Dimensions of Asynchronous Virtual Classroom and Internet Self-Efficacy: Gauging Student Satisfaction in Online Learning

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Abstract:

This study investigated the dimensions of asynchronous virtual classroom, internet self-efficacy, and student satisfaction of Bukidnon State University - College of Education employing descriptive-correlational research design. One hundred twenty (120) participants were randomly selected through proportionate stratification. 22.50% were first year students, 31.67% were second year students, and 45.83% were third year students. As to dimensions of asynchronous virtual classroom, students agreed with teaching and methodology provided by the teachers (3.90 mean), teacher's communication in an online class (4.00 mean), and technical aspect (4.00 mean). As to internet self-efficacy, students agreed with them having exploration efficacy (4.20 mean), and students strongly agreed with them having communication efficacy (4.30 mean). The aggregate mean value of student satisfaction is 3.70 implying that students were satisfied in online class, thus, satisfaction is at a higher degree. Among the five independent variables, only communication efficacy (.337 probability at .05 alpha value) has no significant connection to student satisfaction. Teaching and methodological aspects with probability value of .000 in the ANOVA is the single determinant of student satisfaction. The positive value in the regression model connotes increase of student satisfaction when there is upsurge in teaching and methodological aspects. Hence, when the teacher does more in teaching and develops more effective methodology in online teaching and learning, student satisfaction accelerates.

Keywords: Dimensions of Asynchronous Virtual Classroom, Internet Self-efficacy, Student Satisfaction, Descriptive Correlation

Introduction

The COVID-19 pandemic has produced the biggest interruption of education systems in history reducing the opportunities of majority to continue learning due to its economic impact (United Nations, 2020). In the Philippine context, to preserve and deliver quality education even with lockdown and community quarantine, the new normal should be accounted in the planning and

implementation of the ‒new normal educational policy‖ (Tria, 2020). Part of which is the alternative delivery of education as response to the crisis. And, it is only likely with technology by which educational institutions over the world at all levels can make ways to cultivate alternative delivery in order to deliver remote classes (Toquero, 2020).

Due to the first-time global quandary caused by COVID-19, Higher Education Institutions (HEIs) encourage Synchronous and Asynchronous Learning through Virtual Classrooms. Bukidnon State University plays its role in the CHED's ingenuity on the Transition to Flexible Learning supporting capacity building for higher education faculty. Flexible learning, states Magsambol (2020), in the context of HEIs, encompasses a combination of digital and non-digital technology that necessarily requires not internet connection. Further, it can take place in a variety of settings, including in the classroom, at home via the internet for online learning (Top Hat Glossary, 2020).

In particular, College of Education has been implementing three (3) learning modality preferences for its students: the provision of Printed Modules with instructions through Short Messaging System (SMS), PDF Module with instructions via Facebook Group Chat, and e-module with Google Classroom and Google Meet. Google Meetings and uploading of materials in the Google Classroom are conducted for instruction and virtual consultation.

These modalities came up due to the consideration of unstable bandwidth in the different places where the students of the college reside. Other students do not even have connectivity in their places, especially those who live in remote and mountainous areas. The premise presents three modalities. However, this paper is focused on the second and third learning modalities

There have been studies about asynchronous online learning or virtual classrooms. In the pursuit of satisfaction, studies found out factors influencing student satisfaction. Course design and structure impact satisfaction according to Roach and Lemasters (2006). Nortvig et al (2018) stated that comparative studies of educational formats show different results, which might mean that factors other than solely the format affect learning satisfaction.

Kucuk and Richardson (2019) also affirmed that teaching presence, cognitive presence, emotional engagement, and behavioral engagement are significant predictors of satisfaction, hence, teaching presence is the dominant determinant of satisfaction. Swan (2006) found that clarity of design, interaction with instructors, and active discussion among course participants significantly influence student satisfaction.

Nevertheless, the course of this study uncovered the consequence of the dimensions of an Asynchronous Virtual Classroom and how the Internet Self-efficacy of students would be of utility in the existing instructional delivery to attain satisfaction despite COVID-19 pandemic. Regardless of the description differences between the second and third modalities, as presented earlier, teachers still push for the Google Classroom platform for asynchronous activities. In furtherance, the students are not compelled to attend online classes for synchronous virtual meeting due to limited connectivity denoting asynchronous delivery of instruction.

The study probed around describing the profile of College of Education students as regards to year level; examining the Asynchronous Virtual Classroom in the dimensions of teaching and methodological aspects, communication, and technical aspects; determining the level of student internet self-efficacy in terms of exploration and communication; ascertaining the level of student satisfaction in online learning; correlating student satisfaction and dimensions of Asynchronous Virtual Classroom and Internet Self-Efficacy; and identifying the determinant of student satisfaction.

Review of Literature

Asynchronous Virtual Classroom

The role of the learners in teaching-learning process is very important. They are accountable for attending class and completing prescribed assignments. Today, we require active student involvement. But, this traditional outlook is hampered by the present online learning modality that most, if not all, of the educational institutions are implementing worldwide due to the global pandemic brought about by COVID-19. This modality is an alternative mode to deliver education.

According to Josep (2020), traditional education concept has changed comprehensively. Physical presence is not the sole learning option anymore—not with the extensive use of the internet and new technologies. Nowadays, anyone has a full access to quality education anytime and anywhere for as long as computer and internet are accessible. Today, we are moving towards online education revolution, the new era.

Online learning is education that takes place over the internet, be it synchronous or asynchronous. It includes correspondence courses conducted through regular mail with little interaction, PDAs and digital audio players like iPod and MP3 players, telecourses where content is delivered via radio or television broadcast, CD-ROM courses where the student interacts with static computer content, mobile learning by means of devices such as cellular phones, and online learning that is internet-based courses offered synchronously and/or asynchronously, (Stern, 2020).

In addition, Groshell and Groshell (2020) stated that online students are not in the physical classroom for discussion involvement. Therefore, teachers should make use of the discussion and collaborative tools in their learning management system to escalate dialogue and interaction. Teachers should also post video greetings, update their profile pictures, and stimulate dialogue with the students through written, audio, and video comments.

Asynchronous e-learning or Asynchronous Virtual Classroom is generally regulated by media such as e-mail, and discussion boards. It supports work associations among learners and with teachers, even when participants cannot be online at the same time and place. Many people take online courses because of their asynchronous nature, conjoining education with work, family, and other unavoidable commitments. Asynchronous e-learning makes logging on to an e-learning environment at any time and downloading documents or sending messages to teachers

or peers on due schedules or in their convenient time feasible. Students may spend much of their time refining their activity responses, which are more thoughtful in comparison to synchronous communication (Hrastinski, 2008).

