysis; otherwise, an equal variance was not assumed, and Tamhane would be used. From Table 13, Year Level had Sig higher than 0.05, thus equal variance was assumed, and Tukey was used for post hoc analysis.

Table 8. Test of Homogeneity of Variance

Levene Statistic	df1	df2	Sig.
.946	2	397	.389

Table 9 illustrated a significant difference in the level of readiness towards flexible learning modality when grouped according to the Course.

Table 9. Post Hoc Analysis

Readiness on Flexible Learning	(I)Course:	(J) Course:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey/HSD	BSBA	EDUCATION	**-.000911270983213**	**.022**	**.999**	**-.053**	**.051**
		BAT	**.138688524590165***	**.029**	**.000**	**.070**	**.208**
	EDUCATION	BSBA	**.000911270983213**	**.022**	**.999**	**-.051**	**.053**
		BAT	**.13959975573378***	**.031**	**.000**	**.067**	**.212**
	BAT	BSBA	**-.138688524590165***	**.029**	**.000**	**-.208**	**-.070**
		EDUCATION	**-.139599795573378***	**.031**	**.000**	**-.212**	**-.067**

***.The mean difference is significant at the 0.05 level**

The readiness towards flexible learning modality among BSBA students from education is not significantly different (p-value of .999); the readiness towards flexible learning modality among BSBA students from BAT is significantly different (p-value of .000); the readiness towards flexible learning modality among Education from BAT is significantly different (p-value of .000). Therefore, the null hypothesis of no significant difference in the level of readiness towards flexible learning modality:

1. Between BSBA and Education is not rejected (or accepted).
2. Between BSBA and BAT is rejected.
3. Between Education and BAT is rejected.

In summary, the result reveals that the level of readiness towards flexible learning modality provides no significant differences in respondents' responses regarding sex and significantly when grouped according to year level and Course. Therefore, the decision is to reject the null hypothesis (Ho1) that there is no significant difference in the level of readiness among students towards flexible learning modality about Research Objective 3.

Categorization of Qualitative Data

The participants' responses were grouped according to their common answers to identify those essential themes in data categorization. Then, they were arranged, regrouped, reorganized until the main themes identified were reduced. Each theme is supported with core ideas. Right after everything was set, those themes were presented through the table.

Research Question 3:
What themes emerged based on the interview about the level of readiness among students on flexible learning modality?

Sub-question 3.1.
What are the Challenges and Difficulties Experienced by the Students as the Institution Adopted the Flexible Learning Modality?

The participants were asked to share their thoughts and experiences about their challenges and difficulties as the institution adopted the flexible learning modality. From their responses came the formulated themes needed purposely to examine the researchers' observation of the phenomenon.

Table 10. Themes and Core Ideas on what are the Challenges and Difficulties Experienced by the Students as the Institution Adopted the Flexible Learning Modality

Essential Themes	Core Ideas
The pace of Advancement of Technology and Internet	*Mobile Phone is outdated and cannot adapt to pdf and other apps *weak internet in our location
Academic Overload	*Too many activities, analysis, and application for all subjects. *Too many essays and cases.
Family & Financial Problems	*My Parent has no income. *My parent is earning less in times of pandemic. *Buying of farm output is cheap nowadays. *Lack of support from parents and family members.
Paraphrasing Internet Sources	*I resort to copy-pasting the answers on the internet due to overloaded subject requirements. *I do not have time to cite or paraphrase the answers since I need to proceed to another subject.

There are four (4) essential themes that emerged, as shown in Table 10. These are Pace of Advancement on Technology and Internet, Academic Overload, Family and Financial Problems, and Paraphrasing Internet Sources.

Sub-question 3.1.
How do they cope with the Challenges and Difficulties in Adopting the Flexible Learning Modality?

