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Communication Barriers In Instructional Delivery As Experienced By AIMS Students In An Online Pedagogical Environment: An Exploratory Sequential Approach

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Abstract

With the continuous evolution of the computer and internet in the late 20th century , eLearning tools and delivery methods have expanded making it easier for people to learn at home. Seeing its potential as an alternative learning modality, universities and colleges all over the world have taken opportunity of online learning as another mode of instruction. However, this did not come handy to its stakeholders as online learning is also replete with problems. Much to its inherent perplexities, the communication barrier between a teacher and its respective students is one of the prevailing gaps that seem to mostly affect the efficient learning of students. This directed the proponent to explore and focus on the aspects that hinder the effective communication of both the teacher and students in a virtual classroom. Contextualized under the instructional delivery continuum, the researcher analyzed the communication barriers inherent in a virtual classroom utilizing the exploratory sequential mixed-method (ESMM) approach. Underscoring experiences of learners from Asian Institute of Maritime Studies (AIMS), qualitative data was initially gathered from 6 conveniently sampled students through a focus group discussion (FGD). Constant comparative method (CCM) was used in analyzing the data. Four themes emerged on this phase: 1) Lecture/Lesson Proper Problems (LLPP); 2) Assessment Instructional/Material Problems (AIMP); 3) Technology/Software-Related Problems (TSRP); and, 4) Technology Incapacity Problems (TIP). Using the qualitative results as theme constructs in developing the 37-item survey questionnaire, the quantitative phase explored further the communication barriers experienced by a cross-sectional sample of 318 AIMS students. Employing a 4-point Likert scale (1=Strongly Disagree; and, 4=Strongly Agree), mean data revealed the following results: TSRP earned the highest communication barrier problem (M=2.93); followed by LLPP (M=2.89); then AIMP (M=2.73); and, TIP (M=2.41). Based on the results,

the respondents expressed two major communication barriers in the instructional delivery of lessons and materials in an online modality. These are online teaching management and technological efficiency. A virtual classroom communication management plan especially anchoring on the two major communication barriers was proposed to be developed.

Index Terms— AIMS, Communication barriers, Instructional delivery, Online pedagogy.

I. INTRODUCTION

Background of the Study. The online pedagogy has been in the arena of education for quite some time. Dating back, the concept of online education is over 170 years old and has its origins in a correspondence course offered in Great Britain where instructors send lessons and receive students' completed assignments by mail (Peterson, 2017). However, one emergent technology would soon come around as the main channel through which distance courses would be offered, that being the internet. Though the groundwork of the internet was already established in 1969, it wasn't until the 1980s that the technology began to revolutionize distance education (Miller, 2014). Now, with the continuous evolution of the computer and internet in the late 20th century (Gogos, 2013), eLearning tools and delivery methods have expanded making it easier for people to learn at home on particular subjects and develop certain skill sets. In the following decade, virtual learning environments began to truly thrive, with people gaining access to a wealth of online information and eLearning opportunities. Thus, online learning became one of the staple platforms for learners to acquire knowledge. Seeing its potential as an alternative learning modality, universities and colleges all over the world have taken opportunity of online learning as another mode of instruction.

With its advent as a promising learning method, online learning did not come handy to its stakeholders as online learning is also replete with problems. For instance, online learning limits the chance of students to fully learn especially

when compared to a face-to-face class. Hence, the limited
learning aspect of online learning became one of the gaps that educational researchers are currently investigating. Another identified perplexity inherent in online learning is the provision and knowledge of technological infrastructures. According to Gautam (2020), online learning requires teachers to have a basic understanding of using digital forms of learning. However, this is not the case always. Very often, teachers have a very basic understanding of technology. Sometimes, they don't even have the

necessary resources and tools to conduct online classes. The latter premise is much more pressing to teachers and students belonging to countries that are generally poor of whom are not privileged to acquire technological tools, thus, leading them to experience the so-called “digital divide”.

Much to the perplexities identified above, the communication barrier between a teacher and its respective students is one of the gaps that seems to affect the efficient learning of students in an online class. A face-to-face class with numerous students to manage and teach has been at some point a challenge for teachers. With this situation, communication becomes one vital aspect that teachers use in order to effectively manage a class. However, this may seem different when taken in the context of online teaching as barriers may come in numerous situations especially in the context of communication. Just as with regular face-to-face classrooms, teachers are also encumbered with various communication situations in a virtual classroom setting. A typical class day may yield numerous situations highlighting online interaction between a teacher and her students. Such interaction is espoused by respective communicational and technological requirements to fully reconcile what the teacher instructs and for students to comply. However, during the instructional delivery, a number of factors may intermittently affect the effective interchange of communication. As a result, occurrence of unsuccessful communication may happen from time to time. With this pattern, the day-to-day unsuccessful mediation of messages can become habits of incompetent virtual classroom communication that when ignored, can result in failed learning.

The above situation has triggered the proponent to explore the world of online teaching specifically aiming to focus on the aspects that hinder the effective communication of both the teacher and students in a virtual classroom. With this objective, the researcher planned to analyze the communication barriers inherent in a virtual classroom contextualized specifically under the instructional delivery continuum and underscoring perspectives from the experiences of AIMS students. Such identification of barriers can become the basis in the development of guidelines for an effective virtual classroom communication management.

Much to addressing the learning limitations in online learning to the needed technological infrastructures it requires, the proponent believes that maximizing the benefit of online learning cannot be achieved if communication barriers are present as various factors contribute to this prevailing gap. Berge (2013) articulated that the future of distance education will be determined in large part by the innovations made in communication, and the ability educators have to overcome the communication barriers associated with language, culture, and different contexts with regard to the various communities of learners that exist. The above articulation is supported by the study of Abramenka (2015) revealing that students indicated communicating with the instructor and

collaborating with peers as the biggest challenges in taking an online class. In the Philippines, poor communication or lack of clear directions from educators was among the most experienced barrier of medical students in online learning as revealed in the study of Baticulon and Alberto (2021).

Statement of the Problem. The study aims to analyze the communication barriers experienced by AIMS students in an online learning environment specific on the aspect of instructional delivery. Specifically, the study will seek answers to the following questions:

1.What are the communication barriers in instructional delivery as experienced by selected AIMS students in their online learning environment (OLE)?

2.To what extent do the cross-sectional representative of AIMS students experienced communication barriers in instructional delivery in an online learning environment (OLE)?

