International Conference on Research in Education and Science
www.icres.net May 18-21, 2023 Cappadocia, Turkiye www.istes.org

# Assessing the Viability, Functionality, and Effectiveness of the Concurrent Classroom Modality: A Quantitative Study

**May Maricel Biares-De Gracia**
La Salle Green Hills, Philippines, https://orcid.org/0000-0002-7982-0399

**Janel Concepcion Cruz-Cinches**
La Salle Green Hills, Philippines, https://orcid.org/0000-0002-9546-1445

**Miguel Quiachon-Rapatan**
La Salle Green Hills, Philippines, https://orcid.org/0009-0009-5834-0415

**Abstract**: The study was conducted to evaluate the implementation of the Concurrent Classroom (CC) modality, a type of hybrid learning modality wherein an in-person teacher teaches in-person and online students simultaneously. The study utilized a quantitative research design to assess the implementation of the CC based on its viability, functionality, and effectiveness. Grades 4 to 12 students, teachers, and subject coordinators participated in the study. Quantitative data were obtained from the self-rating survey, classroom observation rating and summative assessment results. Remarks about the implementation of the CC were also solicited. Obtained results show that the CC modality has high viability. It is practical, useful, and suitable for instructional delivery. CC also shows high functionality. It has enabled teachers and students to perform tasks that are expected from them. Lastly, it is an effective modality because it has produced favorable positive learning outcomes. Recommendations are focused on providing a targeted professional development to empower teachers in effectively handling CC classes, focusing on equitable cognitive engagement, active participation, and balanced support and attention for both in-person and online student groups. Also, provision and functionality of required devices, technical equipment, and connectivity in the CC learning environment must be ensured and emphasized.

**Keywords:** Education, E-learning, Hybrid, Concurrent Classroom, Learning Modality

**Citation:** Biares-De Gracia, M.M., Cruz-Cinches, J.C., & Quiachon-Rapatan, M. (2023). Assessing the Viability, Functionality, and Effectiveness of the Concurrent Classroom Modality: A Quantitative Study. In M. Koc, O. T. Ozturk & M. L. Ciddi (Eds.), *Proceedings of ICRES 2023-- International Conference on Research in Education and Science* (pp. 440-461), Cappadocia, Türkiye. ISTES Organization.

## Introduction

School systems across the country are slowly reopening for face-to-face classes using different hybrid learning

modalities to deliver instructions. The hybrid learning modalities aim to prevent possible resurgence of the COVID pandemic and to address the varied needs of students who choose to attend online or in-person on-campus classes. There are varied types of hybrid learning modalities (e.g., rotation, blendflex, hyflex, multi-track, and concurrent classroom) which enable students to attend classes either online or in person. In anticipation of the use of hybrid learning modalities, La Salle Green Hills (LSGH) has considered and examined the implementation of the Concurrent Classroom or CC as its alternative modality in the conduct of classes.

Following the pilot implementation of the concurrent classroom model in select classes during the previous academic year (2021-2022), LSGH has decided to continue utilizing this hybrid approach as the preferred method of teaching and learning for the academic year 2022-2023. As per Tucker's definition (2021), a concurrent classroom involves the teacher teaching one group of students in-person while simultaneously teaching another group of students online. This model is now implemented for Grades 4 to 12 where both in-person and online groups attend the same classes and learn together simultaneously.

The implementation of the CC learning modality began with teacher training on the principles of instructional design for the CC and the different CC modes (simultaneous, split, individualized and combination). During the training, teachers produced instructional materials and practiced handling the technical equipment in selected CC venues and related software applications. The teacher training provided the various academic and support units concerned an opportunity to understand, experience and reflect on the preparations needed for the efficient and effective conduct of the Concurrent Classroom.

In the article authored by the University of Texas, it is stated that the primary challenge in the concurrent classroom is to ensure equitable learning opportunities and active participation for online students. This necessitates additional planning; nevertheless, concurrent classrooms offer specific advantages. The most significant benefit is that, if implemented thoughtfully and precisely, they empower students to have significant control over their own learning journey.

The Quality Assurance and Research Office (QARO) in collaboration with the academic supervisors of LSGH conceptualized this study to document and evaluate the different activities of the Concurrent Classroom. The primary focus of this study is to assess the implementation of the CC learning modality in terms of its *Viability*; the capacity of a learning modality to deliver instruction which helps to determine the usefulness of the CC modality for teaching and learning,

*Functionality*; the ability of teachers and students and the learning environment to do or perform the instructional, managerial and technical procedures and tasks that are expected of them, and *Effectiveness*; performance of students in summative assessments of competencies related to the learning goals of Acquisition, Make Meaning and Transfer. Data obtained from varying assessments and evaluation sources will be analyzed to answer the study's specific objectives and research questions.

**Specific Objectives**

The objectives of the study were as follows:

1. Evaluate the implementation of the concurrent classroom learning modality in terms of its viability, functionality, and effectiveness.
2. Determine the effect of the general hybrid online learning modality and the specific concurrent classroom process on student learning outcomes.
3. Compare the students' performance based on the assessment of the learning competencies according to the concurrent classroom learning groups: Online and In-person.
4. Identify aspects of the concurrent classroom implementation that help, hinder, and challenge the students' attainment of expected learning outcomes and teachers' instructional process; and,
5. Recommend actions that will improve the preparations for and implementation of the concurrent classroom.

**Literature Review**

As a means of delivering instruction during the pandemic, hybrid learning modalities have received much attention. In general, hybrid learning differs from blended learning which was already practiced by different schools before the pandemic. Siegelman (2021) observes that "'blended courses' and 'hybrid courses' are the terms most likely to be used interchangeably, but hybrid courses differ in that their online components are intended to replace a portion of face-to-face class time." In hybrid learning, online class schedules are counted and regarded as part of the total teaching time.

Due to the varied conditions schools face as well as the diverse contexts of their students, various forms of hybrid learning modalities have emerged. For schools that plan to teach classes where online and in-person groups of students simultaneously meet, the CC modality provides the set-up for this type of instruction. Tucker (2021) states that "In a concurrent classroom, the teacher is teaching one group of students in class while simultaneously teaching another group of students online". Unlike the rotation type where all students are either in online or face-to-face learning classes which are alternately scheduled, students in the CC may choose to be in an online or face-to-face learning group throughout the school year. Teachers also do one preparation for both groups unlike in other types of hybrid learning where the teachers have to do separate preparations for the online and face-to-face groups.