Various advantages of asynchronous virtual classroom surface dramatically. There are higher levels of temporal flexibility, which are instantaneously contributory to more accessible learning experiences for variety of students and archive of past materials. Cognitive engagement increases since students have ample time to ruminate on the course material. On the other hand, there are also disadvantages. Students may feel less satisfied without the social interaction between their peers and instructors. Course material may be misinterpreted or have the potential to be misconstrued without the real-time discussion or interaction (University of Colorado, 2020).

In the study of Murphy et al. (2011), it was revealed that asynchronous virtual classroom delivers teaching that fosters self-paced learning and teaching for answering activities and troubleshooting. Another finding tackled about asynchronous online teaching and learning methods where it was proven to be an acceptable substitute to classroom-based teaching for both students and teachers.

Teaching and Methodological Aspect

In an Asynchronous Virtual Classroom, e-learning is never a learning goal itself but rather a framework for technology-supported learning through which critical thinking, communication, problem solving, and creativity take place (Egbert, n.d). As a result of ICT tools increase of utilization in education, it must be distinguished that more universities incorporate Virtual Learning Environment in traditional courses to address student learning needs and improve teaching activities. Traditional academic institutions, in this view, reorganize and reconsider their educational offer by structuring their own e-learning system accessible to students. This kind of learning does not have a well-defined methodology yet. E-learning has been considered as a combination of several learning methods regulated by technology (Oproiu, 2017).

Communication Aspect

One of the most important aspects of online school is good and clear communication between students and teachers. In an online class, it is partly a student's responsibility to keep their teachers posted about how they have been doing with the activities designed by the teacher (Achieve Virtual Academy, 2020). It should be that instructors give utmost priority to effective communication with students in online classes as it not only subsidizes retention but also delivers a sense of community (Coursify.me, 2013).

Wilson (2017) raised a viewpoint that a big number of students suggested making improvements to instructor-student communication and engagement. It is because communication with students in online classes necessitates frequent, intentional, and multifaceted interaction. As an online instructor, there is a need to actively combat distance and silence through meaningful connections with students.

Russell (2014) noted that social cues are still done in online environment, just in different forms. Responses or non-responses to asynchronous discussion posts can also be supposed as social cues. If a student perceives that others are expecting for her response to a certain discussion board post, it may decipher a feeling of greater engagement with peers in the course. For others, however, knowing that classmates are waiting for a response may cause apprehension over perceived rudeness or lack of interest.

Due to the absence of body language in the online environment, communicating with students needs a little more thought and planning than communicating with students in an (F2F) setting. Since it is limited to using text and/or images to help you express your thoughts, you do not have the benefit of using body language to help you communicate to your students. Nevertheless, there should be awareness of limitations to communication capabilities within online environments which ascertain the development of timely, relevant, and effective communications with online students (Holder, 2016).

Technical Aspect

It is easy to overlook the technological infrastructure necessary to support the effective delivery of services in such environments in an excited embrace of distance education and virtual learning. Hendricks and Bailey (2014) emphasized that the professor's role and technological proficiency are equally as essential as that of the student. Thus, it is also important to investigate the technological role and responsibility of the former.

Educational technology doesn't give effective teaching and learning. It still needs guidance (the educator) and purpose (relating to curriculum). It requires efficient effort and strategies to incorporate it effectively into the course material. However, technology can be transformed from a distraction to an effective teaching tool when utilized properly (Himmelsbach, 2019).

Internet Self-Efficacy

Internet self-efficacy (ISE) is one's capabilities to organize and execute courses of Internet actions required to generate required outcomes (Hsu & Chiu, 2004). It is reflective of one's confidence in the ability to facilitate his own social environment, behavior, and motivation (Carey & Forsyth, 2009).

The study of Wangpipatwong and Papasratorn (2016) showed that ISE is affected by computer attitude since student performance differs in terms of low, medium, and high computer attitude. According to Chuang et al. (2015), students' pre-experience on internet usage plays a significant role in ISE. To add up to this, the finding of Suana (2018) confirmed previous trend of research results that gender gap on basic ISE has disappeared. In the basic skill, women tend to have the same level of self-reported internet skills as men.

This is in contrary to Torkzadeh's et al view as cited by Kuo (2010). Males are generally found to have higher Internet skills than females. User attitude and computer anxiety are both found influential to Internet self-efficacy. People with high attitudes toward computers have higher

Internet self-efficacy, compared to those with low attitudes toward computers. Accordingly, training is helpful to improve learners' ISE, especially those with higher attitudes toward computers, and those with low computer anxiety. There are many lens through which ISE can be seen, students' performance as one. According to Joo as cited by Alqurashi (2016), ISE was found to determine students' performance on the search test. However, no significant relationship between ISE and students' performance on the written test was found.

Exploration

Exploring the internet can be an exasperating business when a word or a phrase is entered into a search engine and there appears a queue of irrelevant suggestions (Mind Tools, n. d). In the perspective of teachers, meaningful learning happens when educators are creative in the way that computer hardware/software is used to support facilitating education through internet exploration (Peters, 1996).

Inaba (n. d) stated that resource management on the Internet still requires advanced skill in exploration because the large amount of information on the Internet is speedily increasing every day and is easy to be lost. Although many useful browsers and information retrieving services for this situation have been provided, the upsurge number of such tools and services also baffle people in the Internet. Hence, each service is not sophisticated enough to cope with the diversity of Internet users.

Communication

The goal of online communication is similar to face-to-face communication: share information; be heard and be understood; building links. (Coursify.me, 2013). Studies in learning communities have compatibly found proof that peer-interactions influence students' performance outcomes. A particularly important competence in the modern context is the ability to communicate ideas in an effective way (Shafipour et al., 2018). Effective communication skills are vital in online learning because students seek assistance and guidance when they need so. On the other side of the coin, teachers are willing to help students, but they are unable to pick up on non-verbal signals, such as a look of confusion on a student's face (Minnesota State, n.d).

Communication and collaboration are important for students using the Internet. Students can set up keypals (email pen pals) to connect with peers. Students can correspond with experts in various fields via e-mail. In addition, students can also communicate in real-time setting through online conferencing. For this, online chat rooms are popular with students and teachers. Audio and video conferencing using software e-mail activities are a good way to start with the Internet, as they only need minimal planning. With the Internet, students can engage in real-time data collection in many ways (National Teacher Training Institute, n. d).

