Impact of Synchronous Computer-Mediated Communication (SCMC) on English Language Teaching at Under Graduate Level in Federal Universities of Pakistan

Rehana Gulzar[*], Jamil Asghar Jami[†]

Abstract

This study investigates the impact of synchronous computer-mediated communication (SCMC) on English language learning at the undergraduate level in Federal Universities of Pakistan. It attempts to capture the effect of diverse modalities i.e. Video conferencing, Text-based, audio conferencing, and both audio and text-based modes of SCMC in English language learning. Data is collected from four HEC approved universities, comprising 110 undergraduate English language students and 50 English language faculty with the help of two survey-based questionnaires. This research finds that SCMC opens a window of opportunities for language learning and teaching in real-time settings and helps as an effective tool for fostering English language learner`s interaction. The study concludes that SCMC helps in building negotiation strategies that reduce anxiety in interactive communication. It further suggests that with technological advances language learners experience more affordances with SCMC which improves autonomous learning.

Keywords: synchronous computer-mediated communication, video conferencing, audio conferencing, negotiation strategies, autonomous learning, interactive communication.

Introduction

Computer-mediated communication (CMC) is by now a staple of research in English language acquisition and pedagogy, just as it has become the core of the social and professional lives of millions of people around the world. In the present digital era, communication platforms are increasingly offering multiple modes, allowing users to choose from a combination of text, audio, and video in synchronous communication. However, CMC's biggest advantage is that it fosters the social environment for group Language learning and teaching by promoting the creation of an interactive language learning environment, thus improving students' language learning ability, beyond their personal attainable goals (Stacey, 1998).

There is a growing interest in integrating computer-mediated communication (CMC) with language learning (Kessler and Bukowski, 2010). Synchronous communication as dialogic communication proceeds under conditions of simultaneous presence in a shared communicative space, which may be physical or virtual.

[*] PhD Scholar, Department of English, National University of Modern Languages (NUML), Islamabad, Pakistan., Email: rehana.gulzar@iiu.edu.pk
[†]Dean Faculty of Languages, National University of Modern Languages (NUML), Islamabad, Pakistan, Email: jasghar@numl.edu.pk

This definition includes video and audio conferencing as well as a face-to-face talk but is intended to include also text-based chat systems that involve private production of messages before instantaneous which are used to enhance social interaction between English language teachers and language students and between students and students based on collaborative, Internet-based learning (Yamada, 2009). CMC mimics many forms and conventions of written communication. It could be messages in the form of emails and physical bulletin boards in the form of electronic bulletin boards, where people can ask questions or place requests. Research studies show that CMC can inspire language students to communicate meaningfully in the target language and lead to effective language teaching (Smith, 2009). Asynchronous communication, on the other hand, arises when interlocutors do not simultaneously share the communicative space, as in email or postal correspondence.

SCMC not only provides the convenience of remote language learning to students but also provides a way to interact with teachers and classmates in real-time, which can simulate a traditional classroom environment. Indeed, students need more opportunities to communicate with each other in a real-time interaction (Alwi & Adam, 2009). Many synchronous modes can provide opportunities for social interaction in a virtual classroom space. Popular synchronous software in educational settings includes Zoom, Google Meet, Microsoft Team, Horizon Live, Elluminate Live, and Interwise. All these have distinctive interactive features. It allows students and teachers to communicate verbally, exchange messages via keyboard, upload PowerPoint presentations, transfer videos together, browse the website, and use audio messages, etc. The spread of COVID-19 has caused the closure of educational institutions around the world, which has accelerated the development of the online learning environment for uninterrupted educational academic activities. After this pandemic, many institutions have become interested to design online courses to smoothly run their academic sessions because of an unprecedented situation. In Pakistan, educational institutions use Zoom, Microsoft Teams, Google Meet, Edmodo, and Moodle as prime management systems by employing video conferencing applications. Other commonly used videos conferencing solutions include Skype, WebEx, and Adobe Connect, etc. Many higher education institutions have shown deep concern to deliver English language learning academic course content online to their language learners effectively to ensure smooth learning after the uncertain COVID -19 situation worldwide (Crawford et al, 2020). To use computer-mediated

communication in English Language pedagogy and learning settings, it is pertinent to decide on available online modalities to maintain effective language learning. The current study intends to

explore the perception of faculty members and students regarding the effectiveness of SCMC concerning language teaching and learning in Pakistani Universities. Therefore, it is necessary to investigate the perceptions, issues, and numerous challenges faced by English language teachers and undergraduate English language students who operate the online language learning platform for conducting formal language learning.