Being a new form of hybrid modality, much concern has been raised about the usefulness of the Concurrent Classroom for teaching and learning and attending to two learning groups at the same time. Although there are some studies which discuss principles of instructional design for hybrid learning (e.g., Beatty, 2019), there is little research done evaluating the Concurrent Classroom as practiced in basic education. Moreover, factors that

contribute to the productive implementation of the Concurrent Classroom have yet to be identified and examined. What is currently available for many basic education schools looking for direction and guidance for designing the Concurrent Classroom are presentations on Concurrent Classroom teaching such as those done by Caitlin Tucker in her blogs (caitlintucker.com) and YouTube videos of Concurrent Classroom practices uploaded by different school districts in the United States (e.g. Concurrent Classroom Instruction Practices at https://www.youtube.com/watch?v=2ViSd-nm768 by the Fairfax County Public Schools, Fairfax, Virginia).

Because of the relatively scant research work done on the Concurrent Classroom, schools planning to implement the Concurrent Classroom stand to benefit from doing their own study. Schools can define the focus of their research based on particular concerns and questions by school administrators, teachers, students and other stakeholders. For LSGH, varied questions have been asked about how the Concurrent Classroom can respond to specific challenges such as managing students in two different learning settings (online and in-person) at the same time, sustaining student interest and engagement, and producing positive learning outcomes. These questions inquire into the usefulness or viability of the Concurrent Classroom as an instructional modality, the interaction of students and teachers in the Concurrent Classroom and student learning outcomes. In response to these concerns, this study then seeks to examine these perceived challenges regarding the viability, functionality and effectiveness of the Concurrent Classroom.

With regards to viability, among those who first studied the usefulness of a particular medium or technology to communicate or deliver intended information were Daft and Lengel (1986) who articulated the “media richness theory” which attributed the positive effects of a technology to its media properties. The theory has often been criticized for its narrow focus on technology features as the cause for positive communication results. While the theory has been able to underscore the importance of establishing users’ perception of technology’s capacity and its interface design, others have sought to build on these factors and examine other factors that influence people’s perception of a technology’s power.

For example, Webster and Hackley (1997) in their studies of distance learning technologies that involve online learning point out five critical factors that lead to positive perceptions of these technologies: student involvement and participation, cognitive engagement, technology self-efficacy (i.e., the belief that one has the capability to interact with a given technology), perceived usefulness of the technology employed, and the relative advantage or disadvantage of online delivery. Aside from technology features, when teachers see that a technology can facilitate other aspects such as student-teacher interaction and intellectual activity, teachers develop a positive view of the technology and deem the technology as important for teaching and learning.

Webster and Hackley’s factors also suggest the interplay of instructional, technical, and managerial aspects of implementing online or distance learning. The actual use of the technology entails selecting and using appropriate teaching strategies (instructional), following certain routines and protocols (managerial), and mastering the operation of the technology’s devices, equipment, and software applications. These aspects are applicable to the conduct of the Concurrent Classroom, and these may be regarded as part of the modality’s

functionality. Although the managerial aspect also pertains to the way teachers conduct synchronous and asynchronous classes, management in the Concurrent Classroom deals with providing equivalent attention to two groups of students simultaneously interacting with the teacher. The challenge of achieving this is examined in other studies where attention is conceptualized into four different types namely, selective attention, sustained attention, divided or limited attention and alternating attention (World Mental Healthcare Association). These types enable teachers to expand their understanding and ability to respond to students in two different learning groups. The different types of attention also suggest that implementing the Concurrent Classroom may involve varied modes with each type corresponding to a particular mode. For example, selective attention can be done for an individualized mode where teachers take time to provide specific feedback to particular students. Alternating attention can be carried out for a split mode where teachers give comments first to the in-person group and then to the online group or vice-versa.

In terms of effectiveness, various studies have compared the performance of students in various standardized or criterion-referenced assessments given as part of an online or distance learning program (e.g., Means, Toyama, Murphy, Bakya & Jones, 2010; Sahni, Polanin, Zhang, Michaelson, Coverley, Palese, & Young, 2021). Such studies examine the learning gains that students have achieved by comparing pre and post-test scores. Others differentiate learning outcomes in terms of attainment of learning goals as articulated by Wiggins and McTighe (2008). These goals are Acquisition, Make Meaning and Transfer and these go beyond the students' recall of facts. These emphasize the depth of students' analysis and reasoning and application of knowledge and skills in real world situations. These goals are already incorporated in the Philippine K12 summative assessments which are composed of quarterly exams, written works and performance tasks. Hence, when summative and formative assessments are designed and conducted in a Concurrent Classroom, the results are studied in terms of the attainment of these learning goals and considered as indicators of student learning outcomes.

**Research Framework**

The preceding literature review provides guidance in conceptualizing the aspects of viability, functionality, and effectiveness of the implementation of the Concurrent Classroom.

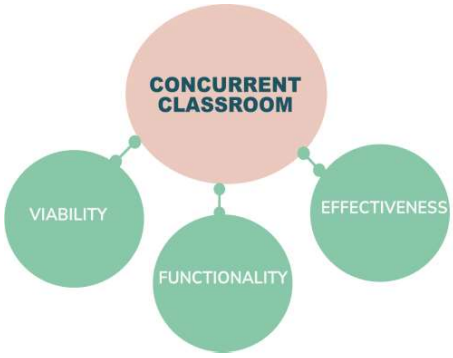


Figure 1. Framework of the Study

In this study, viability is operationalized as the capacity of a learning modality to deliver instruction in terms of five factors namely, students' participation, cognitive engagement, technological efficacy, perceived usefulness of the technology and relative advantage or disadvantage (Webster & Hackley, 1997). Viability answers the question: Is the CC modality useful for teaching and learning?

With regards to functionality, it is defined in this study as the ability of teachers and students and the learning environment to do or perform the instructional, managerial, and technical procedures and tasks that are expected of them. Functionality asks the questions: Are teachers, students, and the learning environment able to carry out the responsibilities or tasks assigned to them in the CC modality? How are teachers able to do the designated managerial, technical, and instructional procedures and tasks in the CC modality?