Student Satisfaction in Online Learning

The necessity to assess the delivery of instruction exists regardless of the advantages of online learning opportunities for students and institutions (Strong et al., 2012). There be many aspects to assess, and the primary stakeholder to be evaluated is the recipients of education, the students, and their perspective. Student satisfaction to the delivery, for one, may be a facet. Lee, as cited by Simpson (2012), claimed that timely feedback from instructors is essential to student satisfaction in an online learning environment.

Student satisfaction can be describes as a short-term attitude consequential of an evaluation of students' educational services, facilities, and experience. It was measured by common satisfaction frameworks earlier, but later, higher education specified satisfaction models that were developed (Weerasinghe et al., 2017).

Today's learners require more channels for creativity and collaboration which online learning environments can provide through a variety of instructional design. Researchers should not be surprised that identifying the elements for satisfaction has become much more dynamic and complex (Dziuban et al., 2015). As cited by Pham et al. (2019), Stodnick and Rogers stated that there have been strategies for enhancing the quality of service in higher education that provokes a significant public interest as student-centered approach. The core idea of this strategy is to consider students as customers and universities as provider of the best educational services for students, which will make students satisfied. According to Cole, Shelley, and Swartz (2014), student satisfaction results student retention.

Since it is online learning, instruction should always go around the students. And, when it comes to their satisfaction, one accountable is the instructor. Johnston, Killon and Oomen (2005) attested that contact and interaction with the instructor was found to be a basic influencer to student satisfaction. The instructor must be able to translate the instruction to the extent of being able to adapt it to the delivery method. It is the instructor, not the vehicle that is important (Internet). In other words, student satisfaction is related more to the instructor and the instruction than the technology.

To attain student satisfaction, it is through digitized materials provided to them. Choe et al. (2019) confirmed that multimedia learning can be satisfying and effective. Students have strong preferences for certain video styles. Impersonal and unfamiliar video styles may be poor for the students but creating effective, engaging, and satisfying asynchronous lecture videos to support best practices in online instructions is highly satisfying.

Methodology

Guided by Transactional Distance Theory (TDT), the study employed descriptive-correlational research design conducted to one hundred twenty (120) participants that were randomly selected through proportionate stratification process in Bukidnon State University-College of Education across its four programs: Bachelor of Early Childhood Education (10.83%), Bachelor of Elementary Education (20.00%), Bachelor of Secondary Education (46.67%), and Physical Education Department (22.50%). Consequently, the participants were freshmen to junior students

only since there were no senior students in the present academic year responsive of the transition period between the old curriculum and the present curriculum, which is the K to 12 Curriculum.

The study utilized three (3) instruments using the five-point Likert scale for the three (3) latent variables, which were administered using Google form in light of the COVID-19 pandemic. The first survey questionnaire from the study of Masa et al. (2014) was for the Dimensions of Asynchronous Virtual Classroom. The questionnaire when tested for reliability scored .958 Cronbach Alpha. The second survey tool was for the Internet Self-efficacy. It was derived out of a factor analysis by Tsai (2004). The third one adapted from the study of Palmer and Holt (2009) was for student satisfaction in online learning.

The profile of the College of Education students in terms of year level was taken through frequency and percentage count. The level of Asynchronous Virtual Classroom dimensions, the level Internet Self-efficacy, and the level of Student Satisfaction in online learning were treated utilizing mean statistics. In correlating Student Satisfaction in online learning, and Dimensions of Asynchronous Virtual Classroom and Internet Self-efficacy, Person-Product Moment for Correlation was used, and in identifying the determinant of Student Satisfaction in online learning, Stepwise-Linear Regression was used.

Findings

Asynchronous Virtual Classroom College of Education Students Profile

Table 1 shows that there were 22.50% first year students, 31.67% second year students, and 45.83% third year students of the total population. The figures show that first year students got the smallest number in terms of choosing the asynchronous virtual classroom, second year is in the second smallest number, and third year students got the biggest number.

Table 1. College of Education Students Profile as regards to Year Level

Year Level	Frequency (N)	Percentage (%)
First Year	27	22.50%
Second Year	38	31.67%
Third Year	55	45.83%
Total	120	100%

A meager number of freshmen opted for asynchronous learning because they would need the necessary instructional support from the teacher that they could not usually get in an asynchronous virtual classroom. This supports St. Amour's (2020) statement that first-time freshmen may not have the skills necessary to do well online.

Level of the Dimensions of Asynchronous Virtual Classroom

Table 2 displays the data on teaching and methodological aspect where the construct that got the highest mean value of 4.42 is *activities proposed are significant to the course*, and *students prepare their own material* got the lowest mean value of 3.83. The former statement means that all the activities prescribed by the teacher are within the scope of the course or subject. On the other hand, the latter means that not the students themselves prepare the materials but the teacher does, only that the students prepare their response to the prescribed activities.

Overall, this variable got 3.90 mean value, which means that students agree on how the teachers teach, and use strategies and methods in an asynchronous virtual classroom. Instructors have been one of the enduring components of instructional systems, which is also true to online learning environment, according to Oncu and Cakir (2011). Thus, this result reveals that how teachers teach utilizing specific methodology appropriate for online classes meets the expectation in an instructional setting.

Table 2. Level of Asynchronous Virtual Classroom in terms of Teaching and Methodological Aspect

	INDICATORS	MEAN	DESCRIPTOR
1	The structure of the subject is clear.	4.08	Agree
2	The subject matter is relevant.	4.36	Strongly Agree
3	Time distribution of the subject is appropriate.	3.97	Agree
4	Organization of the subject is well planned.	4.11	Agree
5	Elements contained in the subject are comprehensive	4.14	Agree
6	Self-regulation of time is encouraged to students.	4.23	Strongly Agree
7	Creativity is observed.	4.17	Agree
8	Interaction and cooperative work is exercised.	3.99	Agree
9	Critical thought and expression of ideas and opinions are present.	4.26	Strongly Agree
10	Activities proposed are significant to the course.	4.42	Strongly Agree
11	Individual work and team work are promoted.	4.13	Agree
12	Tasks undertaken motivate learning.	4.03	Agree
13	Activities provokes desire to continue with the subject.	3.95	Agree
14	Activities are suitable to be done in virtual settings.	3.84	Agree
15	Material provided is diverse.	4.03	Agree
16	Material provided facilitates learning.	4.11	Agree
17	Material is in relation to the content.	4.21	Strongly Agree
18	Students prepare their own material.	3.83	Agree
19	The material contributes to the acquisition of the competencies.	4.09	Agree
	Aggregate Mean	3.90	Agree

Legend:

Scale	Range	Descriptive Rating	Qualitative Statement
1	1.00 – 1.80	Strongly Disagree	Classroom dimension never meets expectation in an instructional setting.
2	1.81 – 2.60	Disagree	Classroom dimension rarely meets expectation in an instructional setting.
3	2.61 – 3.40	Uncertain	Classroom dimension hardly meets expectation in an instructional setting.
4	3.41 – 4.20	Agree	Classroom dimension meets expectation in an instructional setting.
5	4.21 – 5.00	Strongly Agree	Classroom dimension exceeds expectation in an instructional setting.

