Asynchronous learning among industrial-technical students: Input to a framework in the new normal industrial-technical instruction

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Abstract

The Coronavirus disease 2019 (COVID-19) has been confronting and challenging the education sector in the Philippines. This causes paradigm shifts in learning modalities like implementation of asynchronous learning. With COVID-19 confronting the education context, literatures and education officials and educators reveal the need to investigate asynchronous learning. This led to conceptualization and conduct of this study which described the attitude, affective states, and degree of seriousness of problems of students and teachers in the implementation of asynchronous learning in industrial-technical context. Through descriptive-survey design with the aid of a questionnaire, this study revealed that the respondents have positive attitude and fair affective states. Also, it revealed that the degree of seriousness of problems encountered during implementation of asynchronous learning is fair. In the lights of the findings, the study concludes that both the teachers and students are affirmative on the use of asynchronous learning modality. As such, school officials should design mechanisms, programs, and activities that shall elevate the positive attitude, confidence, and success orientation of teachers and students.

Keywords: affective states, asynchronous learning, attitude, industrial technology, new normal education, technical instruction

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1. Introduction

The spread of Coronavirus disease 2019(COVID-19) has challenged various sectors or every country. The education sector is among them. As a result, various experts have come together to think of many ways in order to combat the threats and challenges posted by COVID-19 such that the quality of education and training that every learner deserves will not be jeopardized or sacrificed. As such, sudden shift in learning modalities came into existence.

Asynchronous learning is among the new learning modalities that are being implemented. Asynchronous is a modality of learning that is appropriate with the given situation today. This style of learning can serve as pathway through which learners will be able to receive information about their studies. Asynchronous learning refers to instruction that is not constrained by geography or time (Khan, 2005). Another popular definition that focus on the components of asynchronous e-learning introduced it as an interactive learning community that is not limited by time, place or the constraints of a classroom (Mayadas, 1997). Likewise, there is no specific time for students to participate with their studies due to its non-stable schedule of time. Misbah Malik *et al.* (2017) indicated that learners can learn anywhere and can consume their time to gain knowledge of what they want to know and when they need to know.

Clearly, asynchronous learning environment offers flexibility. With the further development of technologies, flexible delivery is considered a critical component (Lundin, 1999), which usually empowers learners and instructors to exchange information in a two-way manner. Gardon (2014) and Ryan and Tilbury (2013) believed that flexibility is not only an attribute of students, but also a feature of educational strategies at the institution level. It means that the time of participating in a course (Collis *et al.*, 1997), starting and finishing a course (McMeekin, 1998), participating in learning activities (Collis *et al.*, 1997; Collis, 2004; Casey, 2005), the pace of study (Collis, 2004; Casey & Wilson, 2005) can be flexible. Learners can be offered choices based on their needs (e.g., study during evenings or weekends). It offers learners rich learning choices from multiple dimensions of study (Goode *et al.*, 2007).

In addition, instructors tend to believe that asynchronous forms of communication such as access to course material by simply clicking on course website links are enough as provision of communication (Wang & Newlin, 2001). Bransford *et al.* (2000) underscored that the educational procedure (in asynchronous learning) must focus on students' assessment, the learning material and the learning community. From the point of view of accessibility, it enables participation at various times from practically any location, increases social interaction among students, and establishes a virtual space for the exchange of knowledge and reflection (Bryce, 2014; Garrison & Cleveland-Innes, 2005; Hrastinski, 2008).

Meanwhile, demanding the involvement in the online discussion after the students have already completed their assignments might even become counter-productive, because the students do not find it beneficial anymore (Downing *et al.,* 2007). In fact, distance learning environments, and separation between the teacher and students can lead to communication gaps, a psychological space of potential misunderstandings between the behaviors of instructors and those of the learners (Moore &Kearsley, 1996). In this respect, Bregar*et al.* (2010) pointed out that technology cannot replace learning as a social process, but it can improve it. Through a multi-case evaluation of asynchronous courses Garrison and Cleveland-Innes (2005) found that alone participant interaction did not inculcate a feeling of mutual social existence or involvement in online education. They found that participants of asynchronous online study seek the content uploaded by their instructor or they try to engage themselves in meaningful learning tasks. Lehman and Conceição (2011) to understood and incorporated the

latent nature of social interaction that must be considered while creating asynchronous learning situation by understanding existence of different factors i.e., physical, social, emotional, and psychological etc., and their relation to learners' involvement in an online course. Participants may feel different level of transactional distance in an online course mostly depending upon the level of shared discussion, the content that the instructor sets up for them, and the level of autonomy in a course (Moore, 2013).