3.Based on the results of the study, what communication plan can be proposed to strategically achieve effective instructional delivery of educational contents in an online learning platform?

Conceptual Framework. As the study employs Exploratory Sequential Mixed Method design, the Sequence-to-Sequence Model was adapted as a framework to strategically present the placement, sequence, and relationship of each variable in the study. According Kumar (2021), a sequence model is a very common sequence modeling technique that is used for analyzing sequence data; and, time series data is an example of sequence data where each observation is dependent on the previous one. Sequence data can be represented as observations of one or more characteristics of events over time. This premise concurs to the sequential mixed method research design where time placement of pertinent data (qualitative or quantitative) is an important aspect in the implementation of the study. Creswell (2006) articulated that the timing of the quantitative and qualitative data is important (Morgan, 1998; as cited in Creswell, 2006) as it describes the order in which the researchers use the data within a study.

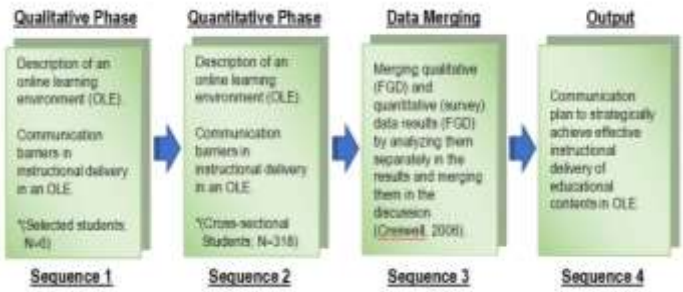

Fig.1. Sequence-to-Sequence Modelling of Events

Adapting the above model, a four-stage phase was employed to orderly

sequence the events required for the study and act on each event accordingly. Sequence 1 is the Qualitative Phase. As an initial phase, collection of qualitative data (communication barriers) was conducted through a Focus Group Discussion (FGD) with 6 selected student participants. Sequence 2 is the Quantitative Phase where a cross-sectional survey of communication barriers was yielded from 318 student respondents. The merging of yielded data from the FGD and survey represented the 3rd Sequence. On this phase, merging of the two data sets was done by analyzing them separately in the results section and then merging them in the discussion section (Creswell, 2006). The last sequence was the development of a communication plan to strategically achieve effective instructional delivery of educational contents in OLE. This was guided by the results elicited from the study. A much-detailed discussion of this framework was presented in the research design section of this paper.

Objectives. In general, the study aims to identify communication barriers inherent in an online learning environment. Specifically, the study aims to:

1.Identify the communication barriers in instructional delivery as experienced by selected and cross-sectional representative of AIMS students on their online learning environment (OLE).

2.Propose a communication plan to strategically achieve effective instructional delivery of educational contents in an online learning environment (OLE).

Significance of the Study. The proposed study is generally significant as it endeavours to identify communication barriers inherent in an online learning environment forming as basis in proposing a communication plan in address to the communication barriers identified. The communication plan, on the other hand, has its aim to generally achieve an effective instructional delivery and management of educational contents. With this aim, the following stakeholders is believed to benefit from this study:

1.Online Educators. Serving as the major beneficiary of the study, online teachers may find this study helpful by learning the communication barriers that are often inherent in an online learning environment. By identifying these communication barriers, online teachers are able to recalibrate their communication methods and strategies in order to achieve a better instructional delivery and management of educational contents.

2.Online/Blended. Schools. Learning institutions, especially those that are engaged in online learning modality, will find this study vital as they will be guided upon with the needed resources and requirements in address to the identified communication barriers inherent in an online learning environment. Being an entity that promotes effective online learning, schools have the responsibility to look into the various aspects of

delivering educational contents that are free from impediments and barriers. Hence, necessary actions can be undertaken by schools through provision of resources that will address the identified communication barriers innate an online learning environment.

3.Students. As recipients of online learning, students can find this study helpful given the identification of communication barriers that they personally experience during the conduct of their online learning. With the orientation of teachers on the tenets of this study, students may be able to learn through guided comprehension and understanding of instructions and achieve a much better online interaction with their teachers and classmates.

4.Syllabus Developers. Developers of course syllabi can make use of the results of this study serving as general guide in crafting specific instructions that will direct both teachers and students in the conduct of online learning. Specific to this aspect is the development of instructions in the teaching-learning areas of the syllabus where focus statements on the delivery of comprehensible instructions should be reflected.

5.Commission on Higher Education. As the governing agency in regulating the educational policies and standards of higher education institutions (HEIs), the Commission on Higher Education (CHED) can find this study pertinent in the continuous development of educational policies and guidelines. With the endeavor to uphold the highest interest towards learners, CHED is mandated to implement standard educational policies that will generally benefit learners of a maximized learning. Thus, this study can specifically benefit CHED in crafting effective guidelines and policies in the areas of effective instructional delivery of online learning contents.

Scope and Limitations of the Study. The study only endeavored to investigate the communication barriers inherent in an online learning environment. It is further limited to analyzing communication barriers that can affect the effective delivery of educational instructions and contents. The participants of the study are 324 AIMS students (6 students for the FGD; and, 318 cross-sectional students for the survey) who were currently enrolled during the 2nd Trimester of School Year 2021-2022 in an online class at the Asian Institute of Maritime Studies. The study only used FGD and survey as main data gathering procedures. Literatures and studies on communication barriers in the educational setting were also used as supporting information in the exploration of the study. Lastly, the study commenced last September 2021 and ended in March 2022.

II. MATERIALS AND METHODS

Research Design. The study employed the Exploratory Sequential Mixed Method (ESMM) design. According to Creswell and Plano Clark (2018; as cited in Research methods data set, 2019), the ESMM design is an approach to combining qualitative and quantitative data collection and

analysis in a sequence of phases. The design starts with qualitative data to explore a phenomenon (Creswell, 2006), and then builds to a second, the quantitative phase, to develop an instrument or some other form of quantitative data collection (2018; as cited in Research methods data set, 2019). In application to the study, qualitative data was first collected using a semi-structured questionnaire. The qualitative exploration using focus group discussion (FGD) has provided important and meaningful data from the selected AIMS participants as they described the nature of online learning environment (OLE) and revealed vital and pertinent information with respect to the communication barriers they have experienced during their online classes. According to Denzin (as cited in Rahman, 2017) a qualitative exploration produces thick and detailed narrative of participants' feelings, opinions, and experiences; and, thus, interprets the meanings of their actions.