In terms of effectiveness, it pertains to the performance of students in summative assessments of competencies related to the learning goals of Acquisition, Make Meaning and Transfer. Competencies related to Acquisition involve the students' memorization and recall of facts and procedures. Competencies in line with Make Meaning are related to students' analysis, reasoning, and synthesis and evaluation. Competencies in line with Transfer pertain to the students' application of knowledge and skills in performance tasks based on real world scenarios and situations. Hence, for effectiveness, the questions raised are: How do students perform in assessments related to Acquisition, Make Meaning and Transfer? Does the CC modality affect the students' performance in these assessments?

These concepts of viability, functionality and effectiveness serve as the framework for the articulation of the following specific research questions:

1. How do students and teachers perceive the viability of the CC modality?
2. Is there a significant difference between the self-rating responses of students and teachers with regards to the viability of the full implementation of the CC?
3. How do teachers conduct and implement the teaching-learning process in a CC? How are teachers able to do the designated managerial, technical, and instructional procedures and tasks in the CC modality?
4. How do the students perform in the CC modality based on the results of the assessments of their learning competencies related to Acquisition, Make Meaning and Transfer?
5. What recommendations may be made to ensure the viability, functionality, and effectiveness of the CC modality?

## Method

### Research Design

A quantitative research design was utilized in the study, employing a structured data collection method that

included self-rating surveys, observation forms, and assessment results. Descriptive and inferential statistics were used to analyze the data gathered. Remarks of the subject coordinators about the accomplishment of procedures in the CC were also solicited.

**Participants**

Purposive sampling was used to determine the participants of the study. The participants included the following: for the pilot implementation, selected students ($N_1$=281) and teachers ($N_2$=21) who simultaneously experience online and in-person classes on campus during the initial preparation for the reopening of schools. A larger set of participants were engaged during the full implementation, wherein students from grade 4 - 12, ($N_3$=1345) and teachers ($N_4$=47) accomplished the self-rating survey; for functionality, subject coordinators ($N_5$=24) participated in the classroom observations; and for effectiveness, a total of $N_6$=1033 assessment results were gathered to measure students' academic performance based on the learning goals of acquisition, make meaning, and transfer.

**Measures of the Study**

For viability, a researcher-made Concurrent Classroom Self-Assessment Form was used. The survey questionnaire given to the students and teachers is focused on assessing their perception regarding their experience towards the conduct of the Concurrent Classroom classes. The questionnaire has 29 statements divided into 5 Critical Factors for Successful Online Learning of Webster & Hackley (1997) namely, student participation and involvement, cognitive engagement, technological efficacy, perceived usefulness of the technology, and the relative advantage or disadvantage. The survey questionnaire utilized a 4-point Likert type scale in determining the level of agreement to the statement.

The rating scales as shown in Table 1 and Table 2, were used in the interpretation of responses in the self-assessment form.

Table 1. Scale used in the survey

| Numerical Equivalent | Interpretation |
|---|---|
| 4 | I strongly agree with the statement |
| 3 | I agree with this statement |
| 2 | I disagree with this statement |
| 1 | I strongly disagree with this statement |

Table 2. Mean range used in the survey

| Mean Range | Interpretation |
|---|---|
| 3.00 – 3.99 | Students'/Teachers' perception of the Concurrent Classroom |

| | |
|---|---|
| | shows high viability |
| 2.00 – 2.99 | Students'/Teachers' perception of the Concurrent Classroom shows moderate viability |
| 1.00 – 1.99 | Students'/Teachers perception of the Concurrent Classroom shows low viability. |

For functionality, a researcher-made Concurrent Classroom Observation Tool was utilized. The observation tool was accomplished by the subject coordinators in evaluating the conduct of the CC classes. It is composed of two sub-areas and utilized a 4-point scale: Classroom Observation Areas - this refers to the ability of teachers and students and the learning environment to do or perform the procedures and tasks that are expected of them. Functional areas - this covers the managerial, technical, and instructional aspects of the CC. Open-ended question was included to solicit remarks from the subject coordinators.

The rating scales as shown in Tables 3, 4 and 5, were used in the interpretation of responses in the self-assessment form.

Table 3. Mean range and verbal ınterpretation of the overall functionality mean ratings

| Mean Range | Verbal Interpretation |
|---|---|
| 0.00 to 0.99 | Overall functionality of the Concurrent Classroom is poor. |
| 1.00 to 1.99 | Overall functionality of the Concurrent Classroom is low. |
| 2.00 to 2.99 | Overall functionality of the Concurrent Classroom is moderate. |
| 3.00 to 3.99 | Overall functionality of the Concurrent Classroom is high. |

Table 4. Observation areas ınterpretation guide

| Observation Areas | | Mean Values and Interpretation |
|---|---|---|
| Teachers | 0.00-0.99 | Teacher's performance of expected functions in the Concurrent Classroom is poor. |
| | 1.00-1.99 | Teacher's performance of expected functions in the Concurrent Classroom is low. |
| | 2.00-2.99 | Teacher's performance of expected functions in the Concurrent Classroom is moderate. |
| | 3.00-3.99 | Teacher's performance of expected functions in the Concurrent Classroom is high. |
| Students | 0.00-0.99 | Students' participation in the Concurrent Classroom is poor. |
| | 1.00-1.99 | Students' participation in the Concurrent Classroom is low. |
| | 2.00-2.99 | Students' participation in the Concurrent Classroom is moderate. |
| | 3.00-3.99 | Students' participation in the Concurrent Classroom is high. |

| | | |
|---|---|---|
| Learning Environment | 0.00-0.99 | The assistance of the learning environment in the Concurrent Classroom is poor. |
| | 1.00-1.99 | The assistance of the learning environment in the Concurrent Classroom is low. |
| | 2.00-2.99 | The assistance of the learning environment in the Concurrent Classroom is moderate. |
| | 3.00-3.99 | The assistance of the learning environment in the Concurrent Classroom is high. |