Moreover, observations reveal some of the impacts of asynchronous platform throughout the students learning experience amidst COVID-19 pandemic. Some problems surface as a result of their new learning modality. Students do not have the gadgets. They have no or poor internet connections. They have difficulty understanding the learning materials given to them. Also, they demand going back to traditional face-to-face class. In like manner, teachers experience similar problems. As such, the challenges of new normal education asynchronous learning also offer different type or process of learning which seem unlimited, but could be mitigated if not eradicated.

Enthused by the above-mentioned discussions and observations, the researchers find it interesting to conduct a study on the asynchronous learning as it transpires among industrial-technical courses. Industrial-technical courses are those courses being taken under Bachelor of Science in Industrial Technology, Bachelor of Technical-Vocational Teacher Education, and Senior High School-Industrial Arts (Azarias, 2020); hence, the definition of industrial-technical instruction as the teaching-learning process in the mentioned programs. Through the experiences of the teachers and students, this study described their attitude and difficulties. In so doing, a learning framework could be developed in the name of quality and excellent learning in the new normal.

1.1 Statement of the Problem

This study aimed to describe the asynchronous learning among Industrial-Technical classes of a state college in Ilocos Sur as basis in the formulation of a Framework in New Normal Industrial-Technical Instruction. Specifically, it sought to answers the following:

1. What is the attitude of teachers and students towards asynchronous learning?

2. What is the level affective state of students and teachers towards asynchronous learning along confidence, success and defense orientations?

3. What is the degree of seriousness of the problems being encountered by in asynchronous learning?

4. Are there significant differences in the answers of the respondents in terms of the following: attitude towards asynchronous learning; level of affective states along confidence, success and defense orientation in asynchronous learning; and degree of seriousness of the problems being encountered by in asynchronous learning?

5. What Framework in New Normal Industrial-Technical Instruction can be formulated?

2. Methodology

Research Design. The study employed descriptive-survey design with the aid of questionnaire. Calderon and Gonzales (2015) forwarded that descriptive method involves the description, recording, analysis and interpretation the present nature, composition or processes of phenomena. Accordingly, it is otherwise known as normative survey, is a fact-finding study with adequate and accurate interpretation; it is used to collect demographic data about people's behavior, practices, intentions, beliefs, attitudes, opinions, judgments, interests, and the like and then such data are analyzed, organized, and interpreted. In addition, Fraenkel *et al.*, (2012) stated that the central purpose of a survey research is to describe characteristic of a group or population. Since the study focused on the determining the attitudes, level of confidence, success and defense orientations, and the degree of seriousness of the problems encountered in asynchronous learning, the design is deemed appropriate.

Population and Locale of the Study. The respondents of the study were the 308 students and 30 teachers of a state college in Ilocos Sur who were enrolled in and are teaching Bachelor of Science in Industrial Technology (BSIT), Bachelor of Technical Teacher Education or Bachelor of Technical-Vocational Teacher Education (BTTE/BTVTEd), Bachelor of Science in Mechatronics Technology, and Senior High School-Industrial Arts (SHS-IA) courses respectively. Meanwhile, the respondents were chosen using total enumeration sampling because of the number of enrolled students and the number of teachers in the mentioned programs. The sampling design ensured richer corpora for analysis leading to encapsulation of real picture of asynchronous learning in the mentioned programs since in some cases questionnaires cannot be retrieved and answered by respondents especially in this time of pandemic.