Research Environment. The setting of the study was the AIMS online learning environment (OLE) through the various learning platforms. Specifically, the main learning platform was the Microsoft Teams while secondary platforms used were social media sites such as Facebook Messenger, Youtube, Zoom and others. Standard features of the platforms remained constant as the institution believed in their capacity as a tool in transferring knowledge in an online mode. On the students' end, a personal computer, laptop, tablet or cellphone were among the technological gadgets used to access the online learning environment.

Ethical Considerations. The researcher conformed with the AIMS institutional "Research Ethics Policies" (REP) specifically complying with the following policies to wit: 1) Sending of formal invitation to the AIMS students indicating request to participate in the research study as key sources of data via FGD and survey. A promissory statement was likewise included demonstrating utmost protection and confidentiality of gathered data before them (REP, Section 1.6); 2) Documentation of data gathering through video recording of FGD and Google-generated excel tabulation sheet for the survey were done and respectively submitted to the AIMS-CRID office (REP, Section 1.5); and, 3) Ensured the accuracy of all data gathered by reflecting statements that were directly quoted from the FGD as well as in properly treating and transparently presenting the statistical data derived from the survey through the use of SPSS version 20 (REP, Section 1.7).

Key Participants in the Qualitative Phase. The participants, who were enrolled during the 2nd Trimester of school year 2020-2021, were 6 conveniently selected AIMS students representing the 6 flagship courses of AIMS: BSMT; BSMarE; BSCA; BSHM; BSBA; and, BSCS. A combination of convenience and purposive sampling were used on this phase. Purposive sampling was used as the study was purposely conducted to measure the

communication barriers experienced by the AIMS students. According to Crossman (2020), purposive sampling is a non-probability sampling where a sample is selected based on the population's characteristics as well as from the objectives of the study. Based on the above description, the AIMS students were purposely selected as participants of the study (for both qualitative and quantitative) as they possess the proper characteristics and backgrounds which fit the requirements of the study. On the other hand, the researcher conveniently chose the 6 students based on his affiliation as either their teacher, panel, research adviser, and mentor.

Research Instrument in the Qualitative Phase. Employing a Focus Group Discussion (FGD) as a method in collecting qualitative data, a semi-structured interview questionnaire (Table I) was used in phase 1. According to Kempenich (2020), a semi-structured questionnaire is a mix of unstructured and structured questionnaires as some of the questions and their sequence are determined in advance, while the others evolve as the interview proceeds.

Table I. Semi-Structured Interview Questionnaire

SEMI-STRUCTURED QUESTIONNAIRE

1. Briefly, can you introduce yourself in terms of the following:
   1.1. Name (Optional)
   1.2. Course/Program
   1.3. Year Level
2. Generally, can you describe some aspects of your online learning environment (OLE) in terms of the following:
   2.1. Describe the gadgets (e.g. laptop, tablet, etc.) you use to access the class;
   2.2. Describe the platform/s (e.g. MS Teams, Google Meet, etc.) provided by the school as your virtual classroom; and,
   2.3. Besides the virtual classroom, describe other communication channels (e.g. Messenger, Teams chat, etc.) used by your teacher in delivering learning instructions and requirements.
3. During your online classes, what teacher-borne communication barriers have you experienced when your teachers deliver the following instructions:
   3.1. Lessons and lectures;
   3.2. Quizzes and recitations;
   3.3. Take home projects; and,
   3.4. Other instruction-related matters?
4. During your online classes, what technological-borne barriers have you encountered which affected the line of communication with your teacher and has further affected the delivery of instructions leading to a possible obstruction in understanding your lessons?

The study therefore was guided by the primary problem statement: What are the communication barriers in instructional delivery as experienced by selected AIMS students in their online learning environment (OLE)? Follow-up (unstructured) questions were raised in between questions to shed light and elicit thicker narratives for each question.

Qualitative Data Collection and Analysis. Data collection commenced through a formal invitation with the 6 AIMS students who undergone a focus group discussion (FGD). Upon acquiring the consent from the participants, the FGD was done virtually last February 13, 2022 via Microsoft (MS) Teams meeting platform. Prior to the interview, the researcher explained the objectives of the study to show transparency. Using the semi-structured interview, direct questions were asked to each

participant with follow-up questions in order to thicken the participants' narratives on the communication barriers they experienced during their online classes. Proceedings of the FGD were recorded using the video recording feature of the platform and were likewise transcribed verbatim in preparation for analysis.

Analysis of the qualitative data was done using the constant comparative method (CCM). According to Glaser (2015), the first two stages of CCM is to compare incidents applicable to each category; and, integrate categories and their properties. Applying the first stage, this was done, for instance, by constantly comparing incidents on how AIMS students experienced communication barriers in their online classes, the researcher learned that some students experienced high communication barriers (code 1) while some have low communication barriers (code 2) experience. In terms of category integration (theme), the researcher learned the property that students are constantly recalling their online class experiences and accumulated all the incidents relating to the communication barriers encountered. Upon completion of the analysis using CCM, the codes and themes were completely established where (Research methods data set, 2019) quotations became survey items, codes became variables, and themes became factor variables. For instance (Table 1), "Choppy online class due to low internet" (quotation) is the survey item, "Internet Connection" (code) is the variable; and, "Technology/Software-related problem" (theme) is the factor variable. All the emerging themes from the qualitative findings were used as constructs in developing the survey tool which measured the communication barriers experienced by AIMS students.

III. RESULTS

Qualitative Phase. Themes are features of participants' accounts characterizing particular perceptions and/or experiences that the researcher have seen as relevant to the research question (Serdio, 2020). On the other hand, emerging themes are fundamental building components as they emerge from the experiences of study participants during the coding process (Irwin, 2021); and, in the coding process, the researcher identified themes in accounts and attached labels (codes) to index them (Serdio, 2020).

The Four Emerging Themes. Following the procedures above, and, in alignment with the CCM analytical procedures, the paper presents the four (4) themes and forty-six (46) codes elicited in response to the initial research question: What are the communication barriers in instructional delivery as experienced by selected AIMS students in their online learning environment (OLE)? The themes and codes (Table II) were further explained in the succeeding paragraphs and discussions were contextualized accordingly to shed light on the premises of each elicited theme.