Table 5. Functional areas ınterpretation guide

| Functional Areas | | Mean Values and Interpretation |
|---|---|---|
| Technical | 0.00-0.99 | Learning environment's functionality in the Concurrent Classroom is poor. |
| | 1.00-1.99 | Learning environment's functionality in the Concurrent Classroom is low. |
| | 2.00-2.99 | Learning environment's functionality in the Concurrent Classroom is moderate. |
| | 3.00-3.99 | Learning environment's functionality in the Concurrent Classroom is high. |
| Managerial | 0.00-0.99 | Functionality of management in the Concurrent Classroom is poor. |
| | 1.00-1.99 | Functionality of management in the Concurrent Classroom is low. |
| | 2.00-2.99 | Functionality of management in the Concurrent Classroom is moderate. |
| | 3.00-3.99 | Functionality of management in the Concurrent Classroom is high. |
| Instructional | 0.00-0.99 | Functionality of instruction in the Concurrent Classroom is poor. |
| | 1.00-1.99 | Functionality of instruction in the Concurrent Classroom is low. |
| | 2.00-2.99 | Functionality of instruction in the Concurrent Classroom is moderate |
| | 3.00-3.99 | Functionality of instruction in the Concurrent Classroom is high. |

For effectiveness, results of the summative assessments of students were gathered. The assessments were administered during the conduct of the CC class. The assessments given to the students were categorized based on the three learning goals - acquisition, making meaning, and transfer.

The transmuted grade range and verbal description of assessment results are shown in Table 6.

Table 6. Transmuted grade range and verbal description of assessment results sy 2022-2023

| Transmuted Grade Range | Verbal Description | Letter Grade Equivalent |
|---|---|---|
| 96 and above | Outstanding | A |
| 90 to 95 | Highly Satisfactory | A- |
| 86 to 89 | Very Satisfactory | B+ |
| 80 to 85 | Satisfactory | B |

| | | |
|---|---|---|
| 75 to 79 | Moderately Satisfactory | B- |
| 74 and below | Failed / Needs Improvement | C |

**Data Gathering Procedure and Statistical Analysis**

For viability, the Concurrent Classroom Self-Assessment Form was distributed to the students and teachers using Google Form. Mean ratings were computed and interpreted according to a given scale that shows different levels of students and teachers' perceptions of the Concurrent Classroom's viability.

For functionality, the Concurrent Classroom Observation Tool was given to and accomplished by the Subject Coordinators. Mean ratings were computed and interpreted according to different scales. The first set of scales indicated levels of teachers' performance of expected functions, students' participation, and the assistance of the learning environment. The second set of scales indicated levels of functionality for the instructional, managerial, and technical aspects of implementation. Based on the mean results of the first and second scales, an overall functional rating was obtained. The scale below shows the interpretation of the ratings.

In terms of effectiveness, a Google worksheet was shared to the teachers for encoding of student scores from the summative assessments. The worksheet had columns for entries related to assessments of Acquisition, Make Meaning and Transfer. The sheet included the students' data on learning competencies, learning group (online or in-person).

The responses were downloaded and processed using MS Excel and SPSS. Frequency distribution, percentage and mean ratings were generated to determine the evaluation, observation, and assessment results based on the identified variables. Descriptive statistics were obtained from self-assessment rating and observation forms distributed to the students, teachers, and subject coordinators. T-tests were used to establish significant differences between the variables used in the study.

## Results

***Q1: How do students and teachers perceive the viability of the CC modality?***

Research question 1 investigated the viability or usefulness of the CC modality. Viability answers the question: Is the CC modality useful for teaching and learning? As seen on Tables 7 and 8, the implementation of the concurrent classroom generally shows high viability among students and teachers. Students, in the Concurrent Classroom environment, highly agree on the essential role of technology in class and homework. Students also responded positively on items addressing communication with their teachers and classmates, observation of health precautions and protocols, and participation in class discussions and activities. Students also showed high regard for the use of technology on a given task, availability and access of instructional materials and options for the use of appropriate technological applications. In addition, the factor of perceived technology usefulness

received the highest mean rating among the teachers, followed by cognitive engagement and technological efficacy. All these results imply that the CC modality is practical, useful, and suitable for instructional delivery.

Table 7. Self-rating results based on self-rating results of the CC modality

| Critical Factors for Successful Online Learning | Self-Rating Results | Pilot | | | Full | | |
|---|---|---|---|---|---|---|---|
| | | N | Mean | SD | N | Mean | SD |
| OVERALL MEAN<br>• Student Participation and Involvement<br>• Cognitive Engagement<br>• Technological Efficacy<br>• Perceived Usefulness of Technology<br>• Relative advantage and disadvantage | Teachers | 20 | 3.60 | 0.33 | 47 | 3.32 | 0.48 |
| | Students | 208 | 3.72 | 0.44 | 1345 | 3.41 | 0.57 |

*(Mean Interpretation: 3.00-3.99- Students' perception of the Concurrent Classroom shows high viability, 2.00-2.99- Students' perception of the Concurrent Classroom shows moderate viability, 1.00-1.99- Students' perception of the Concurrent Classroom shows low viability)*

Table 8. Self-rating results based on the learning group of the CC modality

| Critical Factors for Successful Online Learning | Learning Group | Pilot | | | Full | | |
|---|---|---|---|---|---|---|---|
| | | N | Mean | SD | N | Mean | SD |
| OVERALL MEAN<br>• Student Participation and Involvement<br>• Cognitive Engagement<br>• Technological Efficacy<br>• Perceived Usefulness of Technology<br>• Relative advantage and disadvantage | In-Person | 109 | 3.89 | 0.24 | 1021 | 3.45 | 0.57 |
| | Online | 99 | 3.56 | 0.53 | 324 | 3.30 | 0.55 |

*(Mean Interpretation: 3.00-3.99- Students' perception of the Concurrent Classroom shows high viability, 2.00-2.99- Students' perception of the Concurrent Classroom shows moderate viability, 1.00-1.99- Students' perception of the Concurrent Classroom shows low viability)*

***Q2: Is there a significant difference between the self-rating responses of students and teachers with regards to the viability of the full implementation of the CC modality?***

Research question 2 tries to determine significant differences between the level of perceptions of teachers and students and in-person and online students with regards to the viability of the CC modality. Based on the results, which can be seen in Table 9, the full implementation of the concurrent classroom generally shows high

viability among students. The factor on perceived usefulness of technology achieved the highest mean rating (M = 3.56, SD = 0.62) followed by technology efficacy (M = 3.52, SD = 0.60). Students, in the CC environment, show high affirmation in the usefulness of technology. Students responded positively on items pertaining to the ability to communicate with their teachers and classmates, observe health precautions and protocols, and participate in class discussions and activities. Students also show high regard on the use of technology on a given task, availability and access of instructional materials and options for the use of appropriate technology applications. Areas on student participation, cognitive engagement, and relative advantage and disadvantage obtained high marks, as well.