As to getting the necessary data on the coping mechanisms of dealing with the challenges and difficulties in adopting a blended learning modality, the participants shared their experiences, views, and insights, which led to the determination of essential themes for the enlightenment needed in the investigation. The themes are supported with some core ideas derived during the discussion. The participants eagerly shared and even gave some advice to their co-students when handling the challenging situation in dealing with the learning modality.

Table 11. Themes and Core Ideas on How do they Cope with the Challenges and Difficulties in Adopting the Flexible Learning Modality

Essential Themes	Core Ideas
Collaboration with Classmates	*I communicate with my classmates to answer the course pack's activities, analysis, and application. *We created a group chat to discuss when we are going to submit each requirement.
Internet Accessibility and Subscription Package	*I go to población to look for internet access. *I look for internet access in our barrio like the top of the village, use of internet booster, or computer shop in the barangay. *I use a weekly internet package to limit the cost of data allocation. *I approach kind teachers that we will focus first on the harsh or terror one.

Essential Themes	Core Ideas
Bargaining with Teachers on the Submission and Synchronous Session	*Some teachers are ok that we cannot attend the online session. *I chatted with teachers that I could not cope with the timeline provided in her lessons.
Categorizing the Subject	*I prioritize the difficult subjects or lessons before the easiest ones. *I make sure that I am done with the major subjects before the minor.
Socialization & Emotional Well-being	*I make sure I can still go with my friends on an outing, sports, and other physical activities. *I still share a post on social media, play mobile games, watch videos on youtube. *I chat with my friends with non-academic concerns. *I make sure that I am not depressed, still go along with life amidst adversities, etc.

There are five (5) essential themes that emerged, as shown in Table 11. Collaboration with Classmates; Internet Accessibility and Subscription Package; Bargaining with Teachers on the Submission and Synchronous Session; Categorizing the Subject, and Socialization and Emotional Wellbeing.

Research Question 5:
To what extent do the qualitative data corroborate the quantitative data by diverging the results between quantitative data (rare manifestation) and qualitative findings (favorable perceptions) among the students?

Table 12 presents the nature of integration or parallelism between qualitative and quantitative results. The result of merging and confirming quantitative data is congruent to the qualitative data because the responses of the respondents and informants revealed the negative experience towards flexible learning modality. However, the coping mechanism will highlight the need to reevaluate the indicators of readiness among the students. As the coping mechanism emerges, readiness for flexible learning may eventually change. The negative experiences and coping mechanisms affect flexible learning, learning flexibility, study management, technology, modular learning, and online interaction. However, other dimensions of family and personal problems (negative experience) and socialization and emotional well-being (coping) are essential themes affecting students' flexible learning readiness.

Table 12. Nature of Integration between Qualitative and Quantitative Results

Dimensions	Quantitative Results	Qualitative Result (in all dimensions captured in a priori themes)	Nature of Integration
Learning Flexibility	The respondents rated LOW level conveying that the readiness on flexible learning modality is fairly manifested among students.		The result of merging and confirming quantitative data is congruent to the qualitative data because the responses of the respondents and informants revealed the negative experience towards flexible learning modality. However, the coping mechanism will
Online Learning		Paraphrasing Internet Sources (negative experience in online learning)	
Study Management		Categorizing the Subject (coping in terms of study management)	
Technology		The pace of Advancement on Internet and Technology (negative experience on technology)	

Dimensions	Quantitative Results	Qualitative Result (in all dimensions captured in a priori themes)	Nature of Integration
		Internet Accessibility and Subscription Package (coping in technology)	highlight the need to reevaluate the indicators of readiness among the students. As the coping mechanism emerges, readiness for flexible learning may eventually change.
Modular Learning		Academic Overload (negative experience in modular learning) Bargaining with Teachers (coping in modular learning)	
Online Interaction		Collaboration with Classmates (coping in online interaction)	
Other Dimensions		Family and Financial Problems (negative experience as other dimensions of readiness in flexible learning) Socialization and Emotional Well-being (coping as other dimensions)	