1.Lecture/Lesson Proper Problems (LLPP). The AIMS students expressed anecdotes that embodied communication problems in an online learning environment during lecture/lesson proper. Based on the codes identified, majority of these problems were teacher-borne and, when analyzed in a deductive manner, these codes represented a number of contextual categories. First of these categories is the teaching style. Under this category, the AIMS students experienced teacher-borne communication barriers such as varied languages used, traditional way of teaching, fast discussions with a combination of Powerpoint reading, and minimal explanation of lessons. While these problems can be assumed to be innate in face-to-face classes, experiencing them in an online class might bring greater impact towards students due to limitations of a virtual classroom. Another category deducted was lesson/class management. Problems encountered under this category, of which directly or indirectly affected the class communication, were delayed uploading of lessons, varied computer applications used, incomprehensible Youtube lessons, and class attention management.

Table II. Four Emerging Themes Based on Identified Codes (N=6)

Codes	Emerging Themes
1. Communication Barriers in Instructional Delivery – Teacher-borne problems	
• Teachers having hard time getting attention of students • Students hardly understand lessons due to varied teaching styles • Raise hands icon not noticeable • Hard to understand lesson due to pure English • Low and soft voice of teacher has no impact on students • Teacher only reads lessons in Powerpoint • Very minimal explanation of lessons • Traditional way of teaching • Hard to understand/comprehend Youtube lessons • Language used by teachers • Fast discussion of lessons • Delayed uploading of Powerpoint lessons by the teacher • Different computer applications used between teacher and student	Lecture/Lesson proper problems
• Instructions of assignments not clear • Missing parts of assignment instructions • Assignment shall be submitted in an hour • Assignment is placed in files rather than in assignment section • Insufficient guide/instruction in preparing report • Disorganized recitation proceedings • Assignments are not properly elaborated • Assignment instructions are not clear • Late in giving assignment format • Assignments are verbally instructed; not officially posted in assignment bin • Assignment is in word format, hence, editable • No instructions given in the assignment bin/tab • Reliance to student reporting of lessons • Some students alter the activities in the file	Assessment instructional/material problems
2. Communication Barriers in Instructional Delivery – Technological-borne problems	
• Internet connection problem • Audio problem due to static microphone • Updating of platform affects function • Choppy online class due to poor internet connection • Lagging during class due to internet problem • Internet connection problem • Internet connection problem • Choppy delivery of lessons due to unstable internet connection • Delayed audio during recitation • Teachers have connection problem • Choppy discussion due to internet problem • Internet connection problem • Sometimes audio is inaudible	Technology/Software-related problems
• Some teachers not proficient in using technology • Teachers not organized in using MS Teams • Not savvy in navigating varied platforms used during quizzes • Some teachers are not well-versed with technology • No idea how to enter breakout room of MS Teams • Cannot see meeting schedule at MS Teams	Technological incapacity problems

With the various lesson and class management styles of teachers, applying them in an online class may seem to be more challenging as platforms used by teachers may not always match with that of students.

Hence, the problem in the delay of lesson presentations due varied platforms. More so, the secluded characteristics of a virtual classroom has added to the challenge for teachers in getting student attention. This can be more challenging during class discussions and recitations as teachers become privy on the existence and presence of students due to the virtual classroom mode. Lastly, the low and soft voice of teacher can have an unfavorable impact on students during lesson proper as this affects how students understand and comprehend lessons. This communication problem served the last contextual category – the vocal capacity of teachers.

2.Assessment Instructional/Material Problems (AIMP). Another set of codes were elicited under the theme – assessment instructional/material problems. Still categorized under teacher-borne communication barriers, the codes were deductively grouped under the following contextual categories: 1) Homework instructions; 2) Homework management; and, 3) Oral assessment. The students articulated communication barriers on homework instructions as they are unclear, have missing parts, and are just verbally instructed. Some also articulated that there are actually no instructions given in the assignment bin. On the other hand, the students revealed communication barriers on the management of homework as they can be altered or edited, are placed in files rather than in assignment bin, and format is given late. Lastly, students see communication barriers in oral assessment due to disorganized recitation proceedings and reliance to student reporting of lessons.

3.Technology/Software-Related Problems (TSRP). The third theme that emerged was technology/software-related problems. Very indicative under this theme were codes/anecdotes from students indicating problems toward connectivity as majority of them claimed that they experienced internet connection problems leading them to further experience choppy and garbled class discussions. These codes, therefore, were deducted as communication barriers under the contextual category – connectivity problem. While static microphone, delayed and inaudible audio were additional codes elicited from this theme. These codes are then deducted under the contextual category – audio problem.

4.Technology Incapacity Problems (TIP). As the last emerging theme, the technology incapacity problems have led the students to possible communication barriers during their online classes. Comprising of anecdotes that indicate inability of both teachers and students to fully navigate the learning platform (MS Teams), this theme was deducted into two contextual categories: 1) Teacher technological incapacity; and, 2) Student technological incapacity. The initial category is comprised of codes that reflect the teachers' inability to operate/navigate the learning platform as students articulated that they are not proficient/well-versed in using technology as well as inorganized in using the learning platform. While the second category covered the inability of students in navigating the learning platform as they have no idea how to enter the breakout

room, unable to locate the meeting schedule, and not savvy in using the quiz feature of the learning platform.

Quantitative Phase. The quantitative phase is a movement from qualitative analysis to developing a questionnaire (Research methods data set, 2019) and researchers use the instrument development model when they need to develop and implement a quantitative instrument based on qualitative findings (Creswell, 2006). Having elicited in-depth qualitative data on communication barriers, the findings of the study became a guide of the researcher in developing the items and scales for the quantitative survey instrument.

Creation of Survey Tool. On this phase, the research instrument created was a survey questionnaire developed from the findings in the qualitative phase. Based on the results, four (4) emerging themes were generated and became the thematic domains in developing the survey tool. As the language from the qualitative data can be used in forming questions (Research methods data set, 2019), each theme came with verbatim quotes which became the constructs in developing the item questions (See Table III).

The survey tool was called the "Communication Barriers in Online Instructional Delivery Survey". It consisted of 37 items which aimed to assess the four barrier domains in communication in an online learning environment (OLE).

Table III. Matrix of Survey Items Developed from the Four Theme Constructs

1	Lecture/Lesson Proper Problems	Emerging Theme
1.1	Teachers are having a hard time getting the attention of students during class.	Survey Items
1.2	Students hardly understand lesson due to varied teaching styles of teachers.	
1.3	Teachers rely on the student reporting in the delivery of lessons.	
1.4	Low and soft voice of teachers during class have no or minimal impact to student.	
1.5	Teachers only read the Powerpoint during delivery of lessons.	
1.6	Teachers discuss minimal explanation during delivery of lessons.	
1.7	Teachers deliver the lessons traditionally affecting students understanding.	
1.8	Teachers deliver and discuss the lessons with a very fast pace.	
1.9	Teachers upload Powerpoint and other learning materials late/delayed.	
1.10	Youtube lessons presented by teachers are hard to understand/comprehend.	
1.11	Hard to understand lessons due to the pure English discussion of teachers.	