 The research questions of this study are:
i.   What is the impact of both SCMC modalities i.e text chat and video-conferencing as an effective tool for fostering English language learning?
ii.   How does the potential of synchronous CMC on linguistic task-types and lexical difficulty help influence the negotiation of meaning?
iii.   What are the problems faced by English Language teachers and English language learning undergraduate students in adopting synchronous computer-mediated communication (SCMC)?

Literature Review
         The significant demand for online synchronous education is continually growing in the present technological era (Allen & Seaman, 2017). Applied linguists have carried out extensive research to define the differences which lie between traditional teaching methodologies and computer-mediated language learning (CMLL) pedagogy. The old myth that the language teacher who can teach well in a traditional classroom setting can demonstrate equally well-teaching competence in online teaching, is no more held, rational (Yilmaz & Keser,2017). There is still a concerted effort required to investigate different new techniques, skills, and online pedagogies for language teaching which could fulfil the linguistic and communicative competence of learners with synchronous computer-mediated communication (SCMC) classroom. With the increase in the number of students enrolled in online language courses, effective teaching methods in the online environment have generated more interest in research on SCMC modes of teaching (Starr-Glass,2013). In computer-mediated communication (CMC) teachers must make important pedagogical decisions about how to deliver course content online, and pedagogical practices must adapt to the online environment (Koehler and Mishra, 2009). Besides, teachers should consider the best practices that influence the students` engagement and learning in the SCM language course. Student engagement is a key aspect of effective, high-quality online language teaching (Serdyukov, 2020).
   This is an important part of the student's online learning experience and the overall quality of the results (Iino& Yabuta, 2015).

Therefore, it is advocated that teachers strive to involve students in classroom instruction through effective SCM pedagogic methods.

It is of utmost concern that teachers' training programs seldom go beyond software-specific knowledge and technical training to cope with SCMC (Compton, 2009). O'Rourke & Stickle (2017) conducted a comprehensive study of online education and its various characteristics to help them determine the seven major competencies needed for successful SCM courses. These include student motivation, technical expertise, social skills, and basic interactive strategies, crisis management, creativity, and learning style. In recent decades, the quantity and quality of online language teaching and hybrid modes of language learning have improved (Allen, 2016). The online language learning environment may also be disruptive due to various factors that hinder a smooth digital interactive mode which also includes physical gaps, pedagogical strategic limitations, and potential transaction distances (TD) in online courses.

Rohman et al (2020) highlighted major challenges in online English language teaching that include voice synchronization, loss of verbal cues, time-lapse, poor voice and image quality, and unavailability of online resources. Researchers often provide solutions to these problems and term it "techno training" a solution to address the needs of both the stakeholders. Many researchers strongly believe that with proper training, students in the digital age will withstand uncertainty and anxiety and continue to attend virtual classes. It is necessary to study the student's perceptions of synchrony within the virtual classroom to address the issues faced by language teachers and learners (Lino & Yabuta, 2015).