DISCUSSION

The Commission on Higher Education in the Philippines issued the Memorandum Order No. 04 series of 2020 or the Guidelines on the Implementation of Flexible Learning. The Memorandum Order redirected the Higher Education Institutions to implement Learning Continuity Plan in times of Covid-19 pandemic. As this guideline is important in reviewing the guidelines in the local context, students' readiness for flexible learning modalities must be investigated. The results imply that readiness is low, which means that students are on the transition stage of the learning process using the modality implemented by the institution. As Mukherjee and Hasan (2020) supported, the learning space will be invaded by these mature learners, who are focused and engaged with choice-based learning and ensure their learning objectives. Thus, digital content in the teaching-learning process must be shifted from intermittent technology intervention into competency-based education where both learning and evaluation rely on predefined competencies and outcomes to foster higher learning.

In comparing demographic profiles into students' readiness in flexible learning modality, the variations between year level and Course support the idea that each year level and the Course provides different levels of difficulty that can be attributed by adjusting to the digital literacy or other factors. Johnson, Pritika, Ronil, and Mani (2021)mentioned that outreach efforts and awareness programs are needed to expose the students to the latest digital literacy trends. Its efficacy relies upon student access to suitable technology and the internet aside from the quality of the online course material.

Exploring the themes that emerged based on the interview, the negative experiences and coping mechanisms are influential dimensions that must be integrated into the flexible learning model. The results provided unique dimensions of flexible learning that require expanding its scope, providing curriculum insight, and enhancing the academic structure. Moreover, as flexible learning is diverse, it is better to understand the nature of distance learning synonymous with flexible learning in terms of experience, enjoyment, computer anxiety, and self-efficacy (Rizun & Strzelecki, 2020). Thus, if readiness must be measured among students, it is also important to consider strategies and mitigation processes in the technology area, specifically the infrastructure readiness, user capabilities, and communication gap inside the virtual environment (Catyanadika & Isfianadewi, 2021).

The integration of quantitative and qualitative results emphasized the need to reevaluate other indicators of flexible learning. It requires exploration among common problems, similarities and differences, and other significant factors. Karatas and Arpaci (2021) stressed that for students to be

ready, most especially in online learning, self-directed learning skills, metacognitive awareness, and 21st-century skills are predictors of readiness. Thus, it can be explained that dimensions of flexible learning must be explored further and contextualized in a local setting. Moreover, Johnson et al. (2021) mentioned that flexibility must assure no limitation of pace and time; students can access the content and learn at their speed and time; promotion of active learning. As students take the lead role in the learning process; promote student-centered, self-directed, interactive, flexible learning; and students must be exposed to versatile education tools. This aspect of research suggested that since transforming from face to face into flexible or distance learning is always trivial, major elements must be adapted, such as the teaching materials, the tools used for their production, and the interaction mechanisms with the students. In these circumstances, each university or college must adopt different solutions, usually including specific online tools and platforms for learning, such as video call applications, and giving general guidelines and instructions so that the teachers know how to adapt their teaching activities towards students (Challenges and experiences of online evaluation in courses of civil engineering during the lockdown learning due to the COVID-19 pandemic, 2021).

CONCLUSION

Based on the study's findings, students' readiness for flexible learning involves many factors to consider. Diverging common elements alone may not be effective as the readiness of students includes other factors. Various considerations are needed in terms of curriculum, technology, students services, engagement of parents, and therefore, academic officials at the local level should review all these requirements of flexible learning. The research contributed to knowledge transfer by reviewing the guidelines for flexible learning modalities at the institutional and national levels. Therefore, flexible learning readiness involves physical readiness, emotional readiness, experiential readiness, and knowledge readiness.