The first part mainly yielded the demographic profile of the respondent students in terms of course and year level. The second part elicited the first two domains of the communication barriers: 1) Lesson/Lecture proper problems; and, 2) Assessment material/instructional problems while part three assessed the last two domains: 3) Technology/Software-related problems; and, 4) Technology/Software incapacity problems. Each survey item was described according to how frequent the respondents have experienced the communication barrier as stated. Thus, the respondents rated the survey items by checking how they experienced each item through a Likert scale with the following numerical value and verbal description: 5 = always, 4 = most of the time, 3 = sometimes, 2 = rarely, and 1 = never.

Reliability Test. To determine the reliability and consistency of each item in the instrument, a pilot testing was conducted to 10 sample respondents. The responses were treated using Statistical Package for Social Science (SPSS) version 20 as statistical tool. Based on the results, the instrument gained an overall Cronbach Alpha of 0.956. This indicated an excellent internal consistency of the survey tool.

The Student Respondents. The respondents on this phase were 318 AIMS students chosen on a cross-sectional basis. According to Cherry (2019), a cross-sectional population is selected based on particular variables of interest and data from these variables is looked at one specific point in time. Course and year level were the variables (profiles) used in the cross-sectional analysis of the results where a comparison was done to determine any existing difference in the communication barriers experienced by the AIMS students. For the profile results of the respondents, please see Table IV.

In choosing the respondents for this phase, a combination of convenience and simple random sampling were utilized. Just as with the qualitative phase, the researcher conveniently outsourced a portion of the respondent students based on his affiliation as either their teacher, panel, research adviser, or mentor.

Table IV. Distribution of Respondents in Terms of Course and Year Level (N=318)

Profile	Description	Frequency	Percentage
Course	BSMT	172	54.09
	BSMarE	16	5.03
	BSCA	53	16.67
	BSHM	21	6.60
	BSNAME	36	11.32
	BSBA	16	5.03
	BSCS	4	1.26
	Total	318	100.00
Year Level	1st Year	168	52.83
	2nd Year	42	13.21
	3rd Year	104	32.70
	4th Year	4	1.26
	Total	318	100.00

The remaining portion were outsourced through randomly selecting the names of AIMS students from a list provided by the Center for Student Records and Certification (formerly Registrar's Office) of AIMS. The computed samples (using Slovin's formula) are 337 taken from the total population of 2,176 students enrolled during the 2nd Trimester of SY 2021-2022. However, 19 of the samples have been disqualified due to incomplete responses. Hence, only 318 responses were qualified to be included in the survey.

Table V. Mean Distribution of the LLPP Theme Construct (N=318)

Theme Construct	Survey Statements	Mean	Interpretation
LECTURE/LESSON PROPER PROBLEMS	1.1 Teachers are having a hard time getting the attention of students during class.	3.39	Sometimes
	1.2. Students hardly understand lesson due to varied teaching styles of teachers.	3.22	Sometimes
	1.3 Teachers rely on student reporting in the delivery of lessons.	3.19	Sometimes
	1.4 Low and soft voice of teachers during class have no or minimal impact to student.	2.73	Sometimes
	1.5 Teachers only read the Powerpoint during delivery of lessons.	2.53	Rarely
	1.6 Teachers discuss minimal explanation during delivery of lessons.	2.74	Sometimes
	1.7 Teachers deliver the lessons traditionally affecting students understanding.	3.13	Sometimes
	1.8 Teachers deliver and discuss the lessons in a very fast pace.	2.97	Sometimes
	1.9 Teachers upload Powerpoint and other learning materials late/delayed.	2.59	Rarely
	1.10 Youtube lessons presented by teachers are hard to understand/comprehend.	2.81	Sometimes
	1.11 Hard to understand lessons due to the pure English discussion of teachers.	2.50	Rarely
	Average Weighted Mean	2.89	Sometimes

Legend: 1.00-1.80 (Never); 1.81-2.60 (Rarely); 2.61-3.40 (Sometimes);3.41-4.20 (Most of the time); 4.21-5.00 (Always)

Data Collection. Upon the creation, conversion to online survey (using Google Docs) and pilot testing, the researcher immediately conducted a cross-sectional survey to AIMS students. This was done thru a random dissemination of the online survey link (https://docs.google.com/forms/d/e/1FAIpQLSc7rFDis5TyovmYRq7aoewyxjH9mC1CHfmCg036n8zRs99aYw/closedform) via the MS Teams chat box, MS Teams virtual community channel, and the FB Messenger chat box. The survey proper was done last March 19, 2022 and ended on March 26, 2022. Upon generation of the Google excel report of the survey, each response was reviewed according to its completeness. As a result, only 318 responses were qualified, hence, tabulated and prepared for statistical treatment.

Statistical Treatment. Statistical treatment was done using SPSS version 20. Frequency count and percentage was used to determine the distribution of respondents in terms of profile (course and year) while weighted mean elicited the description of communication barriers experienced by the respondents.

Mean Results of the 4 Theme Constructs. This part presents the salient and relevant quantitative results in response to the question: To what extent do the cross-sectional representative of AIMS students experienced communication barriers in instructional delivery in an online learning environment (OLE)? As the study aimed at focusing on the quantitative results, the theoretical drive was then guided by the post-positivistic worldview of Morse (1991; as cited in Creswell, 2006) which calls for a quantitative priority. This postulation conforms with Creswell and Plano Clark's (2018) instrument development model indicating that the primary focus of the model is the quantitative analysis (qual→QUAN).