Data Collection Instrument. In data gathering, the researcher used a questionnaire adapted from the study Draya (2011) and Azarias and Vidal (2017). Little modifications were incorporated in the questionnaire. The modifications were done through adding some items and changing some words to make the questionnaire match with topic of the study which is asynchronous learning in Industrial-Technical classes. The first part looked into the attitude of the students and teachers on asynchronous learning. The second part surfaced the level of confidence, success orientation, and defense orientation of the students as they experience asynchronous learning. The last part elicited the degree of seriousness being encountered by the respondents in asynchronous learning. Notably, the questionnaire underwent reliability testing before it was administered.

Data Collection Procedure. In gathering the data, permission to gather the data was sought from respective college officials prior to the administration of the questionnaire. Then, the researcher personally administered the questionnaire during the retrieval or distribution of modules and during the time when students appeared at the campus for some document requests and clearances. After administering the questionnaire, the answers of the respondents were validated through unstructured interview. Then, the data were analyzed. The results of the analysis were used in constructing the framework in new normal.

Treatment of Data. To come out with valid and reliable quantitative data, **mean** was used to describe the attitude, confidence, success orientation, and defense orientation on asynchronous learning and the degree of seriousness of the problems encountered in asynchronous learning. Also, **t-test** was used to determine the differences in the perceptions of the students and teachers on the attitude towards asynchronous learning; level of confidence, success and defense orientation in asynchronous learning; and degree of seriousness of the problems being encountered by in asynchronous learning.

Data Categorization. The norm below was used in interpreting the data on the attitude, confidence, success orientation, and defense orientation on asynchronous learning.

Range of Ratings	Descriptive Rating	Overall DR
4.21-5.00	Agree Very Strongly (AVS)	Very High (VH)
3.41-4.20	Agree Strongly (AS)	High (H)
2.61-3.40	Agree (A)	Fair (F)
1.81-2.60	Disagree (D)	Low (L)
1.00-1.80	Disagree Strongly (DS)	Very Low (VL)

The norm below was used to describe the degree of seriousness of the problems encountered in asynchronous learning.

Range of Ratings	Descriptive Rating	Overall DR
4.21-5.00	Very Highly Serious (VHS)	Very High (VH)
3.41-4.20	Highly Serious (HS)	High (H)
2.61-3.40	Moderately Serious (MS)	Fair (F)
1.81-2.60	Slightly Serious (SS)	Low (L)
1.00-1.80	Not Serious(NS)	Very Low (VL)

3. Discussion

3.1 Attitude of Students and Teachers towards Asynchronous Learning

Table 1

Attitude of students and teachers towards asynchronous learning

Attitude towards Asynchronous Learning	Mean	DR
1. Attitude of Students towards Asynchronous Learning	3.05	F
2. Attitude of Teachers towards Asynchronous Learning	3.92	H
Overall mean	3.49	H

The attitude of the students and teachers towards asynchronous learning is quantified in Table 1. As can be gleaned from the table, the teachers show a high level of attitude towards asynchronous learning evidently amplified by the 3.92 overall mean rating. This suggests that the success of teachers in asynchronous learning is highly assured and expected. Their high motivation means that teaching and learning will still take place despite the paradigm shift in education as response to the pandemic. As such, the finding means that asynchronous learning does not impede the teachers from doing what they have been doing and exercising before the pandemic.

Meanwhile, the attitude of the students towards asynchronous learning is fair as supported by the 3.05 overall mean rating. This supports Kunin *et al*. (2014) when they found that students had high rating for asynchronous format of learning. In the case of the respondents, this indicates that asynchronous learning is still gaining the necessary acceptance. It also suggests that students still have doubts and concerns on this new learning modality during this OVID-19 pandemic. As such, they need to adjust their ways and routines. This is accentuated when the students unanimously said in the interviews that this is new to them and they have to adjust greatly given that face-to-face classes are what they know for the past years of their schooling.

Overall, the attitude of the students and teachers towards asynchronous learning is high as supported by the 3.49 overall mean. This implies that asynchronous learning is preferred by both the teachers and students amidst the challenges of its implementation. Similarly, Lew and Nordquist (2016) revealed the same when majority of their respondents favored the inclusion of asynchronous learning in their learning modalities.