Moore proposed a theory (1993) based on basic insights which are related to the structure of language course, dialogue between teacher and students, and learner autonomy into a multidimensional set of interrelated propositions and constructs which he named as the "Theory of Transactional Distance" (Moore, 1993). It consists of a set of principles and a model that defines the language learning aspects with three sets of variables. The first set consists of elements that describe the structure of course design, the second set consists of interaction or dialogue between teachers and students who implement this organized teaching plan, and the third set is the autonomy of each student which is given priority (Moore,2013).
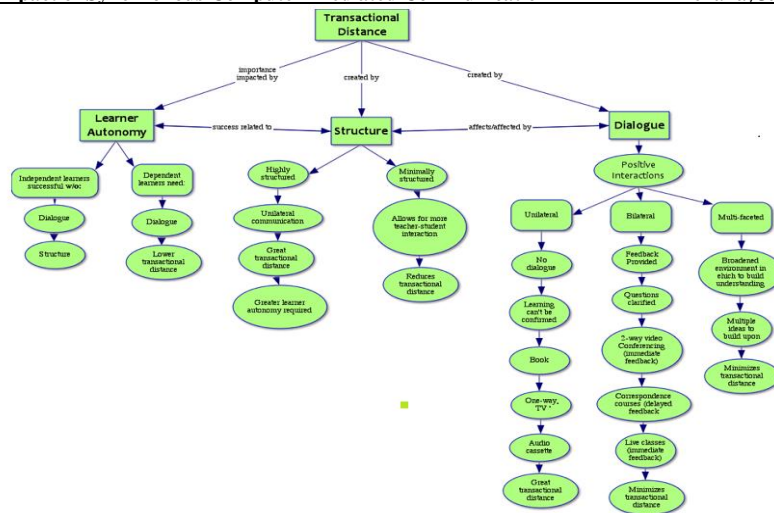
Source: designed by Jennifer Marthaler (2011) from the Theory of Transactional Distance Michael G. Moore

Transaction distance theory helps course designers take decisions regarding the structure, of course, the interaction between the instructor and the learner through dialogue, and about learner autonomy (Alhawiti, 2013). It can provide course designers with suggestions on how to design online courses, for example, incorporating the structure of the content, teaching materials, the number of dialogues, and activities to engage the learner to reduce transaction distance and thus maximizing the learning effect (Seery, 2020). National teacher training programs for SCMC are required to deal with this urgent situation which has risen after the pandemic (Zhu,2020). It seems that some joint efforts have been made to identify and learn new courses and skills that language teachers need in SCMC. Therefore, teacher training or professional development rarely exceeds specific technical skills, and mechanical practices (Serdyukov, 2020). Existing literature supports this idea that there should be proper planning for English language teaching, faculty training, and provision of online materials and technical support to run SCM English language teaching programs successfully.

Research Methodology

It is a methodologically mixed method design (Basu,2010) in which both qualitative and quantitative approaches are used. It draws on potential strengths of both qualitative and quantitative methods which allows to explore diverse perspectives and uncover relationships that exist between the intricate layers of multifaceted research

questions. The following universities are selected where qualified faculty (as per HEC criteria) is teaching at the undergraduate level.

- National University of Modern Languages Islamabad.
- International Islamic University Islamabad.
- Quaid-i-Azam University Islamabad.
- COMSATS Islamabad.

Two survey-based questionnaires are designed for students and teachers separately. The data will be collected in two different stages. The goal of the first phase is to collect data from a quantitative survey-based electronic questionnaire from undergraduate students. For the current study, the questionnaire designed for students will be filled by 110 undergraduate English language students. The second questionnaire is designed for English language teachers who are teaching in the said universities to get their opinion about their perceptions and issues regarding SCMC language teaching. This questionnaire is filled by 50 English language teachers of the said universities.

Quantitative data will be analysed using the statistical package for social scientists (SPSS) software. SPSS is selected for carrying out statistical tests, which include descriptive analysis and correlation (Ong & Poteh, 2020). The close-ended questions of the Survey-based electronic questionnaire will be descriptively analysed using SPSS. Cronbach's alpha 's value of .7 or above is considered to be effectively acceptable for reliability. In Tables 1 and 2, Cronbach's alpha value is above .7 which shows it meets the reliability criteria. Values less than the recommended threshold represent that data is doubtful and does not seem appropriate for further analysis.

Table 1

Results of the Cronbach's Alpha Coefficient for the Various Domains in the Questionnaire (Students)

Variable	Cronbach's Alpha coefficient	No. of items
DBT	.858	10
LA	.925	10
SLC	.876	10

Table 2

Results of the Cronbach's Alpha Coefficient for the Various Domains in the Questionnaire (Faculty)

Variable	Cronbach's Alpha coefficient	No. of items
DBT	0.875	10
LA	.794	10
SLC	.841	10

Table 4

Means, Standard Deviations and Ranks of Students' Attitudes towards Dialogue between Teacher and Students (DBT & S), Structure of Language Course (SLC), Learner`s Autonomy (LA)