Table 3 displays the mean results for communication aspect. Students are strongly agreeable that *teacher encourages participation in the virtual classroom*, and this got the highest mean value of 4.24. This finding denotes that the instruction the teacher prepares is inclusive of all the learners.

Table 3. Level of Asynchronous Virtual Classroom in terms of Communication Aspect

	INDICATORS	MEAN	DESCRIPTOR
1	Asynchronous virtual classrooms open up new channels of socialization.	4.05	Agree
2	Teacher intervenes in the virtual classroom when needed.	4.08	Agree
3	Teacher encourages participation in the virtual classroom.	4.24	Strongly Agree

4	Students become involved and participant in the course.	4.18	Agree
5	Teacher's responses are fast and clear.	3.86	Agree
6	Time distribution is adequate.	3.84	Agree
7	There are new channels of communication between students and teacher.	4.18	Agree
8	Diversity in the virtual classroom is catered for.	4.01	Agree
9	There are feelings of solitude.	3.87	Agree
	Aggregate Mean	4.00	Agree

Legend:

Scale	Range	Descriptive Rating	Qualitative Statement
1	1.00 – 1.80	Strongly Disagree	Classroom dimension never meets expectation in an instructional setting.
2	1.81 – 2.60	Disagree	Classroom dimension rarely meets expectation in an instructional setting.
3	2.61 – 3.40	Uncertain	Classroom dimension hardly meets expectation in an instructional setting.
4	3.41 – 4.20	Agree	Classroom dimension meets expectation in an instructional setting.
5	4.21 – 5.00	Strongly Agree	Classroom dimension exceeds expectation in an instructional setting.

The students are agreeable with the *adequacy of time distribution*, which got the lowest mean value of 3.84. This tells that given the adjusted time of material distribution due to the drastic change of learning modality caused by the pandemic, huge adjustments of schedules were also considered by both teachers and students.

Overall, this variable got the mean value of 4.00, which denotes that students are agreeable with how the teacher communicates with the students in an asynchronous virtual classroom, which should have clarity, completeness, conciseness, concreteness, courtesy, and consideration (University of Rhode Island, 2020).

Table 4. Level of Asynchronous Virtual Classroom in terms of Technical Aspect

	INDICATORS	MEAN	DESCRIPTOR
1	There is flexibility of the virtual classroom	3.99	Agree
2	Access is in control.	3.82	Agree
3	There is sufficient preparation in each session.	3.89	Agree
4	Creation of scenarios are done.	3.91	Agree
5	The virtual classroom is appropriately structured and organized.	4.41	Strongly Agree
6	The online help system is useful.	3.98	Agree
7	There is quality of texts, images and sound.	4.38	Strongly Agree
8	There is organization and functionality of the elements offered.	3.97	Agree
9	Recording and printing of contents	3.94	Agree
10	There is accessibility of the interfaces.	3.90	Agree
11	Structure and usability of the system ensure optimal cognitive performance	4.00	Agree
	Aggregate Mean	4.00	Agree

Legend:

Scale	Range	Descriptive Rating	Qualitative Statement
1	1.00 – 1.80	Strongly Disagree	Classroom dimension never meets expectation in an instructional setting.
2	1.81 – 2.60	Disagree	Classroom dimension rarely meets expectation in an instructional setting.
3	2.61 – 3.40	Uncertain	Classroom dimension hardly meets expectation in an instructional setting.
4	3.41 – 4.20	Agree	Classroom dimension meets expectation in an instructional setting.
5	4.21 – 5.00	Strongly Agree	Classroom dimension exceeds expectation in an instructional setting.

Further, Mitchell-Holder (n. d) asserts that teachers should not only communicate with online students to aid retention but also to provide them with a sense of community. Fostering a sense of community in online classes makes the learning experience more meaningful for online students and helps them stay connected during the life of the course. Communication is expected to be in a timely and effective manner.

Table 4 displays the mean scores of the technical aspect constructs. It reveals that students do strongly agree that *virtual classroom is appropriately structured and organized*, which got the mean value of 4.41. Since Google Classroom reinforces instruction, activities are apparently pre-arranged and well-planned. *Access is in control* got the lowest mean value of 3.82, indicating that not all students have easy access to the activities over the Internet due to limited bandwidth in

most places. Overall, it got 4.00 mean value by which it denotes that students agree with the technical support provided in the asynchronous virtual classroom.

The result is consistent to the statement of Nawaz and Khan (2012) that successful online learning is dependent on the skills and quality of technical support available to users, thus, the need for assistance and support in using technology is very important.

Level of Internet Self-efficacy

Table 5 presents the results for the level of student internet self-efficacy in terms of exploration. It reveals that students strongly agree that *they open web browsers like internet explorer or netscape*, which got the highest mean value of 4.53. This reveals that students are skilled to search the internet using available browsers. Moreover, students agree that they *print out important information on a website,* which got the lowest mean value of 3.33. This discloses that a meager number of them are able to print documents at home because not all possess printer devices.

Overall, this variable got 4.10 mean value, which means that they agree with them having efficacy in exploring the internet in search for information that support their learning. This finding directs to Inaba's (n. d) statement that internet involves advanced skill in exploration since information speedily increase every single day that it is easily lost.