3.2 Affective States of the Students and Teachers in Asynchronous Learning

Table 2

Affective states of the students and teachers in asynchronous learning

Affective States of the Students and Teachers in Asynchronous Learning	S	T	Mean	DR
1. Confidence	2.48	3.61	3.05	F
2. Success Orientation	2.51	3.37	2.94	F
3. Defense Orientation	4.18	2.59	3.39	F
		Overall mean	3.12	F

Table 2 presents the affective states of the students and teachers in asynchronous learning. As shown on the table, defense orientation posted the highest mean rating of 3.39 described as fair. Interestingly, the students revealed higher defense orientation than the teachers. Compared to the teachers, finding means that the students do not want others to know the experiences and difficulties they have in asynchronous learning. As such, teachers and students should break their walls and establish positive and healthy communication and relationship. Notably, appropriate teacher-student relationship contributes to the general improvement of learning environment (Garcia & Reyes, 2014).

Meanwhile, success orientation got the lowest mean rating of 2.94 which is still described as fair. Students manifested the lower mean of 2.51 compared to the 3.37 mean rating of the teachers. The results suggest that

teachers are more positive on their success in asynchronous learning modality. They feel that they can be successful in dispensing their duties and responsibilities using asynchronous modalities. Contrastingly, the students feel less successful in asynchronous learning which corresponds to high tendency of failure. As such, their success orientation needs reinforcement. After all, success-oriented students may serve as protective factor that buffers students against fear of failure (Castella *et al.*, 2013).

Above all, the affective states of the students and teachers in asynchronous learning are fair as supported by the overall mean of 3.12. This implies that the teachers and students, especially the students, are less confident on their success in asynchronous learning. This calls for the teachers to radiate more positive affective states so as to affect the confidence or success in asynchronous learning. It is to note that self-confident people gain more, dare to have adventures, and communicate confidently (Listyani & Tananuraksakul, 2019).

3.3 Degree of Seriousness of the Problems Being Encountered by in Asynchronous Learning

Table 3

Degree of seriousness of the problems in asynchronous learning

Degree of Seriousness of the Problems in Asynchronous Learning	Mean	DR
1. Degree of Seriousness of the Problems Encountered by Students in Asynchronous Learning	3.70	H
2. Degree of Seriousness of the Problems Encountered by Teachers in Asynchronous Learning	2.22	L
Overall mean	2.96	F

Table 3 manifests the degree of seriousness of the problems being encountered by students and teachers in the implementation of asynchronous learning. Overall, the degree of seriousness of the problems being encountered by students and teachers in the implementation of asynchronous learning is fair as evidently shown by the 2.96 overall mean rating. Clearly, this pandemic post challenges to both the students and the teachers (Bao, 2020; Crawford *et al.*, 2020), but are still manageable. Also, this means that teachers and students need not only new skills in handling technology but also in interacting with each other resulting in newly shaped roles (Blumentritt et al., 2020; Granitz & Koernig, 2011).

Notably, the students portrayed higher degree of seriousness compared to the 3.22 mean rating of teachers which is described as low. This means that students experience more and greater difficulties or problems compared to their teachers. This accentuates that students are more likely to suffer in asynchronous learning compared to the teachers. Hence, it is important to carefully consider the students' learning experience (Fabriz *et al.*, 2021). After all, not all learners are equipped with the vital strategies to benefit from the potential advantages of asynchronous learning (Harnett, 2015).

3.4 Differences in the Answers of the Respondents on the Identified Variables of the Study

Table 4

Differences in the answers of the respondents identified variables of the study

	Teachers		Students			
	Mean	Variance	Mean	Variance	df	*p-value*
Attitude	3.92	0.02	3.05	0.13	14	2.145
Confidence	3.61	0.05	2.48	0.04	9	2.262
Success Orientation	3.37	0.21	2.51	0.03	4	2.776
Defense Orientation	2.59	0.01	4.18	0.07	4	2.776
Degree of seriousness of Problems	2.20	0.12	3.70	0.34	15	2.131

*Significant at 0.05 alpha level.