Variable	No	Mean	Minimum	Maximum	Standard Deviation
DBT	110	3.9004	2.10	4.70	.72143
SLC	110	4.1158	1.90	5.00	.85537
LA	110	3.8183	2.00	4.90	.79322

Table 5

Means, Standard Deviations of Faculty' Attitudes towards Dialogue between Teacher and Students (DBT & S), Structure of Language Course (SLC), Learner`s Autonomy (LA)

Variable	No	Mean	Minimum	Maximum	Standard Deviation
DBT	50	3.9840	1.70	4.70	.70403
SLC	50	4.0800	1.90	5.00	.73011
LA	50	3.8220	2.50	4.90	.75222

Results show that SCMC provides an ideal environment for effective negotiated interaction which offers opportunities to language learners for getting ample input for making improved output through continued negotiation. They strongly favoured the use of video calls for improved negotiated interaction between learners and teachers which ultimately gain better communication and comprehension in online academic input. The availability of counterparts` images helps to enhance awareness of the social presence of other participants thus dispelling the impact of the self-contained and isolated appearance of

the learner in an online environment. The respondents favoured it strongly that dialogue between teacher and learners and among learners themselves help to increase understanding ideas related to ongoing topics and also shed light on their building perspectives based on shared views which further support overcoming misunderstanding in online language teaching. Language teachers believe that dialogue is the only means to achieve considerate awareness of others' points of view and perceptions.

The second important variable is the structure of the language teaching course which poses serious challenges to the language teachers for deciding the right communication technology to be implemented for teaching to a specific group of language learners. The results of the questionnaire show that the majority find themselves uncertain about the use of a certain modality to cater to their teaching purposes. The real motive behind this reflection is to decide a certain choice which helps in enhancing learners` critical thinking and to make logical and rational choices during the learning process. Some language teachers are also of the opinion that SCMC does not offer such an environment where learners can enhance their critical thinking and linguistic choice-making. Although they agree on the idea that the use of activities must ensure that they help achieve the overall learning outcomes. Some language teachers were uncertain that SCMC based courses would help achieve all learning outcomes which are generally manageable and convenient in face-to-face teaching.

The third most important variable in the teachers` questionnaire is learner autonomy in SCMC language teaching. In response to the notion that language learners need more time to respond to synchronous modalities, the majority of teachers strongly agree that it demands additional time to understand messages and then respond to them via text-based synchronous communication. Some language teachers disagree with this belief that autonomous learners have awareness of their learning styles and strategies. They believe language learners need to be guided in using different strategies for comprehending linguistic form and its functions. But at the same time, maintain this opinion that learner's autonomy provides opportunities to language learners to reflect on their learning.

Results

The results of the questionnaire show that majority of English language teachers believe that SCMC opens a window of opportunities for language learning and teaching in real-time settings. The use of both the modalities of text chat and video-conferencing helps as an effective tool for fostering English language learner interaction. It provides an ideal environment for real interaction which provides opportunities for language learners for getting ample input for making improved output through continued negotiation. They strongly

favoured the use of video calls for improved negotiated interaction between learners and teachers which ultimately gain better communication and comprehension in online academic input. The availability of counterparts` images helps to enhance awareness of the social presence of other participants thus dispelling the impact of the self-contained and isolated appearance of the learner in an online environment. It also helps to build perspectives based on shared views to overcome misunderstandings in online language teaching. Thus, it verifies that dialogue is the only means to achieve considerate awareness of others' points of view and perceptions (Dron & Anderson,2016).

The structure of the language teaching course poses serious challenges to the language teachers for deciding the right communication technology to be implemented to a specific group of language learners. It is found that sometimes the language teachers are uncertain about the use of a certain modality to cater to their specific language teaching goals. The real motive behind this reflection is to decide a certain choice which helps in enhancing learners` critical thinking and to make logical and rational choices during the learning process.

It is also found that language learners need more time to respond to synchronous modalities, it demands additional time to understand messages and then respond to them via text-based synchronous communication. Learner`s autonomy is considered significant in getting their active participation in different language learning tasks for which the language learners need to be guided in using different strategies for comprehending linguistic form and its functions. Delgati (2018) recommends that in online language learning, it's quite appropriate to address issues of student-teacher interaction, presentation of knowledge and learning materials, the role of a teacher, the organization of course design, online language teaching pedagogy, and use of Web 2.0 technology in an effective manner.