Table 9. Descriptive and comparative t-test analysis of self-rating results of teachers and students based on the critical factors for successful online learning

| Critical Factors for Successful Online Learning | Participants | N | Mean | SD | t | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| Student Participation and Involvement | Teachers | 47 | 3.32 | 0.54 | -.550 | .582 |
| | Students | 1345 | 3.37 | 0.63 | | |
| Cognitive Engagement | Teachers | 47 | 3.43 | 0.48 | -.133 | .894 |
| | Students | 1345 | 3.44 | 0.62 | | |
| Technological Efficacy | Teachers | 47 | 3.39 | 0.49 | - | .135 |
| | Students | 1345 | 3.52 | 0.60 | 1.496 | |
| Perceived Usefulness of Technology | Teachers | 47 | 3.49 | 0.53 | -.805 | .421 |
| | Students | 1345 | 3.56 | 0.62 | | |
| Relative Advantage & Disadvantage | Teachers | 47 | 3.02 | 0.62 | - | **.012** |
| | Students | 1345 | 3.26 | 0.65 | 2.515 | |

*(Mean Interpretation: 3.00-3.99- Students' perception of the Concurrent Classroom shows high viability, 2.00-2.99- Students' perception of the Concurrent Classroom shows moderate viability, 1.00-1.99- Students' perception of the Concurrent Classroom shows low viability)*

Similarly for teachers, the factor on perceived usefulness of technology received the highest mean rating (M = 3.49, SD = 0.53) followed by cognitive engagement (M = 3.43, SD = 0.48) and technological efficacy (M = 3.39, SD = 0.49). Teachers also show high regard on the use of technology on a given task, availability and access of instructional materials and options for the use of appropriate technology applications. Areas on student participation, cognitive engagement, and relative advantage and disadvantage obtained high marks, as well.

Looking further, the comparative analysis as shown in Table 9, $p > .05$ show that there is no significant difference found between the perception of the students and teachers in terms of the participation, cognitive engagement, technological efficacy, and usefulness of the concurrent classroom modality. Both types of respondents seem to have similar perceptions in terms of implementation based on the response ratings of the students and teachers in the five factors. However, responses differ significantly for both groups in the area of

relative advantage and disadvantage. Students perceived the implications of the concurrent classroom higher than that of their teachers.

Table 10 displays the descriptive statistics and independent-sample t-test conducted to compare and determine the differences in the learning modality used by the students. Based on the mean rating results, students' level of agreement on all the factors for successful online learning is highly viable for both in-person and online learning modality. The perceived usefulness of technology (M = 3.59, SD = 0.63) obtains the highest mean score for in-person students while technology efficacy (M = 3.50, SD = 0.58) registered the top favored factor among online students.

Table 10. Descriptive and comparative t-test analysis of self-rating results based on the learning modality of students and critical factors for successful online learning

| Critical Factors for Successful Online Learning | Modality | N | Mean | SD | t | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| Student Participation and Involvement | In-person | 1021 | 3.44 | 0.61 | 6.823 | **.000** |
| | Online | 324 | 3.17 | 0.63 | | |
| Cognitive Engagement | In-person | 1021 | 3.46 | 0.63 | 1.624 | .105 |
| | Online | 324 | 3.39 | 0.61 | | |
| Technological Efficacy | In-person | 1021 | 3.53 | 0.61 | .685 | .493 |
| | Online | 324 | 3.50 | 0.58 | | |
| Perceived Usefulness of Technology | In-person | 1021 | 3.59 | 0.63 | 2.596 | **.010** |
| | Online | 324 | 3.49 | 0.59 | | |
| Relative Advantage & Disadvantage | In-person | 1021 | 3.31 | 0.64 | 5.362 | **.000** |
| | Online | 324 | 3.09 | 0.65 | | |

*(Mean Interpretation: 3.00-3.99- Students' perception of the Concurrent Classroom shows high viability, 2.00-2.99- Students' perception of the Concurrent Classroom shows moderate viability, 1.00-1.99- Students' perception of the Concurrent Classroom shows low viability)*

In the conduct of the t-test analysis, results show significant difference between in-person and online students' perception towards participation and involvement $t(1343) = 6.823$, $p < .05$, perceived usefulness of technology $t(1343) = 2.596$, $p < .05$, and relative advantage and disadvantage $t(1343) = 5.362$, $p < .05$. This implies that, based on the mean rating of responses, the differences in the level of agreement between in-person and online students for the following factors: participation and involvement, usefulness of technology, and relative advantage and disadvantage of online learning are statistically significant. In-person students are expected to respond more favorably to the different activities and situations covered under the concurrent classroom modality compared to students online.

***Q3. How do teachers conduct and implement the teaching-learning process in a concurrent classroom? How are teachers able to do the designated managerial, technical, and instructional procedures and tasks in the***

***CC modality?***

Research question 3 was posed to evaluate how teachers conduct and implement the teaching-learning process in the CC and how students perform the tasks expected of them. This refers to the functionality of the CC. Functionality also covers the managerial, technical and instruction aspects of the CC (Webster and Hackley, 1997).

Table 11. Descriptive statistics of the observation ratings in the full implementation of the CC based on observation areas

| Classroom Observation Areas | N | Min | Max | Mean | SD | Interpretation |
|---|---|---|---|---|---|---|
| Part 1. The Teacher | 24 | 1 | 4 | 3.73 | 0.598 | Teacher's performance of expected functions is high. |
| Part 2: The Students | 24 | 1 | 4 | 3.61 | 0.615 | Students' participation is high. |
| Part 3: The Learning Environment | 24 | 1 | 4 | 3.77 | 0.531 | The assistance of the learning environment is high. |

*Mean Interpretation: 0.00 to 0.99: Functionality is poor.; 1.00 to 1.99: Functionality is low; 2.00 to 2.99: Functionality is moderate.; 3.00 to 3.99: Functionality is high.*

Table 11 shows the observation mean rating of the teachers classified according to observation areas. The observation tool is divided into three parts namely, the students, the teachers, and the learning environment. The mean rating of all areas; teacher (M = 3.73, SD = 0.598), students (M = 3.61, SD = 0.615) and learning environment (M = 3.77, SD = 0.531) indicates that the teacher's performance of expected functions, the student's participation, and the assistance of the learning environment in the CC are all high.