Table 5. Level of Student Internet-efficacy in Terms of Exploration

	INDICATORS	MEAN	DESCRIPTOR
1	I open a web browser like internet explorer or netscape	4.53	Strongly Agree
2	I read the texts provided in a website	4.43	Strongly Agree
3	I click on hyperlinks to open other web pages	4.13	Agree
4	I directly key in a URL for opening a specific website	4.08	Agree
5	I make a bookmark for an interesting website	3.67	Agree
6	I print out the important information on a website	3.33	Agree
7	I search information by using keywords in search engines	4.64	Strongly Agree
8	I download pictures from the internet	4.81	Strongly Agree
9	I copy the texts in a website into a word document	3.48	Agree
	Aggregate Mean	4.10	Agree

Legend:

Scale	Range	Descriptive Rating	Qualitative Statement
1	1.00 – 1.80	Strongly Disagree	Internet self-efficacy is poorly demonstrated.
2	1.81 – 2.60	Disagree	Internet self-efficacy is fair and rarely demonstrated.
3	2.61 – 3.40	Uncertain	Internet self-efficacy is hardly demonstrated.
4	3.41 – 4.20	Agree	Internet self-efficacy is satisfactory and demonstrated almost all the time.
5	4.21 – 5.00	Strongly Agree	Internet self-efficacy is outstanding and demonstrated at all time.

Table 6 shows the results for internet self-efficacy in terms of communication. It reveals that students strongly agree that *they display their name in an online chat room*, which got the highest mean value of 5.00. This signifies those students who give importance to making themselves recognizable especially by their teachers for easy identification, access to their profile in FB, and recording. Students also agree that *they talk privately in an online chat room*, which got the lowest mean value of 3.70. This means that they chat with each other as regards to the classroom activities, but majority ask the teacher directly for clarity of directives.

Overall, this variable got the mean value of 4.30, which means that students are agreeable with their efficacy in terms of communicating to the teacher and other students. Hence, communication is accounted for students' connection with the teacher and other students, keeping posted with the activities in the class, and being guided with the lessons.

Table 6. Level of Student Internet-efficacy in Terms of Communication

	INDICATORS	MEAN	DESCRIPTORS
1	I display my name in an online chat room	5.00	Strongly Agree
2	I read information posted in an online chat room	4.44	Strongly Agree
3	I answer questions or provide information in a chat room	4.20	Agree
4	I talk privately in an online chat room	3.70	Agree
	Aggregate Mean	4.30	Strongly Agree

Legend:

Scale	Range	Descriptive Rating	Qualitative Statement
1	1.00 – 1.80	Strongly Disagree	Internet self-efficacy is poorly demonstrated.
2	1.81 – 2.60	Disagree	Internet self-efficacy is fair and rarely demonstrated.
3	2.61 – 3.40	Uncertain	Internet self-efficacy is hardly demonstrated.
4	3.41 – 4.20	Agree	Internet self-efficacy is satisfactory and demonstrated almost all the time.
5	4.21 – 5.00	Strongly Agree	Internet self-efficacy is outstanding and demonstrated at all time.

This result is supported by Shafipour et al. (2018) who affirmed that studies have looked into evidences pointing to peer-interactions contributory to performance outcomes, since interactions result to effective communication, which is an important competence. Effective communication skills in the field of online learning are very essential because students strive for help when they need it (Minnesota State, n.d). Effective students could make the most of message boards, which might offer opportunities to engage fellow students and instructors with deeper dialogue and insightful questions as a technique. Asking questions is a way of moving deeper into the subject and going deeper makes the subject more comprehensible (Alawamleh et al., 2020).

Level of Student Satisfaction in an Online Learning

Table 7 shows the results for the level of student satisfaction in online learning. Students are satisfied with *the examples and illustrations given to help them grasp things better*, which got the highest mean value of 4.18. This means that the teachers are able to provide them with the necessary digitized materials essential for learning, at a higher degree.

Table 7. Level of Student Satisfaction in an Online Learning

	INDICATORS	MEAN	DESCRIPTORS
	Are you satisfied of…		
1	being able to access online/digital learning resources readily?	3.60	Satisfied
2	being able to learn without regular face-to-face contact?	2.93	Undecided
3	organizing and being responsible for your own learning?	3.39	Satisfied
4	being given and/or pointed to current materials?	3.63	Satisfied
5	relating what is learnt to issues in the wider world?	3.83	Satisfied
6	having work that helps make connections to existing knowledge/experience?	3.90	Satisfied
7	interacting online with teaching staff?	3.58	Satisfied
8	interacting online with other students?	3.58	Satisfied
9	interacting with staff who convey their enthusiasm for a particular area?	3.73	Satisfied
10	completing online puzzles/quizzes?	3.66	Satisfied
11	submitting assignments online?	3.57	Satisfied

12	receiving feedback on assignments online?	3.90	Satisfied
13	having clear expectations of what is required to get good marks?	3.82	Satisfied
14	having the opportunity to develop/practice online technical skills?	4.00	Satisfied
15	learning to judge the quality of online information?	3.83	Satisfied
16	communicating knowledge and ideas online?	3.73	Satisfied
17	what you are supposed to learn in each unit	3.59	Satisfied
18	how you are supposed to learn from various online/digital learning resources?	3.58	Satisfied
19	the amount of work required was appropriate?	3.42	Satisfied
20	being encouraged to rethink my understanding of some aspects of the subject matter?	3.68	Satisfied
21	the examples and illustrations given to help you grasp things better?	4.18	Satisfied
22	being prompted to think about how I could develop my learning?	3.88	Satisfied
23	the staff being patient in explaining things online which seem difficult to grasp?	3.93	Satisfied
24	students' online support to one another trying to give help when needed?	4.09	Satisfied
26	the feedback given on your assessable work that help you clarify things you haven't fully understood?	3.76	Satisfied

Table 7 cont.

27	being able to track down online information in the subject area and use it effectively?	3.79	Satisfied
28	being encouraged to think about ideas and solve problems?	3.85	Satisfied
29	your ability to learn online?	3.48	Satisfied
30	how your teacher delivers every lesson online?	3.78	Satisfied
	Aggregate Mean	3.70	Satisfied

Legend:

Scale	Range	Descriptive Rating	Qualitative Statement
1	1.00 – 1.80	Very Dissatisfied	Dissatisfaction is at highest degree.
2	1.81 – 2.60	Dissatisfied	Dissatisfaction is at higher degree.
3	2.61 – 3.40	Undecided	Satisfaction is hardly experienced.
4	3.41 – 4.20	Satisfied	Satisfaction is at higher degree.
5	4.21 – 5.00	Very Satisfied	Satisfaction is at highest degree.

Student satisfaction can be attained through the digitized materials provided to them. Deep-rooted to Choe's et al. (2019) standpoint, multimedia learning can be satisfying and effective thus creating engaging, effective, and substantial asynchronous lecture videos as instructional materials is highly satisfying. Students are undecided in being able to learn without regular face-to-face contact, which got the lowest mean value of 2.93. It simply tells that students are still into the traditional classroom setting. Thus, they are looking forward to having a face-to-face learning soon. Online classes are just an option in the present times given the threat of COVID-19. This is consistent to Partarrieu's (2015) idea that for the students, face-to-face classes convey linguistic and emotional complexity where teacher's body language and cultural insights provide students with complex information. It's difficult to imagine a robot or computers entirely replacing teachers.