Table 4 shows the differences in the answers of the respondents along attitude towards asynchronous learning, affective states in asynchronous learning, and degree of seriousness of problems being encountered in the implementation of asynchronous learning. Evidently, the table shows that there are significant differences on the answers of the respondents along the mentioned areas or variables as supported by the difference *p-values*. The results suggest that the respondents differ in terms of their attitudes towards asynchronous learning, affective

states in asynchronous learning, and perceived degree of seriousness of problems being encountered in the implementation of asynchronous learning. To break the differences on their perceptions, teachers need to put extra effort into providing enough opportunities for students to interact not only with learning content but also with their teachers and fellow learners (Fabriz *et al.*, 2021). In doing so, teachers need to be empowered while having sufficient room to unanimously make their decisions and relate to others in this process (Moorhouse & Kohnke, 2021).

3.5 Framework in New Normal Industrial-Technical Instruction

As the learning modalities shift from the traditional face-to-face to asynchronous learning, this study revealed sufficient high attitude and fair affective states among the students and teachers circumvents the problems in asynchronous learning environment. Notably, this study surfaced that students have higher defense orientation than their teachers highlighting the need to establish rapport between teachers and students. In doing so, healthy exchange of the communication may be facilitated. With these results of the study, the Framework in the New Normal Industrial-Technical Asynchronous Instruction (Figure 1) was conceptualized and developed

The developed framework highlights that teachers' and students' high or increased attitude, confidence, and success orientation coupled with their low or decreased defense orientation are imperative or equal to the success of the implementation of asynchronous learning. This framework suggests the need to strengthen and establish the synergy of the teachers and students to produce productive, facilitative of learning, safe, and effective asynchronous learning experiences and environment. This could only be done by increasing and invigorating the teachers' and students' attitude, confidence, and success orientation and by lowering their defense orientation. As such, this framework underscores that concerned school officials and personnel should design pertinent and related programs and activities for such cause. Nonetheless, the formula **SAL= +ACSO & -DO** is formulated and is illustrated below.

SAL= +ACSO & -DO

   Where:

   a. **SAL** is the success in asynchronous learning
   b. **+ACSO** is positive attitude, confidence, and success orientation
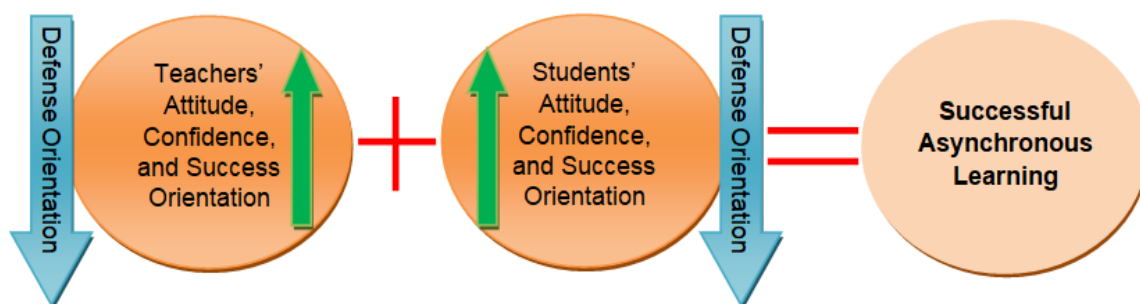   c. **-DO** is negative defense orientation

Figure 1. Framework in the New Normal Industrial-Technical

Asynchronous Instruction

4. Conclusion

Based on the findings, this study concludes the following:

➢ The students and the teachers are affirmative on the implementation of asynchronous learning.

➢ In asynchronous learning, the teachers and the students, especially the students, are fairly confident on their success.

➢ The degree of seriousness of the problems being encountered by students and teachers in the implementation of asynchronous learning is tolerable and manageable.

➢ The respondents manifest different attitudes towards asynchronous learning, affective states in asynchronous learning, and perceptions on the degree of seriousness of problems being encountered in the implementation of asynchronous learning.