Table 12. Descriptive statistics of the observation ratings in the full implementation of the CC based on functional areas

| Functional Areas | N | Minimum | Maximum | Mean | SD | Interpretation |
|---|---|---|---|---|---|---|
| Technical | 24 | 1 | 4 | 3.84 | 0.433 | Learning environment's functionality is high. |
| Managerial | 24 | 1 | 4 | 3.65 | 0.707 | Functionality of management is high. |
| Instructional | 24 | 1 | 4 | 3.66 | 0.576 | Functionality of instruction is high. |

*Mean Interpretation: 0.00 to 0.99: Functionality is poor.; 1.00 to 1.99: Functionality is low; 2.00 to 2.99: Functionality is moderate.; 3.00 to 3.99: Functionality is high.*

Table 12 displays the teacher's observation mean ratings classified according to functional areas. The observation tool is divided into 3 functional areas namely, technical, managerial, and instructional. The mean

rating of all areas; technical (M = 3.84, SD = 0.433), managerial (M = 3.65, SD = 0.707) and instructional (M = 3.66, SD = 0.576), indicates that the functionality of the learning environment, management and instruction in the CC is high. Generally, the teachers were able to implement the planned activities for the CC, were able to guide students to resolve problems related to access of resources or accomplishment of the activity, checks on student's progress and output and provides feedback to different groups in varied ways, and required learning resources were available and accessible to the students.

Table 13 displays the observation comments of the subject coordinators with regard to the things needed to be improved in the conduct of CC. Despite the high mean rating for student participation, observation comments indicate that online students need to be more involved in class activities. Teachers should give equal attention to both student groups and encourage both to participate in class discussions. These results serve as a challenge in implementing CC because the World Mental Healthcare Association suggests that the CC teachers must be able to expand their understanding and ability to respond to two different learning groups. Additionally, devices such as microphones, LCD projectors, TV monitors, and strong Wi-Fi connections need to be installed and monitored for their functionality in the CC.

Table 13. Summary of class observation comments: What needs to be improved in the classroom observation areas of the cc?

| The Teacher | Students | Learning Environment |
|---|---|---|
| 1. Equal attention must be given to both in-person and online students.<br>2. Give more time for feedbacking of outputs.<br>3. More conscious effort in using the CC modes.<br>4. Give more activities that focus on HOTS.<br>5. Teacher got disconnected due to slow or intermittent internet connection. | 1. Students need to engage more in the class activities specifically the online students.<br>2. Students need to be oriented regarding the CC mode of the day. | 1. Proper wearing of mask must be observed.<br>2. No LCD installed and some has an LCD projector but not working. Online students were not able to see the presentation of the teacher.<br>3. Use lapel to have a clearer sound or audio for the online students.<br>4. There was no TV monitor at the back of the classroom for teachers to see the online students.<br>5. There was no microphone installed.<br>6. Internet was functional but very slow. |

Generally, results of the observations as seen in Table 14, show that the CC modality has high functionality (M = 3.69, SD = 0.598). This suggested that the tasks being implemented, and various activities included in the CC framework were accomplished and achieved based on the requirements given for each area.

Table 14. Overall descriptive statistics of the observation ratings

| Observation Area | N | Minimum | Maximum | Mean | SD | Interpretation |
|---|---|---|---|---|---|---|
| Overall CC Functionality | 24 | 1 | 4 | 3.69 | 0.598 | High Functionality |

The teacher's performance of expected functions, the student's participation, and the assistance of the learning environment in the CC were all rated high. In terms of the teacher's observation, the functional areas namely, technical, managerial, and instructional achieved the mean rating range from 3.65 to 3.84 in all areas. The results indicated that the functionality of the learning environment, management and instruction in the concurrent classroom is high.

***Q4. How do the students perform in the CC modality based on the results of the assessments of their learning competencies related to Acquisition, Make Meaning and Transfer?***

Research question 4 tries to assess how the students perform in the written tests administered during the conduct of CC. The assessments are categorized according to the three learning goals; Acquisition (A), Make Meaning (M) and Transfer (T). Two assessments results were submitted per subject area. The effectiveness of the CC model is based on the results of students' performance in classroom-based and teacher-made assessments.

Table 15 shows that the assessment results of both in-person and online students towards the attainment of the three learning goals (Acquisition, Make Meaning, and Transfer) are ranging from very satisfactory (B+) for acquisition and make meaning to highly satisfactory (A-) for transfer. These results indicate that the skills under the three learning goals as articulated by Wiggins and McTighe (2008) were satisfactorily attained by the students.

Table 15. Assessment results per subject in the full implementation of the CC: in-person and online groups

| | In-person | | | Online | | |
|---|---|---|---|---|---|---|
| Subject Department | A (N=597) | M (N=584) | T (N=594) | A (N=226) | M (N=228) | T (N=226) |
| 1. Christian Living | 91.22 | 97.53 | 98.81 | 92.69 | 97.96 | 97.05 |
| 2. Social Science | 89.35 | 88.35 | 96.74 | 92.91 | 86.90 | 97.24 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3. | Math | 88.42 | 83.48 | 90.16 | 92.69 | 93.16 | 93.11 |
| 4. | Science | 88.72 | 88.07 | 96.54 | 90.79 | 91.42 | 93.86 |
| 5. | English | 90.36 | 89.03 | 93.42 | 91.07 | 94.33 | 97.08 |
| 6. | Filipino | 84.57 | 86.70 | 93.23 | 85.61 | 86.15 | 96.10 |
| 7. | VPPA | 92.85 | 94.02 | 92.93 | 91.57 | 92.37 | 92.14 |
| 8. | Computer | 89.21 | 94.07 | 96.14 | 84.30 | 89.63 | 91.77 |
| 9. | PE | 89.24 | 95.56 | 93.28 | 86.78 | 95.71 | 91.21 |
| 10. | ABMR | 84.26 | 92.86 | 84.08 | 80.56 | 90.69 | 80.65 |
| 11. | HUMSS | 84.21 | 84.71 | 87.94 | 81.71 | 81.55 | 86.07 |
| | ADCI | | | | | | |
| 12. | STEM | 87.76 | 78.96 | 92.57 | 88.62 | 78.94 | 96.11 |
| | General Transmuted Grade Average | 88.53 | 89.51 | 93.27 | 88.56 | 89.81 | 93.30 |
| | Verbal Description | Very Satisfactory | Very Satisfactory | Highly Satisfactory | Very Satisfactory | Very Satisfactory | Highly Satisfactory |
| | Grade Equivalent | B+ | B+ | A- | B+ | B+ | A- |

Comparative analysis as shown in Table 16, indicates that online students outperformed in-person students in Math ($p < .05$) and English ($p < .05$) make-meaning assessments, while in-person students performed better in Computer ($p < .05$) transfer assessments than their online counterparts. These are the only results where significant differences are observed.

