ROLE OF SCIENCE AND EDUCATION FOR SUSTAINABLE DEVELOPMENT

Monograph

Katowice 2021

ROLE OF SCIENCE AND EDUCATION FOR SUSTAINABLE DEVELOPMENT

Edited by Magdalena Wierzbik-Strońska

and Iryna Ostopolets

Series of monographs
Faculty of Architecture,
Civil Engineering and Applied Arts
University of Technology, Katowice
Monograph 44

Publishing House of University of Technology, Katowice, 2021

Series of monographs Faculty of Architecture, Civil Engineering and
Applied Arts, University of Technology, Katowice

Monograph · 44

The authors bear full responsible for the text, data, quotations and illustrations

2.10. SYNCHRONOUS AND ASYNCHRONOUS DISTANCE LEARNING: BENEFITS AND LIMITATIONS

Introduction. Communication is a process of transmitting or sending a message[482]. This can involve numerous repetitions before mutual understanding is attained. Success can only be achieved when all participants have shared the same understanding of what is being communicated[483]. Communication is a two way process where both sender and receiver take turns to send and receive a message. This is depicted in Schramm's Model of Communication[484] which shows that the elements of communication include the source, medium, receiver and feedback.

We consider the process of learning, in particular distance, to be a way of communication. For distance learning initiatives to succeed, organizations and educational institutions must understand the advantages and disadvantages of different online learning techniques and methods.

Two basic types of distance learning are commonly compared, asynchronous and synchronous. Until recently, distance learning initiatives mainly relied on asynchronous means for teaching and learning[485, 486]. However, recent improvements in technology and increasing Internet capabilities have led to the growing popularity of synchronous distance learning.

The *aim* of the present paper is to indicate and analyse the benefits and limitations of synchronous as well as asynchronous distance learning.

Literature review. The lockdown in spring 2020 made the turn to distance learning inevitable to all educators worldwide. Surprisingly as it may seem, the notion of distance learning (online learning, e-learning) is not a new one.

As far back as 1966, Rudolf Manfred Delling's definition states that distance education is a planned and systematic activity which comprises the choice, didactic preparation and presentation of teaching materials as well as the supervision and support of student learning and which is achieved by bridging the physical distance between student and teacher by means of at least one appropriate technical medium[487]. Peters defines distance education as a method of imparting knowledge, skills and attitudes which is rationalized by the application of division of labour and organizational principles as well as by the extensive use of technical media, especially for the purpose of reproducing high quality teaching material which makes it possible to instruct great numbers of students at the same time wherever they live. It is an industrialized form of teaching and learning[488].

In 1989, Barker and colleagues provided a definition of distance education that captured the emergence of telecommunication technologies. Telecommunications-based distance education approaches are an extension beyond the limits of correspondence study. The teaching-learning experience for both instructor and student(s) occur simultaneously – it is contiguous in time. When an audio and/or video communication link is employed, the opportunity for live teacher-student exchanges in real time is possible, thereby permitting immediate response to student inquiries and

[482] Romero, P. (1984). English for business: developing communication skills. Katha Publishing Co., Inc. Quezon: Philippines.

[483] Tendero, E. (2009). Fundamentals of effective speech and oral communication. Mutya Publishing House, Inc. Malabon City: Philippine; FME, 2013. Effective Communication Skills.

[484] University of Nairobi, (2016). Introduction to Communication. goo.gl/gDW33n.

[485] Hrastinski, S. & Keller, Ch. (2007): Computer-Mediated Communication in Education: A Review of Recent Research, Educational Media International, March 2007, Vol. 4, No. 1 pp. 61-77.

[486] Romiszowski, A. & Mason, R. (2004): Computer-Mediated Communication, in Handbook of Research for Educational Communications and Technology, ed. David H. Jonassen (Mahwah, NJ: Lawrence Erlbaum, 2004), pp. 397-431.

[487] Delling, R. (1996): Versuch der Grundlegung zu einer systematischen Theorie des Fernunterrichts, in L. Sroka (Ed.). Fernunterricht, Hamburg: Hamburger Fernlehrinstitut, 1966, p. 186.