RECOMMENDATIONS

Based on the detailed and significant evaluation of results, the researcher recommends the following:

1. To Monkayo College of Arts, Sciences, and Technology- This study suggests that the institution review the existing guidelines and policies of flexible learning modality. The Academic Council may identify each component or dimension of flexible learning based on acceptability or assistance needed among the students towards the Course. It is high time to review the salient features of student services in creating programs related to book subsidies, internet subsidies, gadgets, and even financial assistance among students. It may also link the Student Services Programs to possible donors locally and abroad. Moreover, being a local college operated by the Local Government Unit of Monkayo, the institution should coordinate the local officials crafting the subsidy program through the education committee's enactment of programs and services.
2. To the Commission on Higher Education- Review existing guidelines and flexible learning policies participatory among students, parents, industry partners, alumni, and other stakeholders.
3. To Future Researchers- This study may be conducted in a larger scope involving other institutions to explore variables that best fit the flexible learning model.

IMPLICATIONS

Establishing a framework for Flexible Learning Modality should correspond to the varied factors affecting the students' studies. The framework should be the foundation of a more comprehensive plan in curriculum delivery or Outcome-Based Education. Discussions based on the results of this research should include the understanding of the dimensions that best contribute to additional guidelines and policies of the Flexible learning modality in the Philippines as per CHED Memorandum Order No. 04 series of 2020. The qualitative findings consistently indicated that dimensions of flexible learning must be given priority. The findings provide insight for the leadership of the institutions that seek to evaluate the scope of the curriculum. It implicates addressing the divergence between each year level and Course, and those without the necessary capacity to engage in the flexibility of learning like the use of technology and the internet must call the academic officials' attention. Students' readiness provided insight into the

likelihood of support from the institution and redesigned the standard practice, scope, and system based on the need holistically. Finally, the educational continuity measures call for the institution's enhancement and preparedness for months to come since face-to-face classes are still not allowed. By understanding students' readiness, establishing more comprehensive guidelines, and consistent implementation of academic direction for the institution, flexible learning is truly a rich modality.

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REFERENCES

Adams, R. & Blair, E. (2019). Impact of time management behaviors on undergraduate engineering students' performance. *SAGE Journals* https://doi.org/10.1177%2F2158244018824506

Asibur Rahman, M.,H., Uddin, M. S., & Dey, A. (2021). Investigating the mediating role of online learning motivation in the COVID-19 pandemic situation in Bangladesh. *Journal of Computer Assisted Learning*, http://dx.doi.org/10.1111/jcal.12535

Aytaç, T. (2020). *The influence of blended learning model on developing leadership skills of the school administrator*. https://www.ubicc.org/files/pdf/1_355.pdf

Barrera, Kenneth & Jaminal, Beverly & Arcilla Jr, Felix. (2020). *Readiness for Flexible Learning amidst COVID-19 Pandemic of Saint Michael College of Caraga, Philippines*. 2. 1-15. https://doi.org/10.18868/cte.02.060120.01

Beaudoin, M. (2001). *Learning or lurking? Tracking the 'invisible' online student. Orlando, FL*: Paper delivered at the 7th Sloan-C International Conference on Asynchronous Learning Networks.

Catyanadika, P. E., & Isfianadewi, D. (2021). Development of risk breakdown structure for online learning project during COVID-19 crisis. *International Journal of Research in Business and Social Science, 10*(1), 174-179. http://dx.doi.org/10.20525/ijrbs.v10i1.1001

Challenges and experiences of online evaluation in courses of civil engineering during the lockdown learning due to the COVID-19 pandemic. (2021). *Education Sciences, 11*(2), 59. http://dx.doi.org/10.3390/educsci11020059

Commission on Higher Education (2020). CHED memorandum 04 series of 2020 or the guidelines on the implementation of flexible learning. www.ched.gov.ph

Coomey, M., and Stephenson, J. (2001). According to the research, online learning is all about dialogue, involvement, support, and control. Teach. Learn. *Online Pedagogies New Technol.* 37–52. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.458.4620&rep=rep1&type=pdf

Creswell, J. W. & Plano Clark, V. L. (2011) *Designing and conducting mixed methods research*, Los Angeles: SAGE Publications.

Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks: SAGE Publications.