1. Lecture/Lesson Proper Problems (LLPP). With an average weighted mean of 2.89 (Sometimes), the AIMS students expressed a looming problem under the LLP domain (Table V). Centric on how teachers deliver and manage instructions on their respective online classes, the communication barriers were highlighted under the following statements: "Teachers are having a hard time getting the attention of students during class" (M=3.39; Sometimes); "Students hardly understand lesson due to varied teaching styles of teachers" (M=3.22; Sometimes); "Teachers rely on student reporting in the delivery of lessons" (M=3.19; Sometimes); "Teachers deliver the lessons traditionally affecting students' understanding" (M=3.13; Sometimes); and, "Teachers deliver and discuss the lessons in a very fast pace" (M=2.97; Sometimes). Three more statements also indicated an imminent problem under the LLP domain: "Youtube lessons presented by teachers are hard to understand/comprehend" (M=2.81; Sometimes); Teachers discuss minimal explanation during delivery of lessons" (M=2.74; Sometimes); and, "Low and soft voice of teachers during class have no or minimal impact to

students" (M=2.73; Sometimes).

2. Assessment Instructional/Material Problems (AIMP). An impending problem is likewise expressed by the AIMS students under the AIM domain. This is justified by a 2.73 average weighted mean and interpreted as "Sometimes" (Table VI). Still centric under the instructional management of teachers, but this time towards assessment, five survey statements highlighted the communication barriers under this domain: "Assignment is placed in files section rather than in assignment bin/section" (M=3.29; Sometimes); "The instructions, guides or procedures in assignment are not clear" (M=3.18; Sometimes); "Assignment content and instruction is in word format, hence, prone to editing by students" (M=3.10; Sometimes); "Deadlines of assignments, reports, projects and others are simultaneous" (M=3.10; Sometimes); and, "There is no system and proper procedure in the conduct of recitation" (M=3.09; Sometimes).

Though rated with a mean of 2.64 (Sometimes) and bordering nearly on the interpretation "Rarely", the statement "The given modules are too complex to understand or comprehend" is also worth mentioning as complexity of prepared modules cannot communicate its intended objectives.

Table VI. Mean Distribution of AIMP Theme Construct (N=318)

Theme Construct	Survey Statements	Mean	Interpretation
ASSESSMENT INSTRUCTIONAL/MATERIAL PROBLEMS	2.1 Assignment is placed in files section rather than in assignment bin/section.	3.29	Sometimes
	2.2. Assignment content and instruction is in word format, hence, prone to editing by students.	3.10	Sometimes
	2.3 Assignment has no instructions, guides or procedures to follow.	2.12	Rarely
	2.4 Assignment is verbally instructed and not written in the assignment bin.	2.59	Rarely
	2.5 Instructions for assignment format/presentation is given late.	2.20	Rarely
	2.6 Given time to do the assignment is short; Submission deadline is within an hour.	2.52	Rarely
	2.7 Deadlines of assignments, reports, projects and others are simultaneous.	3.10	Sometimes
	2.8 The instructions, guides or procedures of assignment are not clear.	3.18	Sometimes
	2.9 The instructions, guides or procedures in assignment have missing parts.	2.39	Rarely
	2.10 There is no system and proper procedure in the conduct of recitation.	3.09	Sometimes
	2.11 The guides and instructions in reporting are insufficient.	2.51	Rarely
	2.12 The given modules are too complex to understand/comprehend.	2.64	Sometimes
	Average Weighted Mean	2.73	Sometimes

Legend: 1.00-1.80 (Never); 1.81-2.60 (Rarely); 2.61-3.40 (Sometimes); 3.41-4.20 (Most of the time); 4.21-5.00 (Always)

3. Technology/Software-Related Problems (TSRP). Gaining the highest average weighted mean (2.93; Sometimes) among the four domains, the respondents (AIMS students) manifested TSRP to have the highest mean distribution of communication problems as shown in the following statements (Table VII): "There is a delay in the audio of MS Teams during recitation" (M=3.58; Sometimes); "Lagging of presentations during class due to poor internet connection" (M=3.35; Sometimes); "Choppy delivery/discussion of lessons due to unstable internet connection"

(M=3.32; Sometimes); “Hard/Slow uploading of class requirements at MS Teams platform” (M=2.84; Sometimes); “The audio/microphone of MS Teams is static” (M=2.76;Sometimes); and, “Frequent updating of MS Teams affects its function as a learning platform” (M=2.69; Sometimes).

Table VII. Mean Distribution of TSRP Theme Construct (N=318)

Theme Construct	Survey Statements	Mean	Interpretation
TECHNOLOGY/SOFTWARE-RELATED PROBLEMS	3.1 Hard/Slow uploading of class requirements at Microsoft Teams platform.	2.84	Sometimes
	3.2 There is a delay in the audio of MS Teams during recitation.	3.58	Sometimes
	3.3 The audio/microphone of MS Teams is static.	2.76	Sometimes
	3.4 The audio/microphone of MS Teams is inaudible/not working.	2.50	Rarely
	3.5 The raise hands icon of MS Teams is not noticeable.	2.40	Rarely
	3.6 Frequent updating of MS Teams affects its function as a learning platform.	2.69	Sometimes
	3.7 Choppy delivery/discussion of lessons due to unstable internet connection.	3.32	Sometimes
	3.8 Lagging of presentations during class due to poor internet connection.	3.35	Sometimes
	Average Weighted Mean	2.93	Sometimes

Legend: 1.00-1.80 (Never); 1.81-2.60 (Rarely); 2.61-3.40 (Sometimes); 3.41-4.20 (Most of the time); 4.21-5.00 (Always)

Table VIII. Mean Distribution of the TIP Theme Construct (N=318)

Theme Construct	Survey Statements	Mean	Interpretation
TECHNOLOGY INCAPACITY PROBLEMS	4.1 I am not savvy/good in navigating the MS Teams platform.	2.72	Sometimes
	4.2 I do not know how to enter the breakout room of the MS Teams platform.	2.17	Rarely
	4.3 I do not know where to locate the meeting schedule at the MS Teams platform.	2.03	Rarely
	4.4 Teachers are not proficient in navigating the various features of the MS Teams platform.	2.87	Sometimes
	4.5 Teachers are not organized in using the MS Teams platform.	2.33	Rarely
	4.6 Teachers are not proficient in using other technologies (Ex. Youtube, Google forms, etc.).	2.32	Rarely
	Average Weighted Mean	2.41	Rarely

Legend: 1.00-1.80 (Never); 1.81-2.60 (Rarely); 2.61-3.40 (Sometimes);3.41-4.20 (Most of the time); 4.21-5.00 (Always)

4. Technology Incapacity Problems (TIP). Representing problems with respect to technological incapacity of both the teachers and students, this last domain earned the lowest average weighted mean of 2.41 (Rarely). Though most of the communication barrier statements on this domain were rarely experienced by the AIMS students, two statements were, however, worth noticing (Table VIII): “Teachers are not proficient in navigating the various features of the MS Teams platform” (M=2.87; Sometimes); and, “I am not savvy/good in navigating the MS Teams platform” (M=2.72; Sometimes).