Overall, this variable got the aggregate mean value of 3.70, which means that they are satisfied in online class, consequently, their satisfaction is at a higher degree. The result is directed to the findings of Ghaderizefreh and Hoover (2018) that student satisfaction increases given high levels of related factors like understandability, illustration, and enthusiasm in the course.

Correlation between Student Satisfaction and the Independent Variables

Table 8 shows the correlation between student satisfaction and asynchronous virtual classroom in the dimensions of teaching and methodological aspects, communication aspect, and technical aspect, and internet self-efficacy in term of exploration and communication.

Table 8. Correlation between Research Productivity and the Independent Variables

VARIABLES	CORRELATIONSHIP COEFFICIENT	p-value
Dimensions of Asynchronous Virtual Classroom		
Teaching and Methodological Aspects	.573	.000**
Communication Aspect	.548	.000**
Technical Aspect	.438	.000**
Internet Self-efficacy		
Exploration	.234	.005**
Communication	.039	.337

ns – not significant
** - p < .05

Only communication as an internet self-efficacy is found to have no significant relationship to student satisfaction, with probability value of .337 at .05 alpha value. Therefore, the null hypothesis, there is no significant connection between student satisfaction and internet self-efficacy in terms of communication, is accepted, all the rest are rejected.

This entails that communication as an efficacy has nothing to help students be satisfied in online learning. The insignificance points out that even though students involve in private chats, answer or provide questions through chats, and read posted information, these acts do nothing with how they are satisfied with learning because these actions cannot comprehensively suffice the essential necessities for optimum education. Generally, the result is in contrast to the findings of Terzic and Ascic (2018) where satisfaction in communication with teaching staff had made a statistically significant contribution.

Regression Analysis of the
Dimensions of Asynchronous Virtual Classroom
against Student Satisfaction in Online Learning

Table 9 displays the regression analysis. One variable surfaces to be the sole determinant of student satisfaction employing stepwise linear regression. It is teaching and methodological aspects with a probability value of .000. The finding is aligned to that of Kauffman's (2015) study that found online learning not appropriate for every student. This attribute suggests adequate instructional methods, which facilitate student satisfaction.

Table 10. Summary of regression analysis

PREDICTOR	UNSTANDARDIZED COEFFICIENT	STANDARDIZED COEFFICIENT

	Beta	Std. Error	Beta	T	PROB.
(Constant)	.815	.384		2.125	.036
Teaching and Methodological Aspect	.707	.093	.573	7.602	.000

R = .573   F-value = 57.795
R²= .329   P-value = .000

Based on the regression model, the total correlation value between the combination of all independent variables namely teaching and methodological aspects, communication aspect, technical aspect, exploration, and communication (Xi's) and dependent variable, student satisfaction (Y), is .573, which is the correlation coefficient (R) measuring the strength of the their relationship.

The degree of determination (R²) of student satisfaction, with value of .329, is accounted for teaching and methodological aspects. Hence, 67.10% of the differences student satisfaction is attributed to other factors outside the parameter of the study. It brings out F-value of 57.795 and probability of .000 from the ANOVA, suggesting significance of the regression model.

Subsequently, the null hypothesis stating that there is no determinant of student satisfaction in online learning stands rejected. The regression equation is:

$$Y = .818 + .707$$

where:
        Y = student satisfaction
        X = teaching and methodological aspects

The positive value connotes that when teaching and methodological aspects increase in value, student satisfaction also increases in value. Hence, when the teacher does more in teaching and develops more effective methodology in online teaching and learning, student satisfaction accelerates.

Nevertheless, the result also reveals a meager value of student satisfaction in an asynchronous virtual classroom as indicated by the sum of the constant value (.818), beta value (.707), and the standard error of the estimates (.46953) in the unstandardized coefficients, which is only 1.99. It implies that students may also need to have an equally effective synchronous regular online learning where live interactions take place. This suggests hybrid or blended classes where synchronous learning is done regularly, and reinforced with asynchronous learning for exploration and self-paced learning using digitized materials.

The finding is aligned to that of Kauffman's (2015) study. It was found that online learning may not be appropriate for every student, thus, this attribute suggests adequate instructional methods, which facilitate student satisfaction.

Conclusions:

There was voluminous third year students in the college. Second year students ranked second in number. And, first year students were found to be the smallest in number.

As to dimensions of asynchronous virtual classroom, the students in the four programs appeared to agree on the teaching and methodology provided by the teachers, teachers' communication with the students, and the technical aspect given to them. In terms of internet self-efficacy, students agreed on exploration skill as their possession to support learning, and they strongly agreed that they would communicate to connect with teachers and other students for updates.

Of the five variables in the study, though students strongly agreed on, communication as an internet self-efficacy was found to have no significant connection with student satisfaction. The null hypothesis stating that there is no significant connection between the dependent variable and internet self-efficacy in terms of communication stood accepted. While, the hypothesis stating no significant connection between the dependent variable and the rest of the independent variables was rejected.

Teaching and methodological aspects served as single determinant of student satisfaction rejecting the third null hypothesis, saying that there is no determinant of student satisfaction in online learning. This means that this variable has greatly influenced student satisfaction in online learning.

Suggestions and Recommendations

Based on the findings of the study, the faculty of the college may find initiatives to intensify teaching utilizing methodology appropriate to asynchronous online learning. To capacitate the teachers, the administration, specifically the Office of the Vice-president for Academic Affairs (OVPAA), may conduct trainings and conferences.

Since satisfaction is only at its higher degree, not to an extremity, some attributing factors to online learning in the college shall also be considered, like heightened synchronous learning where students learn through interactions, which is likened to a face-to-face setting. However, due to low bandwidth in many places where students of the college live, this is not feasible. In this extent, the government shall play its vital role. It may suffice back up by strengthening the network connection in numerous places to support education. Further, the Commission on Higher Education (CHED) can also affiliate with the government to establish line of assistance to support student by providing means of making online learning accessible to the general students. However, its specifications lie on the former since it is no longer within the parameter of the study.