Damerji, H. (2020). *Technology readiness impact on artificial intelligence technology adoption by accounting students (Order No. 27547476*). Available from ProQuest Central. (2318672479). Retrieved from https://www.proquest.com/docview/2318672479?accountid=31259

Deed, C., Blake, D., Henriksen, J. et al. (2020). *Teacher adaptation to flexible learning environments*. Learning Environ Res 23, 153–165. https://doi.org/10.1007/s10984-019-09302-0

Delaney, Y., McCarthy, J., & Beecham, S. (2017). *Convergent parallel design mixed-methods case study in problem-based learning*. Kidmore End: Academic Conferences International Limited. Retrieved from https://www.proquest.com/conference-papers-proceedings/convergent-parallel-design-mixed-methods-case/docview/1967313989/se-2?accountid=31259

Edmonds, W.A. & Kennedy, T. (2017). *An applied guide to research designs: quantitative, qualitative, and mixed methods.*

Friestad-Tate, J., Schubert, C., & McCoy, C. (2014). Understanding modular learning - developing a strategic plan to embrace change. *I-Manager's Journal on School Educational Technology*, 9(4), 32-44. Retrieved from https://www.proquest.com/docview/1544384104?accountid=31259

Goodson, P. (2012). *Becoming an academic writer: 50 Exercises for paced, productive, and powerful writing.* Thousand Oaks, CA: SAGE Publications, Inc.

Greener, I. (2011). Designing social research: A guide for the bewildered. Los Angeles: SAGE.

HERGÜNER, G., SON, S. B., SON, S. H. E. R. G. E. R., & DÖNMEZ, A. (2020). The effect of online learning attitudes of university students on their online learning readiness. TOJET: *The Turkish Online Journal of Educational Technology, 19*(4) Retrieved from https://www.proquest.com/scholarly-journals/effect-online-learning-attitudes-university/docview/2451759720/se-2?accountid=31259

Johnson, J. B., Pritika, R., Ronil, C., & Mani, N. (2021). Attitudes and awareness of regional pacific island students towards e-learning: Revista de universidad y sociedad del conocimiento. *International Journal of Educational Technology in Higher Education, 18*(1) http://dx.doi.org/10.1186/s41239-021-00248-z

Karatas, K., & Arpaci, I. (2021). The role of self-directed learning, metacognition, and 21st-century skills predicting the readiness for online learning. *Contemporary Educational Technology, 13*(3) http://dx.doi.org/10.30935/cedtech/10786

Kolakowski, M., Hackbarth, G., Ebrahim, S., & Walker,Edward D.,,II. (2020). A contextual approach to E-learning delivery in higher educational institution learning organizations. Journal of Higher Education Theory and Practice, 20(11), 12-24. Retrieved from https://www.proquest.com/scholarly-journals/contextual-approach-e-learning-delivery-higher/docview/2492325406/se-2?accountid=31259

Kolloff, M. (2011). Strategies for effective student/student interaction in online courses. 17th annual conference on distance teaching and learning

Lai, M. L. (2008). Technology readiness, internet self-efficacy, and computing experience of professional accounting students. Campus-Wide Information Systems, 25(1),18-29. https://doi.org/10.1108/10650740810849061

Lassoued, Z., Alhendawi, M., & Bashitialshaaer, R. (2020). An exploratory study of the obstacles for achieving quality in distance learning during the COVID-19 pandemic. *Education Sciences, 10*(9), 232. http://dx.doi.org/10.3390/educsci10090232

Law, K. M. Y., Sandnes, F. E., Jian, H.-L., Huang, Y.-P. (2009). A comparative study of learning motivation among engineering students in South East Asia and beyond. International Journal of Engineering Education, 25(1), 144-151.