[488] Mehrotra, C. M., Hollister, C. D., & McGahey, L. (2001): Distance learning: Principles for effective design, delivery, and evaluation. Thousand Oaks, CA: Sage Publications, Inc., 2001, p. 206.

comments. Much like a traditional classroom setting, students can seek on-the-spot clarification from the speaker[489].

In order to develop a definition of distance education, Keegan analyzed each of the earlier definitions of distance education and incorporated this form of education into five characteristics.

• The quasi-permanent separation of teacher and learner throughout the length of the learning process (this distinguishes it from conventional face-to-face education);

• The influence of an educational organization both in the planning and preparation of learning materials and in the provision of student support services (this distinguishes it from private study and teach-yourself programmes);

• The use of technical media – print, audio, video, or computer – to unite teacher and learner and carry the content of the course;

• The provision of two-way communication so that the student may benefit from or even initiate dialogue (this distinguishes it from other uses of technology in education); and

• The quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals rather than in groups, with the possibility of occasional meetings, either face-to-face or by electronic means, for both didactic and socialization purposes[490].

Pirrong and Lathen[491] examined the use of two-way interactive television for university level business instruction. Their study showed that remote-site students scored higher on exams than their on campus counterparts. According to Mehrotra, Hollister, and McGahey[492], distance learning is not a future possibility for which higher education must prepare, it is a current reality creating opportunities and challenges for educational institutions; a reality offering students expanded choices in where, when, how, and from whom they learn; a reality making education accessible to ever larger numbers of persons. Some of the later surveys[493] have stated that distance learning is a type of learning which takes place partially or entirely over the Internet.

Berge suggests the notion of orientation for new distance learners. It presupposes that educators have a right to expect that students will come to distance learning experiences prepared to study efficiently online with such materials as a student handbook, a preliminary screening survey. It in turn will ensure that learners obtain appropriate study and learning skills and understand their rights and responsibilities in a distance learning course[494].

Distance education theory. Holmberg[495] introduced a new theory of distance education based on empathy and previous theories and definitions of distance learning, and formulated his own theory. In this new theory, Holmberg focuses on teaching, learning, and organization (or administration). The main concepts of his theory are as following:

1. Distance education is mostly aimed at individual learners who cannot or do not want to experience face-to-face teaching (i.e. usually working adults who wish to learn for career purposes or for personal development).

2. Distance learning is guided and supported by independent means, primarily pre-prepared course materials and mediated communication between students and an educator responsible for course development, instructional student-tutor interaction, counseling, and administration of the teaching-learning process inclusive of arrangements for student-student interaction. Distance education may inspire metacognitive approaches.

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[489] Barker, B., Frisbie, A. & Patrick, K. (1989): Broadening the definition of distance education in the light of the new telecommunications technologies. The American Journal of Distance Education, 1989, Vol. 3, No. 1, p. 25.

[490] Keegan, D. (Ed.) (1996): Foundations of distance education (3rd ed.). London: Routledge, 1996, p. 50.

[491] Pirrong, G. D. & Lathen, W. C. (1990): The Use of Interactive Television in Business Education. Education Technology, 1990, Vol. 30, No. 5, pp. 49-54.

[492] Mehrotra, C. M., Hollister, C. D., & McGahey, L. (2001): Distance learning: Principles for effective design, delivery, and evaluation. Thousand Oaks, CA: Sage Publications, Inc., 2001, p. ix.

[493] Ibidem, p. 9.

[494] Berge, Z. (ed.) (2001): Sustaining Distance Training. San Francisco: Jossey-Bass., 2001, p. 20-21.

[495] Hrastinski, S. & Keller, Ch. (2007): Computer-Mediated Communication in Education: A Review of Recent Research, Educational Media International, March 2007, Vol. 4, No. 1 pp. 61-77.