Conclusion

SCMC is effective in learning and enhancing the interactive communication skills of second language learners. English language learners at the undergraduate level ascertain that SCMC helps in building negotiation strategies that reduce anxiety in interactive communication. Through this study, it is observed that SCMC bears a strong resemblance to spoken communication and the textual features of discourse which enhances spoken output of learners. With technological advances, language learners experience more affordances with SCMC which improves autonomous learning. Future researchers may investigate the role of explicit feedback through

SCMC for teaching English as a second language. The diverse digital channels may also be leveraged to connect the language learning classrooms to other language use areas to create opportunities to make L2 learners lifelong language learners rather than dead-end students after the language course.

References

Abuhassna, H., & Yahaya, N. (2018). Students' utilization of distance learning through an interventional online module based on Moore transactional distance theory. *EURASIA Journal of Mathematics, Science and Technology Education*, *14*(7), 3043-3052.

Alhawiti, M. M. (2013, June). Transactional Distance Theory in the World Wide Web Environment. In *EdMedia+ Innovate Learning* ,1823-1828. Association for the Advancement of Computing in Education (AACE).

Allen, I. E., & Seaman, J. (2016). *Online Report Card: Tracking Online Education in the United States*. Babson Survey Research Group. Babson College, 231 Forest Street, Babson Park, MA 02457.

Alwi, N. A. N. M., & Adams, R. (2009). TBLT and SCMC: How Do Students Use Communication Strategies? *Asian Journal of English Language Teaching*, *19*, 135-157.

Basu, R. (2010). In search of project excellence: a systems approach of triangulation in a mixed methodology empirical research. *International Journal of Business and Systems Research*, *4*(4), 432-450.

Bayliss, L. (2020). Demystifying Data: A Constructivist Approach to Teaching Statistical Concepts Using SPSS. *Public Relations Education*, *6*(1), 58-84.

Beavers, A. S., Lounsbury, J. W., Richards, J. K., & Huck, S. W. (2013). Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research, and Evaluation*, *18*(1), 6.

Blaschke, L. M., & Bedenlier, S. (2020). Online Learning. In *Oxford Research Encyclopedia of Education*.

Bolliger, D. U., & Halupa, C. (2018). Online student perceptions of engagement, transactional distance, and outcomes. *Distance Education*, *39*(3), 299-316.

Çakıroglu, U., & Kılıç, S. (2020). An understanding community in synchronous online learning: do perceptions match behaviours? *Open Learning: The Journal of Open, Distance and e-Learning*, *35*(2), 105-121.

Choo, J., Bakir, N., Scagnoli, N. I., Ju, B., & Tong, X. (2020). Using the Community of Inquiry Framework to Understand

Students' Learning Experience in Online Undergraduate Business Courses. *TechTrends*, *64*(1), 172-181.

Cooper, D. R., & Schindler, P. S. (2006). *Marketing research.* New York: McGraw-Hill/Irwin.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., ... & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, *3*(1), 1-20.

Delgaty, L. (2018). Transactional Distance Theory: A Critical View of the Theoretical and Pedagogical Underpinnings of E-Learning. In *Interactive Multimedia-Multimedia Production and Digital Storytelling*. Intech Open.

Dillman, D. A., Phelps, G., Tortora, R., Swift, K., Kohrell, J., Berck, J., & Messer, B. L. (2009). Response rate and measurement differences in mixed-mode surveys using mail, telephone, interactive voice response (IVR), and the Internet. *Social science Research*, 38(1), 1-18.

Dron, J., & Anderson, T. (2016). The future of e-learning. In C. Haythornthwaite, R. Andrews, J. Fransman & E. Meyers (Eds.), *The Sage handbook of e-learning research*. 537- 556. London, UK: Sage.

Falloon, G. (2011). Making the connection: Moore's theory of transactional distance and its relevance to the use of a virtual classroom in postgraduate online teacher education. *Journal of Research on Technology in Education*, *43*(3), 187-209.