McKenzie, K., Gow, K. (2004). Exploring the first-year academic achievement of school leavers and mature-age students through structural equation modeling. Learning and Individual Differences, 14, 107-123. http://dx.doi.org/10.1016/j.lindif.2003.10.002

Mishra, S. (2020). Blended learning is the way forward after the pandemic. *University world news*. https://www.universityworldnews.com/post.php?story=20200528134934520

Moore, M. G., and Kearskey, G. (2005). Distance Education: A Systems View. Belmont: Wadsworth Publishing.

Mukherjee, D., & Hasan, K. K. (2020). Challenges in learning continuity during the COVID-19 pandemic: A methodological and thematic review. *South Asian Journal of Management, 27*(3), 56-78. Retrieved from https://www.proquest.com/scholarly-journals/challenges-learning-continuity-during-covid-19/docview/2476337454/se-2?accountid=31259

Neuman, W. L. (2011). Social research methods: qualitative and quantitative approaches. Boston: Allyn & Bacon.

O'Dwyer, L. M., & Bernauer, J. A. (2014). Quantitative research for the qualitative researcher. Los Angeles: SAGE.

Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. (2020). *Sustainability, 12*(24), 10367. http://dx.doi.org/10.3390/su122410367

Parasuraman, A. (2000). Technology readiness index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research,2*(4), 307-320.

Parasuraman, A., & Colby, C. (2015). An updated and streamlined technology readiness index: TRI 2.0. *Journal of Service Research*, 18(1), 59-74. https://doi.org/10.1177/1094670514539730.

Rizun, M., & Strzelecki, A. (2020). Students' acceptance of the COVID-19 impact on shifting higher education to distance learning in Poland. *International Journal of Environmental Research and Public Health, 17*(18), 6468. http://dx.doi.org/10.3390/ijerph17186468

Slovin, E. (1960). *Slovin's formula for sampling technique*. Retrieved on January 10, 2021.

Smith, H. (2019). Attitudes of emergency medical services stakeholders in Barbados: A convergent parallel mixed-methods study (Order No. 13805641). Available from ProQuest Central. (2193721957). Retrieved from https://www.proquest.com/dissertations-theses/attitudes-emergency-medical-services-stakeholders/docview/2193721957/se-2?accountid=31259

Stewart, B. L., Miertschin, S., & Goodson, C. (2020). COVID-19 transitions to online formats and pre-pandemic foundations for student success: Time management and lifestyle variables. *Journal of Higher Education Theory and Practice, 20*(10), 173-189. Retrieved from https://www.proquest.com/scholarly-journals/covid-19-transitions-online-formats-pre-pandemic/docview/2491986186/se-2?accountid=31259

Suppan, M., Stuby, L., C.A.S., Carrera, E., M.D., Cottet, P., M.D., Koka, A., M.D., Assal, F., M.D., . . . Suppan, L., M.D. (2021). Asynchronous distance learning of the national institutes of health stroke scale during the COVID-19 pandemic (E-learning vs. video): Randomized controlled trial. *Journal of Medical Internet Research, 23*(1) http://dx.doi.org/10.2196/23594

Tartavulea, C. V., Albu, C. N., Albu, N., Dieaconescu, R. I., & Petre, S. (2020). ONLINE TEACHING PRACTICES AND THE EFFECTIVENESS OF THE EDUCATIONAL PROCESS IN THE WAKE OF THE COVID-19 PANDEMIC. *Amfiteatru Economic, 22*(55), 920-936. http://dx.doi.org/10.24818/EA/2020/55/920

Tseng, S., Su, J., Hwang, G., Hwang, G., Tsai, C., Tsai, C. (2008). An Object-Oriented Course Framework for Developing Adaptive Learning Systems. *Educational Technology & Society*, 11(2), 171-191.

Velichová, Ľ., Orbánová, D., & Kúbeková, A. (2020). The COVID-19 pandemic: Unique opportunity to develop online learning. *TEM Journal, 9*(4), 1633-1639. http://dx.doi.org/10.18421/TEM94-40

Willis, J. (2007). *Foundations of qualitative research: interpretive and critical approaches*. Thousand Oaks: Sage Publications.