No statistically significant differences ($p > .05$) are observed in the results of other assessments administered by the other subjects. Overall, with regard to the learning goals, there is not enough evidence to suggest any significant differences in the acquisition, meaning-making, and transfer assessment results between the in-person and online students. The performance of students attending classes in-person is equivalent to that of their online counterparts in assessments.

Table 16. Independent t-test result between in-person and online learning groups per subject department in the full implementation of the CC

| | | In-person | | | | Online | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject Department | Learning Goals | Mean | N | SD | Letter Grade Equivalent | Mean | N | SD | Letter Grade Equivalent | t | Sig. (2-tailed) |
| 1. Christian | A | 91.22 | 44 | 8.788 | A- | 92.69 | 21 | 9.303 | A- | | 0.538 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Living | M | 97.53 | 44 | 6.050 | A | 97.96 | 21 | 4.659 | A | 0.083 | 0.774 |
| | | T | 98.81 | 44 | 2.593 | A | 97.05 | 21 | 4.756 | A | 3.730 | 0.058 |
| | | A | 89.35 | 49 | 8.898 | B+ | 92.91 | 25 | 8.561 | A- | 2.718 | 0.104 |
| | | M | 88.35 | 49 | 10.955 | B+ | 86.90 | 25 | 12.130 | B+ | 0.270 | 0.605 |
| 2. | SS | T | 96.74 | 49 | 4.334 | A | 97.24 | 25 | 3.920 | A | 0.229 | 0.634 |
| | | A | 88.42 | 32 | 10.218 | B+ | 92.69 | 25 | 8.001 | A- | 2.939 | 0.092 |
| | | M | 83.48 | 32 | 12.991 | B | 93.16 | 25 | 9.918 | A- | 9.526 | **0.003** |
| 3. | Math | T | 90.16 | 32 | 10.009 | A- | 93.11 | 25 | 7.240 | A- | 1.540 | 0.220 |
| | | A | 88.72 | 47 | 7.956 | B+ | 90.79 | 15 | 6.482 | A- | 0.842 | 0.362 |
| | | M | 88.07 | 47 | 9.276 | B+ | 91.42 | 15 | 6.489 | A- | 1.688 | 0.199 |
| 4. | Science | T | 96.54 | 47 | 7.797 | A | 93.86 | 15 | 10.654 | A- | 1.121 | 0.294 |
| | | A | 90.36 | 51 | 9.976 | A- | 91.07 | 23 | 9.866 | A- | 0.081 | 0.777 |
| | | M | 89.03 | 51 | 8.458 | B+ | 94.33 | 23 | 7.396 | A- | 6.698 | **0.012** |
| 5. | English | T | 93.42 | 51 | 8.815 | A- | 97.08 | 23 | 4.605 | A | 3.500 | 0.065 |
| | | A | 84.57 | 44 | 9.831 | B | 85.61 | 22 | 9.767 | B | 0.163 | 0.687 |
| | | M | 86.70 | 44 | 10.612 | B+ | 86.15 | 22 | 10.445 | B+ | 0.040 | 0.843 |
| 6. | Filipino | T | 93.23 | 44 | 6.850 | A- | 96.10 | 22 | 5.275 | A | 2.984 | 0.089 |
| | | A | 92.85 | 60 | 8.724 | A- | 91.57 | 12 | 8.255 | A- | 0.218 | 0.642 |
| | | M | 94.02 | 60 | 6.460 | A- | 92.37 | 12 | 9.196 | A- | 0.564 | 0.455 |
| 7. | VPPA | T | 92.93 | 60 | 6.913 | A- | 92.14 | 12 | 6.905 | A- | 0.129 | 0.721 |
| | | A | 89.21 | 54 | 10.034 | B+ | 84.30 | 26 | 9.315 | B | 4.405 | 0.039 |
| | | M | 94.07 | 54 | 10.566 | A- | 89.63 | 26 | 12.766 | B+ | 2.701 | 0.104 |
| 8. | Computer | T | 96.14 | 54 | 7.747 | A | 91.77 | 26 | 10.834 | A- | 4.284 | **0.042** |
| | | A | 89.24 | 69 | 9.865 | B+ | 86.78 | 10 | 11.362 | B+ | 0.524 | 0.471 |
| | | M | 95.56 | 69 | 5.832 | A- | 95.71 | 10 | 6.901 | A- | 0.006 | 0.939 |
| 9. | PE | T | 93.28 | 69 | 7.308 | A- | 91.21 | 10 | 10.000 | A- | 0.634 | 0.428 |
| | | A | 84.26 | 31 | 10.702 | B | 80.56 | 12 | 10.761 | B | 1.030 | 0.316 |
| | | M | 92.86 | 18 | 4.374 | A- | 90.69 | 14 | 4.095 | A- | 2.045 | 0.163 |
| 10. | ABMR | T | 84.08 | 28 | 7.666 | B | 80.65 | 12 | 6.233 | B | 1.871 | 0.179 |
| | | A | 84.21 | 59 | 9.249 | B | 81.71 | 20 | 8.390 | B | 1.149 | 0.287 |
| 11. | HUMSS | M | 84.71 | 59 | 9.065 | B | 81.55 | 20 | 5.073 | B | 2.190 | 0.143 |
| | ADCI | T | 87.94 | 59 | 8.024 | B+ | 86.07 | 20 | 6.978 | B+ | 0.864 | 0.356 |
| | | A | 87.76 | 57 | 11.124 | B+ | 88.62 | 15 | 10.609 | B+ | 0.072 | 0.789 |
| | | M | 78.96 | 57 | 8.437 | B- | 78.94 | 15 | 7.498 | B- | 0.000 | 0.993 |
| 12. | STEM | T | 92.57 | 57 | 8.514 | A- | 96.11 | 15 | 7.736 | A | 2.127 | 0.149 |

In addition, Table 17 indicates that at $p > 0.05$, there is not enough evidence to show that the results of acquisition, make meaning and transfer assessments between the in-person and online students show significant differences. This indicates that generally, CC does not affect or favor any group in terms of their performance in the assessments.