Farquhar, L. (2013). The Intersection of Dialogue and Low Transactional Distance: Considerations for Higher Education. *European Journal of Open, Distance and E-learning*, *16*(2), 28-39.

Fiock, H. (2020). Designing a Community of Inquiry in Online Courses. *The International Review of Research in Open and Distributed Learning*, *21*(1), 134-152.

Garrison, D. R. (2017), edition 3. *E-learning in the 21st century: A community of inquiry framework for research and practice. New York. Routledge*.

Giossos, Y., Koutsouba, M., Lionarakis, A., & Skavantzos, K. (2009). Reconsidering Moore's transactional distance theory. *European Journal of Open, Distance, and E-learning*, *12*(2).

Gunawan, G., Suranti, N. M. Y., & Fathoroni, F. (2020). Variations of Models and Learning Platforms for Prospective Teachers During the COVID-19 Pandemic Period. *Indonesian Journal of Teacher Education*, *1*(2), 61-70.

Huang, X., Chandra, A., DePaolo, C. A., & Simmons, L. L. (2016). Understanding transactional distance in web-based learning environments: An empirical study. *British Journal of Educational Technology*, *47*(4), 734-747.

Iino, A., & Yabuta, Y. (2015). The effects of video SCMC on English proficiency, speaking performance, and willingness to communicate. In *Critical CALL–Proceedings of the 2015 EUROCALL Conference, Padova, Italy* (pp. 254-260). Research-publishing. net.

J, Marthaler(2012) Theory of Transactional Distance. Retrieved from https://sites.google.com/a/nau.edu/learning-theories-etc547-spring2011/theory/theory-of-transactional-distance

Jandrić, P. (2020). Postdigital research in the time of Covid-19. *Postdigital Science and Education, 2*, 233–238.

Kadilar, C., & Cingi, H. (2004). Ratio estimators in simple random sampling. *Applied mathematics and computation*, *151*(3), 893-902.

Jandrić, P., Knox, J., Besley, T., Ryberg, T., Suoranta, J., & Hayes, S. (2018). Postdigital science and education. *Educational Philosophy and Theory, 50*(10), 893–899.

Kessler, G., & Bikowski, D. (2010). Developing collaborative autonomous learning abilities in computer-mediated language learning: Attention to meaning among students in wiki space. *Computer Assisted Language Learning*, *23*(1), 41-58.

Kerlinger, F. N., Lee, H. B., & Bhanthumnavin, D. (2000). Foundations of Behavioural Research: The Most Sustainable Popular Textbook.

Kopshukova, E. V., Malakhova, V. L., & Lazareva, A. V. (2020). Vivat Academia, vivant professors! Challenges of teaching professional communication in foreign languages amidst global pandemic. *Professional Discourse & Communication*, *2*(2), 83-88.

Kwan, M. P., & Ding, G. (2008). Geo-narrative: Extending geographic information systems for narrative analysis in qualitative and mixed-method research. *The Professional Geographer*, *60*(4), 443-465.

Lee, R., Hoe Looi, K., Faulkner, M., & Neale, L. (2020). The moderating influence of environmental factors in an extended community of inquiry model of e-learning. *Asia Pacific Journal of Education*, 1-15.

Levine, D. M., & Stephan, D. F. (2009). *Even you can learn statistics: A guide for everyone who has ever been afraid of statistics*. FT Press.

Moore, M. G. (Ed.). (2013). *Handbook of distance education*. Routledge.

Moorhouse, B. L. (2020). Adaptations to a face-to-face initial teacher education course 'forced' online due to the COVID-19 pandemic. *Journal of Education for Teaching*, 1-3.

Norwich, B. (2020). Thinking about the nature of educational research: Going beyond superficial theoretical scripts. *Review of Education*, *8*(1), 242-262.

O'Rourke, B., & Stickler, U. (2017). Synchronous communication technologies for language learning: Promise and challenges in research and pedagogy. *Language Learning in Higher Education*, *7*(1), 1-20.

Ong, M. H. A., & Puteh, F. (2017). Quantitative data analysis: Choosing between SPSS, PLS, and AMOS in social science research. *International Interdisciplinary Journal of Scientific Research*, *3*(1), 14-25.