➢ Positive and high attitude, confidence, and success orientation together with their low or decreased defense orientation are imperative components in the implementation of asynchronous learning in Industrial-Technical courses.

4.1 Recommendations

With the salient findings and conclusions, the following are recommended:

➢ In the implementation of asynchronous learning, pedagogical and *andragogical* activities that sustain and elevate the attitude of teachers and students may be formulated and reinforce through seminars and workshops.

➢ Intervention and reinforcement activities, which highlight the establishment of healthy and productive interaction between learning content, teachers, and students, to invigorate confidence and success orientation and to decrease the defense orientations of teachers and students in asynchronous learning may be devised and implemented.

➢ Although the problems encountered in the implementation of asynchronous learning appeared to be tolerable and manageable, mitigation mechanisms may be designed in which teachers and students' skills upgrading and retooling in using digital technology and in interacting with learners and teachers should be highlighted.

➢ Schools may design mechanisms to make teachers' and students' affective perceptions on asynchronous learning parallel or relatively the same through the establishment of healthy and accommodating learning environment.

➢ The developed framework may be implemented in similar courses or other courses that use asynchronous learning to determine its functionality and usability. Future studies may be conducted to describe qualitatively the experiences of the students and teachers in asynchronous learning in which challenges, mechanisms, and successes will be the foci.

5. References

Astin, A. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, *25*, 518-529.

Azarias, R. A. (2020). *Language Needs of Industrial-Technical Teachers in Using English as a Medium of Instruction* (unpublished dissertation). Benguet State University.

Azarias, R. A., & Vidal, C. A. (2017). *Attitude towards ICT course* [Undergrad Thesis, Ilocos Sur Polytechnic

State College Santiago Campus).

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, *2*, 113-115.

Barto, A. (2020). *What is Asynchronous Learning? Less Than 100 Words*. Roundtable Learning. https://roundtablelearning.com/what-is-asynchronous-learning-less-than-100-words/

Blumentrittt, M., Schwinger, D., & Markgraf, D. (2020). Partnerships of learning - A study in the understanding of roles of teachers and students in digital learning. *Digitale Bildung and Kunstliche Intelligenz in Deutschland*. Wiesbaden: Springer Facmedien Wiesbaden: 475-499.

Calderon, J. F., & E. C. Gonzales. (2015). *Methods of research and thesis writing*. National Book Store, Inc.

Castella, K. D., Byrne, D. G., & Covington, M. (2013). Unmotivated or motivated fail? A cross-cultural study of achievement, motivation, fear of failure, and student disengagement. *Journal of Educational Psychology*, 1-20.

Corfman, T., & Beck, D. (2019). Case study of creativity in asynchronous online discussions. *International Journal of Educational Technology in Higher Education*, *16*(22).

Crawford, J., Butler-Henderson, K. Rudolph, J., Malkawi, B., Glowats, M., Burton, R., *et al*. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *J. Appl. Learn. Teach*, *3*, 1-20.

deNoyelles, A. A., MannheimerZydney, J., &Baiyun Chen, B. (2014). Strategies for creating a Community of Inquiry through online asynchronous discussions. *Journal of Online Learning & Teaching*, *10*(1), 153–165.

Draya, B., Lowenthalb, P., Miszkiewiczc, M., Ruiz-Primoa, M. A., & Marczynskid, K. (2011). Developing an instrument to assess student readiness for online learning: a validation study. *Distance Education*, *32*(1), 29–47.

Fabriz, S., Mendzheritskaya, J. & Stehle, S. (2021). Impact of asynchronous settings of online teaching and learning in higher education on students' learning experience during COVID-19. *Frontiers in Psychology*.

Gao, F., Zhang, T., & Franklin, T. (2015). Designing asynchronous online discussions environments: Recent progress and possible future directions. *British Journal of Educational Technology*, *44*(3), 469–483.