IV. DISCUSSION

With the end goal to propose a communication plan for an effective online learning implementation, the study interviewed 6 conveniently selected, and surveyed 318 cross-sectionally sampled AIMS students to identify the communication barriers experienced in their online learning environment (OLE). The qualitative phase elicited four theme constructs: 1) Lesson/Lecture Proper Problems (LLPP); 2) Assessment Instructional/Material Problems (AIMP); 3) Technology/Software-Related Problems (TSRP); and, 4) Technology Incapacity Problems (TIP). Combining the results of the quantitative phase, all the theme constructs would summarize the communication barriers experienced by the AIMS students in their respective online learning platform. Though the respondents generally manifested an experience description of "sometimes" towards the communication barrier statements, nonetheless, certain items gained high means, which are noteworthy of discussion.

The respondents expressed a great concern on the Technology/Software-Related Problems (TSRP) as this earned the highest average weighted mean (TSRP=2.93) among the four theme constructs. The problem over audibility of the learning platform (M=3.58) topped this concern. Confirming to this, Amadora (2020) indicated audio clarity is one major problem in the deployment of online learning. The type of microphone used may contribute to this problem. In addition, problems of unwanted echo and background noises both from the professor or from the student may also distract the audibility of communication line. This is evidenced in the study of Barrot et al. (2021) revealing that to a great extent students have experienced distractions at home while undergoing online learning.

The poor and unstable internet connection problem consecutively followed as a prevailing problem which led the respondents to experience choppy delivery/discussion of lessons (M=3.32) and the hard/slow uploading of class requirements (M=2.84). Internet connection was also revealed as a problem of students in the study of Atay (2015) as well as experienced to a moderate extent in the study of Barrot et al. (2021). According to Amadora (2020), our country is an internet-challenged country. A problem that had caused delays implementing remote learning in general. Although internet plans exist; they are not, however, created equal. To date, this is still a challenge that Filipino students are facing. Perhaps, a better legislation on internet operational stability and equal deployment shall be looked into by policy makers and legislators.

There is a looming problem in the conduct of virtual classes as evidenced by the slightly high average weighted mean (LLPP=2.89) earned under the Lecture/Lesson Proper Problems (LLPP) theme construct. Indicative of this is the dilemma in getting the attention of students during class proper. Gaining the highest mean (M=3.39) among the statements, this situation conforms with the claims of Amadora (2020) indicating a short attention span of students undergoing online classes. Perhaps, various factors affect

their attention. Atay (2015) articulated that the absence of control towards the students have led them to engage with other things which they may find more entertaining. Amadora (2020) further articulated those learners are dozing off, multitasking with other things such as playing games while in class, doing house chores simultaneously, and others. As a result, these all led to a lack of interaction and engagement in class. More so, being in front of a screen, learners feel like they are watching a boring TV show, hence, they easily get bored of the lecture (Atay, 2015). With this situation, it would be difficult for teachers to grasp visual cues or body language from them – not knowing if they are interested, listening, or bored in class. Lapitan et al. (2021) therefore suggested that instructors must find means to improve their interaction with students and to initiate and maintain student interest and engagement during online classes.

The varied teaching styles of teachers came-in as another concern of the respondents as this gained the second highest mean (M=3.22). Other aspects, which relatively connects to the above concern, generally pertain to the online educational delivery management of teachers such as reliance to student reports, traditional teaching, and choice of alternative lesson materials. Perhaps, there is a need for teachers to realign and adjust their teaching strategies which can finely suit the online learning environment (OLE). According to Fabito, Trillanes and Sarmiento, (2021), there is a need for the instructors to undergo training that would allow them [teachers] to change their pedagogy suitable to online teaching. Turk et al. (2012) added that greater faculty effort and time shall be invested to develop their online pedagogy, hence, would lead to an effective student engagement and, would further address the attention deficit concern.

The guides and materials toward class requirements came-in as third as the theme construct “Assessment Instructional/Material Problems” (AIMP) elicited an average weighted mean of 2.73. Still, under the management and instruction of teachers, respondents manifest the misplacement of assignment instructions in the files section of the learning platform to be of high concern (M=3.29). This may equate to the assumption that teachers may not be knowledgeable in utilizing the assignment feature of the platform. Hence, this justifies the findings of El Turk and Cherney (2016) revealing that some [teachers] are unfamiliar or not that knowledgeable in utilizing technology for the online class and, while it is required to learn the various features of technology, Aynur et al. (2015) believes that it takes much time to get familiar with the online learning system.

Concerns were also expressed toward the assignment instructions, content format and deadlines. No clear instructions were reflected on assignments while contents are also mostly in word format. The former somehow reflects a similar result in the study of Berger (2013) where learners report confusion from the instructor regarding the management of assignments. Pappas (2016) articulated that poor communication on

course works come as another form of communication barrier while tight deadlines can also lead to time pressure (Barker et al., 2020) affecting learners' learning skills. Worth noting too is the observation of respondents on the not so systematic conduct of recitation. With a disorganized system, students may not have the motivation to inquire or share what they know. Brainerd (2020) explicated that people get involved in communication based on their state of mind, which are all unique and different. Motivation, being one state of mind, therefore serves as an impetus for students to participate if class discussions are organized.

Out of the four theme constructs, the Technology Incapacity Problems (TIP) earned the lowest average weighted mean of 2.41. This generally means that the respondents, including the teachers, have the capacity to navigate and operate the technological gadgets and platforms. However, a very light concern is directed towards the limited proficiency of teachers (M=2.87) and savviness of students (M=2.72) in navigating the learning platform. El Turk and Cherney (2016) revealed in their study that the lack of knowledge in the utilization of systems in online learning is also being encountered by the faculty in Lebanon while Pappas (2016) also elicited a finding that students are not knowledgeable about the application being used to conduct the discussion. The latter result can also be correlated (Marcial et al., 2015; Atay, 2015) on the lack of technical assistance towards learners. Without anyone guiding, it is hard for them to navigate e-learning.