Peters, M.A., Wang, H., Oladele, O.M., Huang, Y., Green, B., Chunga, J.O., Quainoo, E.A., Ren, Z., Hollings, S., Mou, C., Khomera, S.W., Zhang, M., Zhou, S., Lamarche, A., Zheng, W., Xu, R., Hayes, S., & Jackson, L. (forthcoming 2020). China's internationalized higher education during Covid-19: collective student autoethnography. *Postdigital Science and Education*. *23*(1), 134-156.

Quong, J., Snider, S. L., & Early, J. (2018). Reducing transactional distance in online and blended courses through the use of a closed social media platform. *Journal of Educational Technology Systems*, *47*(1), 79-100.

Rohman, M., Marji, D. A. S., Sugandi, R. M., & Nurhadi, D. (2020). Online Learning in Higher Education During Covid-19 Pandemic: Students' Perceptions. *Journal of Talent Development and Excellence*, *12*(2s), 3644-3651.

Rose, J., & Johnson, C. W. (2020).   Contextualizing reliability and validity in qualitative research: toward more rigorous and trustworthy qualitative social science in leisure research. Journal of Leisure Research, 1-20.

Sanders, K., & Lokey-Vega, A. (2020). K-12 Community of Inquiry: A case study of the applicability of the Community of Inquiry framework in the K-12 learning environment. *Journal of Online Learning Research*, *6*(1), 35-56.

Sekaran, U., & Bougie, R. (2010). Research methods for business: A skill-building approach. *Wiley*

Seery, N. (2020). Pedagogy Involving Social and Cognitive Interaction between Teachers and Pupils. In *Pedagogy for Technology Education in Secondary Schools*, 297-310. Springer, Cham.

Serdyukov, P. (2020). Asynchronous/Synchronous Learning Chasm. In *Exploring Online Learning Through Synchronous and Asynchronous Instructional Methods*,26,1-33. IGI Global.

Singh, V., & Thurman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education, 33*(4), 289–306.

Smith, B. (2009). The relationship between scrolling, negotiation, and self-initiated self-repair in an SCMC environment. *CALICO Journal*, *26*(2), 231-245.

Svedberg, R. (2020). 2 Exploratory Research. *The Production of Knowledge: Enhancing Progress in Social Science*, 17(1), 82-103.

Szeto, E., & Cheng, A. Y. (2016). Towards a framework of interactions in a blended synchronous learning environment: what effects are there on students' social presence experience? *Interactive Learning Environments*, *24*(3), 487-503.

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, *48*(6), 1273-1296.

Thornbury, E. E. (2020). Relationship between instructor course participation, student participation, and student performance in online courses.

Vogel, C., Hochberg, J., Hackstein, S., Bocks Hecker, A., Bastiaens, T. J., & Baumöl, U. (2018, June). Dropout in Distance Education and how to Prevent it. In *EdMedia+ Innovate Learning* (pp. 1788-1799). Association for the Advancement of Computing in Education (AACE).

Wang, Y. (2020). How does the Chinese education system cope with the virus outbreak challenge? China Daily, 18 February.

Weidlich, J., & Bastiaens, T. J. (2018). Technology Matters–The impact of transactional distance on satisfaction in Online Distance Learning. *International Review of Research in Open and Distributed Learning*, *19*(3).

Wright, C. (2012). *Mind, Meaning, and Knowledge: Themes from the Philosophy of Crispin Wright*. *12*(1), 413-431.Oxford University Press.

Yamada, M. (2009). The role of social presence in learner-cantered communicative language learning using synchronous computer-mediated communication: Experimental study. *Computers & Education*, *52*(4), 820-833.

Yao, J., Rao, J., Jiang, T., & Xiong, C. (2020). What Role Should Teachers Play in Online Teaching during the COVID-19

Pandemic? Evidence from China. *Sci Insight Edu Front*, *5*(2), 517-524.

Yilmaz, R., & Keser, H. (2017). The impact of interactive environment and metacognitive support on academic achievement and transactional distance in online learning. *Journal of Educational Computing Research*, *55*(1), 95-122.

Zhu, X. (2020). Building up National Online Teacher Education System. *Research in Education Development, 40*(2), 172-195.