Garcia, J. R., & Reyes, A. S. (2014). *Students' Academic Performance in Philosophical Analysis, Their Attitude Towards the Subject and Their Subject Teacher: A Basis for Intervention Program*. Unpublished Master's Thesis, Philippine Normal University-Isabela Campus, Alicia, Isabela.

Granitz, N., & Koernig, S. K. (2011). Web 2.0 and marketing education: Explanations and experiential applications. *J. Mark. Educ. 33*, 57-72.

Harnett, M. (2015). Influences that undermine learners' perceptions of autonomy, competence and relatedness in an online context. *Australia Journal of Educ. Technology*, *31*, 86-99.

Jackson, D. (2012). Synchronous versus asynchronous online courses: An introduction for perioperative nurses returning to school. *Perioperative Nursing Clinics, 7*(2), 161-169.

Kennedy, B., Mezu, K., Sawyer, H., Schenkel, S., Squillini, C., *et al*. (2015). Stress management techniques used by faculty in the asynchronous learning environment. *The Exchange; Roswell, 4* (2), 9-85.

Kunin, M., Julliard, K. N., & Rodriguez, T. E. (2014). Comparing face-to-face, synchronous, and asynchronous learning: Postgraduate dental resident preferences. *Journal of Dental Education, 78*(6), 856-866.

Lew, E. K., & Nordquist, E. K. (2016). Asynchronous learning: student utilization out of sync with their preference. *Medical Education Online*, *21*(1), 1-4.

Lotfi, A. R., Pozveh, S. M., & Hossein, H. (2019). The effect of synchronous and asynchronous language learning: A study of iranianefl intermediate students' vocabulary learning. *Theory and Practice in Language Studies*, *9*(12), 1585-1594.

Malik, M., Fatima, G., Hussain Ch., A. & Sarwar, A. (2017). E-Learning: Students' perspectives about asynchronous and synchronous resources at higher education level. *Bulletin of Education and Research, 39*(2), 183-195.

Malkin, A., Rehfeldt, R. A., & Shayter, A. M. (2018). An investigation of the efficacy of asynchronous discussion on students' performance in an online research method course. *Behav Anal Pract*, *11*(3),

274–278.

Moorhouse, B. L., & Kohnke, L. (2021). Thriving or surviving emergency remote teaching necessitated by COVID-19: University teachers' perspective. *Asia Pac. Educ. Res.*, *30*, 279-287.

Motteram, G., & Forrester, G. (2005). Becoming an online distance learner: What can be learned from students' experiences of induction to distance programmes? *Distance Education*, *26*, 281–298.

Murphy, E., Rodriguez-Manzanares, M. A., & Barbour, M. (2011). Asynchronous and synchronous online teaching: Perspectives of Canadian high school distance education teachers. *British Journal of Educational Technology*, *42*(4), 583-591.

Offir, B., Lev, Y., & Bezalel, R. (2008). Surface and deep learning processes in distance education: Synchronous versus asynchronous systems. *Computers & Education, 51*(3), 1172-1183.

Olson, J. S., & McCracken, F. E. (2015). Is it worth the effort? The impact of incorporating synchronous lectures into an online course. *Online Learning Journal*, *19*(2), 73-84.

Pena-Shaff, J., & Altman, W. (2015). Student interaction and knowledge construction in case-based learning in Educational Psychology using online discussions: The role of structure. *Journal of Interactive Learning Research*, *26*(3), 307–329.

Quigley, E. (2018). Applying social learning theory to eLearning. https://www.learnupon.com/blog/social-learning-theory/

Schuster, D. P., Powers, M. D., & William, J. (2005). *Translational and Experimental Clinical Research*. Lippincott Williams & Wilkins.

Spencer, R. (2015). *How to apply social learning theory for effective e-learning*. https://trainingindustry.com/blog/e-learning/how-to-apply-social-learning-theory-for-effective-e-learning/

Vonderwell, S., Liang, X., & Alderman, K. (2007). Asynchronous discussions and assessment in online learning. *Journal of Research on Technology in Education*, *39*(3), 309–328.

Vygotsky, L. (1978). *Mind in society*. London: Harvard University Press.