References

Achieve Virtual Academy (2020). Real Indiana Educators. http://bitly.ws/an6j

Alawamleh, M. et al. (2020). The effect of online learning on communication between instructors and students during Covid-19 pandemic. Emerald Group Publishing http://bitly.ws/aIW

Alqurashi, E. (2016). Self-Efficacy in Online Learning Environments: A Literature Review. Contemporary Issues in Education Research – First Quarter 2016 Volume 9, Number 1. http://bitly.ws/am2i

Association for Talent Development (2020). What is instructional design? https://www.td.org/talent-development-glossary-terms/what-is-instructional-design

Choe, R. et al (2019). Student Satisfaction and Learning Outcomes in Asynchronous Online Lecture Videos. Life Sciences Education, Vol Hendricks, S. & Bailey, S. (2014). What Really Matters? Technological Proficiency in an Online Course. Online Journal of Distance Learning Administration, Volume XVII, Number II https://www.westga.edu/~distance/ojdla/summer172/Hendricks_Bailey172.html

Bukidnon State University (2020). CHED commends BukSU performance http://buksu.edu.ph/?p=7674

Coursify.me (2013). Online Classes: Improving Communication with Students. blog.coursify.me https://blog.coursify.me/en/online-classes-communication/

Carey, M. & Forsyth, A. (2009). Teaching Tip Sheet: Self-Efficacy. American Psychological Association http://bitly.ws/akVH. 18, No. 4 http://bitly.ws/amCe

Chuang, S. et al. (2015). An exploration of the relationship between Internet self-efficacy and sources of Internet self-efficacy among Taiwanese university students. Association for Computing Machinery Digital Library https://dl.acm.org/doi/10.1016/j.chb.2015.01.044

Cole, M., Shelley, D., and Swartz, L. (2014). Online Instruction, E-Learning, and StudentSatisfaction: A Three Year Study. The International Review of Research in Open and Distance Learning http://bitly.ws/amC3

Cuaton, G. P. (2020). Philippine Higher Education Institutions in the Time of COVID-19 Pandemic. Revista Romaneasca pentru Educatie Multidimensionala. Volume 12, Issue 1 Sup. 2, pages 61-70. http://bitly.ws/akFk

Culatta, R. (2020). Transactional Design. Transactionaldesign.org https://www.instructionaldesign.org/models/transactional_distance/

Dziuban, C. et al. (2015). Student Satisfaction with Online Learning: Is it a Psychological Contract? Research Initiative for Teaching Effectiveness University of Central Florida https://files.eric.ed.gov/fulltext/EJ1062943.pdf

Eastin, M. & LaRose, R. (2000). Internet Self-Efficacy and the Psychology of the Digital Divide. Journal of Computer-Mediated Communication, Volume 6, Issue 1, 1 September 2000 https://academic.oup.com/jcmc/article/6/1/JCMC611/4584219

Education Reform. (2013). Great Schools Partnership. http://bitly.ws/an4S

Egbert, J. (n.d) Methods of Education Technology: Principles, Practice, and Tools. Creative Commons Attribution 4.0 International License. PressBooks http://bitly.ws/an8G

Ghaderizefreh, S. & Hoover, M. (2018). Student Satisfaction with Online Learning in a Blended Course. Department of Educational and Counselling Psychology. McGill University, Montreal, Canada. International Journal of Digital Society (IJDS), Volume 9, Issue 3, September 2018 http://bitly.ws/an6A

Gorsky, P. & Caspi, A. (A Critical Analysis of Transactional Distance Theory. The Quarterly Review of Distance Education, Volume 6(1), 2005, pp. l-Il. Information Age Publishing, Inc. https://www.openu.ac.il/personal_sites/download/avner-caspi/Gorsky&Caspi05.pdf

Groshell, Z. & Groshell, S. (2020). The Unproductive Debate of Synchronous vs. Asynchronous Learning. Education Richsaw. http://bitly.ws/9McA

Himmelsbach, V. (2019). How Does Technology Impact Student Learning? Top Hat Blog. http://bitly.ws/an7s

Holder, S. M. (2016).Let's Talk: Effectively Communicating with Your Online Students. Humanizing Online Teaching and Learning http://bitly.ws/an6A

Hrastinski, S. (2008). Asynchronousn and Synchronous E-learning. Educause Review https://er.educause.edu/articles/2008/11/asynchronous-and-synchronous-elearning

Hsu, M. Chiu, C. (2004). Internet self-efficacy and electronic service acceptance. Decision Support System Volume 38, Issue 3, December 2004, Pages 369-381. Science Direct System https://www.sciencedirect.com/science/article/abs/pii/S0167923603001222

Inaba, M. (n. d). Internet Consultant: An Integrated Conversational Agent for Internet Exploration. Department of Information and Computer Sciences University of Hawaii at Manoa https://tinyurl.com/y6efdfmj

Johnston, J., Killon, J., & Oomen, J. (2005). Student Satisfaction in Virtual Classroom. The Internet Journal of Allied Health Sciences and Practice. Vol. 3 No. 2 https://nsuworks.nova.edu/cgi/viewcontent.cgi?article=1071&context=ijahsp

Jong, N. et al. (2011). A comparison of classroom and online asynchronous problem-based learning for students undertaking statistics training as part of a Public Health Master's degree. Advances in Health and Sciences. Springer.com https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3622737/

Josep, G. (2020). 5 Reasons Why Online Learning is the Future of Education. Education.com. http://bitly.ws/9MaF

Kauffman, H. (2015). A review of predictive factors of student success in and satisfaction with online learning. Communication Sciences and Disorders, Temple University, Philadelphia, PA, USA. Research in Learning Technology Vol. 23, 2015 https://repository.alt.ac.uk/2415/1/1648-7585-1-PB.pdf

Kucuk, S. & Richardson, J. (2019). A Structural Equation Model of Predictors of Online Learners' Engagement and Satisfaction. Online Learning Journal – Volume 23 Issue 2 – June 2019 https://files.eric.ed.gov/fulltext/EJ1218390.pdf

Kuo, Y. (2010). Interaction, Internet Self-Efficacy, and Self-Regulated Learning as Predictors of Student Satisfaction in Distance Education Courses. Digital Commons USU. http://bitly.ws/am3t

Magsambol, B. (2020). Fast Facts: CHED's flexible learning. Education in the Philippines. Rappler http://bitly.ws/bqzv

Masa, J. A. et al. (2014). Assessment of the Use of Synchronous Virtual Classrooms in Higher Education. The New Education Review http://bitly.ws/aiXV

Mind Tools (n. d). Seven Ways to Find What You Want on the Internet. https://www.mindtools.com/pages/article/internet-searching.htm

Minnesota State (n.d). What Makes a Successful Online Learner? https://careerwise.minnstate.edu/education/successonline.html