V.CONCLUSION

The AIMS students expressed two major concerns with respect to the communication barriers they have experienced in the instructional delivery of lessons and materials in an online modality. These are online teaching management and technological efficiency. As mentioned earlier, a face-to-face class with numerous students to manage and teach has been at some point a challenge for teachers. What more when taken in the context of online teaching as barriers may come in numerous situations especially in the aspect of communication. This premise, at some point, has been proven in the study as numerous communication barriers have surfaced. Much to these perplexities is directed towards the capacity of teachers in managing their respective online classes such as getting the attention of students, choosing the proper teaching style, efficient delivery of lessons and others. Heeding these concerns, this may warrant a strategic planning on the proper deployment of online teaching. Perhaps, identifying best practices done by seasoned online educators can be adopted while a training on the efficient delivery of educational contents in an online modality can also be undertaken.

On the other hand, the efficiency of technology comes as another perplexity students face in an online learning environment (OLE). Highlighting software and learning platforms to be of major concern by the respondents, these seem to be an escalation of a much broader context

with respect to the policies undertaken by academic institutions as they are responsible in choosing and outsourcing the necessary technological infrastructures to be deployed as utilities in their respective online learning system. A thorough review and test demonstration of various technological infrastructures can perhaps be an initial step in order to come up with a much discerned and thought of decision in the selection of efficient technological infrastructures.

VI.COMMUNICATION PLAN FOR ONLINE PEDAGOGY

As anchored from the results of the study, as well as from the best practices in communication for online learning, the following are the recommended communication plans for online teaching:

1.Grabbing Student Attention. Djoub (2020) recommended 4 important aspects to get the attention of students: a) move in front of the camera – moving from time to time will make the lesson more fun and interesting; b) use non-verbal communication - to praise students' effort and work, you can do a thumbs up. Also, get close to the screen and do high fives or a fist bump with the student while smiling and showing that you're proud of him/her; c) create interactions - besides sharing the screen during video sessions, do also a split-screen, use full-of-text presentations, engaging videos, images, etc. Also, get them involved online. Pause to ask a question and invite students to answer or comment. Encourage them to work in groups, to generate questions, to explain to each other, and involve in discussions using breakout rooms; and, d) help students decompress – even if you have not planned for any particular brain breaks, try to incorporate breaks that allow your students to re-energize, drink water, stretch their legs and take some time to breathe outside that learning environment.

2.Interactive Teaching Style. Teaching style is part and parcel in the communication of teachers toward their students. Therefore, a teaching style that makes students engage in a virtual learning environment enhances better learning. Ilieva (2019) recommends the "Interactive Teaching Style" for online educators. This is an approach that helps students become more engaged in an online learning environment (OLE). Digital education continues to transform the way online teachers teach. This process resonates with the technical knowledge of online students. Therefore, to make learning fit the contemporary educational needs of the students, you may want to revise your teaching style and start with the following interactive teaching ideas that will challenge your audience: a) brainstorming - the process is useful for generating creative thoughts and ideas by letting students' thoughts flow freely. Some of the types of interactive brainstorming are: structured and unstructured, negative thinking, mind mapping, individual brainstorming, etc.; b) question and answer session - this activity is extremely beneficial for online teachers as it will show you exactly where your online students lack an understanding of the material. You can perform the session both at the beginning and at

the end of an online class. Let your students write down questions regarding a previous topic and stimulate the group to answer all of them; c) problem solving - find an interesting case study concerning your subject. Then let your students focus on a particular problem. Challenge them to use their knowledge and to offer different ways to solve it. If the case study is related to a real-life situation, it will be more interesting and useful for online students. Smaller groups of students work best. If you want to deepen their knowledge, let your students find the weak point in the found solution and prove that it doesn't work; and, d) word cloud guessing - you can use a free online generator or find your own way to create the cloud. Then challenge your online students to connect the cloud with a subject, topic, concept, or a specific problem.

3.Practical Written Instructions for Online Assignments. Unlike in face-to-face class where students can clarify instantly the instructions of an assignment, a virtual classroom, where instructions are mostly written and uploaded in the assignment bin of a learning platform, won't give students the liberty to clarify information of a homework. Thus, Gaudet (2016) recommends 4 practical written instructions in giving online assignments: a) start with a statement of purpose - great assignment instructions begin with a clear statement of purpose that provides a brief overview of the assignment. A strong statement of purpose will provide some indication of the context (where the assignment fits into the larger course) as well as a glimpse of what the completed assignment will look like. However, limit this to only a few sentences. You don't want to overwhelm students with too much detail before they have had the chance to consider the purpose of the assignment; b) action statements - once you have outlined the purpose of the assignment, you are ready to provide sequential guidelines. Ultimately, students need to know what action steps they will need to complete in order to be successful, so strong action verbs should be at the heart of assignment instructions. Keep your action statements as concise as possible. You can always add additional details for clarification, but your students will have clearer guidance if you begin with strong verbs; c) additional expectations and technical requirements - once you have outlined the action steps for the assignment, you will undoubtedly need to fill in some of the details of the assignment. Is there a template or a model assignment? Are there other resources to which students should refer as they complete the assignment? How long should the assignment be? Do you require a title page and references? What format should students use? Where should students submit their assignment; and, d) formatting - the online environment can at times be text-heavy, so it is also important to provide visual cues for students. Consider the use of bold type, italics, and bullets to highlight important information, and utilize spacing and indentations to organize your information. Used in moderation, these visual elements can help students to focus on important elements of the assignment.

4.Effective Synchronous Class Recitation Tips. According to Minero (2020),

the challenges of getting students to participate have intensified during remote learning. More so, digital platforms created additional communication barriers by making it hard to know when to talk, for example, or how to read subtle but important elements of discourse like a person's body language and facial expressions. Additionally, online discussions are often hindered by variability in students' access to technology and by privacy concerns. To find out how to improve student discussions and participation in online learning, Minero (2020) listed 3 effective synchronous recitation tips for online classes: a) spider web discussion - during remote learning, students can lead their own discussions over a learning platform. Before the live class, students answered questions independently, and then shared their responses at the start of the meeting as a jumping-off point for a broader class discussion; b) using chat to check understanding - after giving lessons, teachers can direct students to use the chat feature of a learning platform to ask and answer questions or type in emojis, like a thumbs-up or thumbs-down, to show whether they understood a concept; and, c) flip your classroom to stimulate deeper discussion - first, a teacher teaches new content asynchronously through recorded videos and online activities. At the start of live class, students briefly summarize the concepts they had learned together and then divided into breakout rooms to solve related problems in small groups. Flipping the classroom allowed teachers to spend less class time in direct instruction – and listening to students at the start of class and in small groups helped teachers identify, and then address, where students are struggling.

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