Table 17. Independent t-test result between ın-person and online learning groups

| Learning Goals | Modality | N | Mean | SD | t | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| Acquisition | In-person | 597 | 88.53 | 9.887 | -0.046 | 0.963 |
| | Online | 226 | 88.56 | 9.892 | | |
| Make Meaning | In-person | 584 | 89.51 | 10.313 | -0.373 | 0.709 |
| | Online | 228 | 89.81 | 10.197 | | |
| Transfer | In-person | 594 | 93.27 | 8.139 | -0.056 | 0.955 |
| | Online | 226 | 93.30 | 8.344 | | |

## Discussion

The findings of the study indicate that the concurrent classroom implementation demonstrates a high level of viability among both students and teachers. Students highly acknowledge the crucial role of technology in their classroom and homework activities within the concurrent classroom environment. They also responded positively to items related to communication with teachers and classmates, adherence to health precautions and protocols, and active participation in class discussions and activities. Furthermore, students expressed a strong preference for the use of technology for various tasks, as well as the availability and accessibility of instructional materials and appropriate technological applications. This supports the media richness theory as described by Daft and Lengel (1986) that technology is a useful medium to communicate or deliver an instruction. Among the teachers, perceived technology usefulness received the highest mean rating, followed by cognitive engagement and technological efficacy.

Although results show that both student groups displayed a high positive perception of CC, the in-person students reported a more favorable CC experience compared to the online students. Tucker (2021) addressed the issue of teacher attention inequality that arises in concurrent classrooms. According to her, when students in the physical classroom can raise their hand or verbally seek assistance, they naturally receive more attention from the teacher. To address this issue, Tucker suggests that teachers should establish a uniform channel for all students to ask questions or seek support. Additionally, she recommends allocating dedicated time to confer with individual learners, regardless of whether they are participating online or in person, in order to discuss their progress.

In terms of functionality, observations revealed that the CC modality exhibited a high level of functionality. The tasks and activities included in the CC framework were successfully accomplished based on the given requirements. The teachers performed their expected functions, students actively participated, and the learning environment in the CC facilitated the process effectively. According to teacher observations, the functional areas of technology, management, and instruction received mean ratings ranging from 3.65 to 3.84 in all areas, indicating a high level of functionality in the concurrent classroom. While student participation received a high mean rating, observation comments suggest that online students need to be more actively engaged in class

activities. It is crucial for teachers to provide equal attention to both student groups and encourage participation from both in class discussions. These findings present a challenge in the implementation of concurrent classrooms, as the World Mental Healthcare Association highlights the need for CC teachers to broaden their understanding and enhance their ability to respond to the distinct learning needs of two different groups. According to Tucker (2021), educators who recognize the significance of building strong connections with students and who actively design and facilitate learning experiences that prioritize fostering these relationships are likely to achieve the greatest success in navigating the current challenging landscape of education.

In terms of effectiveness, there was insufficient evidence to show significant differences in the acquisition, meaning-making, and transfer assessment results between in-person and online students when considering the learning goals. This implies that CC does not affect or favor any group in terms of their performance in the assessments. Both in-person and online assessments results indicate that students performed from very satisfactory (B+) to highly satisfactory (A-) in achieving the three learning goals: Acquisition (A), Make Meaning (M), and Transfer (T). These goals are already incorporated in the Philippine K12 summative assessments which are composed of quarterly exams, written works and performance tasks. Hence, the attainment of these goals emphasizes the students' ability to critically analyze, reason, and apply their knowledge and skills in real-world situations. However, to further study on the effectiveness of the CC must be conducted to assess the impact of the CC on the achievement of students' learning outcomes.

## Conclusion

The results and findings of this study reveals that the concurrent classroom modality, as implemented, shows high viability, functionality, and effectiveness as a hybrid learning approach. The CC learning modality is viable or has the capacity to deliver instruction. The usefulness of technology, particularly in completing tasks, accessing instructional materials easily, and using suitable technology applications, has received high affirmation from both students and teachers. Observations indicates that students were greatly involved and engaged in class discussions and activities but it is also noted that equal attention to both student groups must be given and online students must be encouraged to participate more actively in class. The CC has also demonstrated excellent functionality by enabling both teachers and students to perform their expected functions in terms of technical, managerial, and instructional aspects. In addition, the CC learning environment allowed teachers to enhance their capacity to cater and address the unique needs of two distinct learning groups. Lastly, achieving the three learning goals (acquisition, make meaning and transfer) shows that the CC modality is effective as it yields to positive and favorable learning outcomes.

## Recommendations

For the continuation and further improvement of the implementation of the CC, the following are recommended:

1. Provide a targeted professional development to empower teachers in effectively handling CC classes, focusing on equitable cognitive engagement, active participation, and balanced support

and attention for both in-person and online student groups.

2. Ensure that the necessary devices, technical equipment, and connectivity in the CC learning environment (such as microphones, cameras, and Internet bandwidth) are sufficient and remain functional. Continuous use by teachers of these devices and equipment can result in wear and tear, making maintenance a necessity.
3. Conduct a study on the effectiveness of CC to further assess and evaluate the impact of the CC on the achievement of students' learning outcomes.

## Acknowledgements

We extend our warmest gratitude to Br. Edmundo Fernandez FSC, President and to Mr. Emmanuel Bautista, Vice President of La Salle Green Hills for the support and inspiration given to this project. To the Academics Cluster headed by Ms. Carmela Boncodin, Principal, for the work collaboration and assistance in the execution of the research framework and data gathering procedure and to Ms. Cheryl Villanueva, QARO Lead, for the guidance, and encouragement in delivering the research tasks needed for this project.

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