Murphy, E. et al. (2011). Asynchronous and synchronous online teaching: Perspectives of Canadian high school distance education teachers_1112 5. British Journal of Educational Technology Vol 42 No 4 2011 583–591 http://bitly.ws/akUr

National Teacher Training Institute (n. d). Interne Strategies. Why Use Internet in the Classroom. https://www.thirteen.org/edonline/ntti/resources/internet1.html

Nawaz, A. & Khan, M. Z. (2012). Issues of Technical Support for e-Learning

Systems in Higher Education Institutions. I. J. Modern Education and Computer Science, 2012, 2, 38-44 http://bitly.ws/aITz

Nortvig, A. et al (2018). A Literature Review of the Factors Influencing E-Learning and

Blended Learning in Relation to Learning Outcome, Student Satisfaction and Engagement. The Electronic Journal of e-Learning Volume 16 Issue 1 2018 https://files.eric.ed.gov/fulltext/EJ1175336.pdf

Oncu, S. & Cakir, H. (2011). Research in online learning environments: Priorities and methodologies. Computer and Education: An International Journal. Elsevier. http://bitly.ws/aIRQ

Oproiu, G. C. (2017). Methodological Aspects of Designing Online Teaching Activities. The 13th International Scientific Conference eLearning and Software for Education http://bitly.ws/an7L

Palmer, S. R. & Holt, D. M. (2009). Examining student satisfaction with wholly online

Learning. Journal of computer assisted learning, vol. 25, no. 2, pp. 101-113.
http://hdl.handle.net/10536/DRO/DU:30022683

Partarrieu, S. (2015). Why we still need face-to-face teaching in the digital age. British Council.
https://www.britishcouncil.org/voices-magazine/why-we-still-need-face-face-teaching-digital-age

Peters, J. M. (1996). Paired Keyboards as a Tool for Internet Exploration of Third Grade Students.
Journal of Educational Computing Research Vol. 14 Issue 3
https://journals.sagepub.com/doi/abs/10.2190/76TT-X408-JTWR-U90W

Pham, L. et al. (2019). Does e-learning service quality influence e-learning student satisfaction and
loyalty? Evidence from Vietnam. International Journal of Education al Technology in Higher Education
https://educationaltechnologyjournal.springeropen.com/

Racheva, V. (2017). What is synchronous and asynchronous virtual learning? VEDAMO Learning
Management System http://bitly.ws/akNo

Roach, V. & Lemasters, L. (2006). Satisfaction with Online Learning: A Comparative Descriptive Study.
Journal of Interactive Online Learning Volume 5, Number 3, Winter 2006
https://www.ncolr.org/jiol/issues/pdf/5.3.7.pdf

Russel, G. (2014). How Communication Really Works in Online Learning Communities. ValuEd.
Colorado State University Online. http://bitly.ws/an6p

Shafipour et al. (2018). Buildup of speaking skills in an online learning community: a network-analytic
exploration. Humanities and Social Sciences Communications https://www.nature.com/articles/s41599-
018-0116-6

Simpson, J. M. (2012). Student Perceptions of Quality and Satisfaction in Online Education.
https://ir.ua.edu/bitstream/handle/123456789/1571/file_1.pdf?sequence=1&isAllowed=y

Strong, R. et al. (2012). Investigating Students' Satisfaction with eLearning Courses: The Effect of
Learning Environment and Social Presence. Journal of Agricultural Education Volume 53, Number 3, pp
98–110 http://bitly.ws/amBu

Stern, J. (2020). Introduction to Online Teaching and Learning.
http://www.wlac.edu/online/documents/otl.pdf

St. Armour, M. (2020). The Moment Is Primed for Asynchronous Learning http://bitly.ws/aIuc

Suana, W. (2018). Students' Internet Access, Internet Self-Efficacy, and Internet for Learning Physics:
Gender and Grade Differences. Journal of Technology and Science Education JOTSE, 2018 – 8(4): 281-
290 – Online ISSN: 2013-6374 – Print ISSN: 2014-5349 http://bitly.ws/akZX

Swan, K. (2006). Virtual interaction: Design factors affecting student satisfaction and perceived learning
in asynchronous online courses. Distance Education Journal Volume 22, 2001 - Issue 2. Taylor Francis
Online. https://www.tandfonline.com/doi/abs/10.1080/0158791010220208

Terzic, E. & Ascic, A. (2018). Linking Students' Satisfaction with Communication and their Overall Satisfaction: Student as a Customer Approach. ICES 2018 International conference of the school of economics and business in Sarajevo http://bitly.ws/aK9A

Tsai, M. (2004). Developing the Internet Self-Efficacy Scale (ISES). Proceedings of the 2004 World Conference on Educational Multimedia, Hupermedia & Telecommunications (EDMEDIA 2004) Vol. 4., 4406-4408, Lugano, Switzerland, June 21-26, 2004. http://bitly.ws/akI9

Toquero, C. M. (2020). Emergency Remote Education amid COVID-19 Pandemic in Learning Institutions in the Philippines. International Journal of Education Research and Innovation. Research and Education http://bitly.ws/akEM

Top Hat Glossary. (2020). https://tophat.com/glossary/f/flexible-learning/

Tria, J. (2020). The COVID-19 Pandemic through the Lens of Education in the Philippines: The New Normal. International Journal of Pedagogical Development and Lifelong Learning. Research Gate http://bitly.ws/akwH

United Nations (2020). Policy Brief: Education during COVID-19 and beyond http://bitly.ws/akji

University of Colorado (2020). Pedagogy in Time of Disruption. Working Remotely College of Liberal Arts and Sciences. University of Colorado, Denver. http://bitly.ws/9MfW

University of Rhode Island (2020). Effective Communication in your Online Class. Online Education. A Division of the Office for the Advancement of Teaching & Learning http://bitly.ws/aISt

Wangpipatwong, T. & Papasratorn, B. (2016). The Study of Computer Self-efficacy, Internet Self-efficacy, Computer Attitude in Computer and Information Technology Course. Knowledge Center https://www.bu.ac.th/knowledgecenter/epaper/july_dec2007/Thanakorn.pdf

Weerasinghe, S. et al. (2017). Students' Satisfaction in Higher Education Literature Review. American Journal of Educational Research, 2017, Vol. 5, No. 5, 533-539. Science and Education Publishing http://bitly.ws/amAo

Wilson, K. (2017). Best Practices for Communicating with Students in Online Classes. School of Professional Studies. https://tinyurl.com/yd7szt4t