3. Central to learning and teaching in distance education are personal relations between the parties concerned, study pleasure, and empathy between students and those representing the supporting organization. Feelings of empathy and belonging promote the students' motivation to learn and influence the learning favorably. Such feelings are fostered by lucid, problem-oriented, conversation-like presentations of learning matter expounding and supplementing the course literature; by friendly mediated interaction between students, tutors, counselors, and other staff in the supporting organization; and by liberal organizational-administrative structures and processes. Factors that advance the learning process include short turnaround times for assignments and other communications between students and the supporting organization, suitable frequency of assignment submissions, and the constant availability of tutors and advisors[496].

It is significant to keep in mind that although technology advancements are ever changing and will more than likely result in new ideas of distance education, the underlying concept of distance education remains the same, which is to educate individuals in a nontraditional environment (i.e. classroom-type setting) through a variety of media. Moreover, Hoffman notes that it may be more beneficial to look at ways in which to converge the ideas of distance education with that of traditional education, rather than analyze definitions that differentiate between the two[497].

Synchronous vs asynchronous distance learning. Communication can be classified as synchronous or asynchronous. The most common form of synchronous communication is the face-to-face discourse. However, when distance is being considered, synchronous communication is still possible with the intervention of technology or other tools[498]. On the other hand, asynchronous communication does not happen in real-time. Those who are involved in this type of communication may read and respond as their respective schedules permit them to do so. This may also be facilitated in traditional ways or with the aid of technology tools[499].

From an educational point of view, the process of integrating synchronous communication in teaching and learning can be defined as synchronous education, which occurs in the traditional classroom wherein the teacher and the students interact with each other at a given time and place. On the other hand, early models of asynchronous education did not have effective asynchronous communication for the system lacked student-teacher interaction as well as student-to-student interaction[500].

In the age of technology, distance learning environments were born. The theory of distance learning describes the cognitive science principles of effective learning with the use of electronic technology[501]. Participants involved in distance learning are usually separated by time and place so the utilization of communication tools is necessary to facilitate interaction and learning.

Distance learning uses two main forms of media:

1) synchronous – two-way videoconferencing, and

2) asynchronous learning networks[502].

Synchronous learning is distance education that happens in real time, often with a set class schedule and required login times. Synchronous distance education, commonly supported by media such as videoconferencing and chat, has the potential to support e-learners in the development of

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[496] Ibidem, p. 81-82.

[497] Hanson, D., Maushak, N. J., Schlosser, C. A., Anderson, M. L., Sorenson, C. & Simonson, M. (1997): Distance education: Review of the literature (2nd ed.). Washington, DC: Association for Educational Communications and Technology. Ames, Iowa: Research Institute for Studies in Education.

[498] Wang, S. K. (2008): The Effects of a Synchronous Communication Tool (Yahoo Messenger) on Online Learners' Sense of Community and their Multimedia Authoring Skills. Journal of Interactive Online Learning, 2008, Vol 7, No.1, pp. 59-74.

[499] Moallem, M. (2015): The Impact Of Synchronous And Asynchronous Communication Tools On Learner Self-Regulation, Social Presence, Immediacy, Intimacy And Satisfaction In Collaborative Online Learning. The Online Journal of Distance Education and e-Learning, 2015, Vol. 3, No. 3, pp. 55-77.

[500] Lim, F. P. (2017): An Analysis of Synchronous and Asynchronous Communication Tools in e-Learning. Advanced Science and Technology Letters, 2017, Vol. 143, p. 231.

[501] Mayer, R. E. (2001): Multimedia learning. New York: Cambridge University Press.

[502] Birnbaum, B. W. (2001): Foundations and practices in the use of distance education. Mellen Studies in Education, Lewiston: The Edwin Mellen Press, 2001, Vol. 66, p. 4.

learning communities. Learners and teachers experience synchronous online learning as more social and avoid frustration by asking and answering questions in real time[503]. Synchronous sessions help students feel like participants rather than isolates[504].

Whereas asynchronous distance education provide for multi-modal, Web-based delivery of instruction that can be reviewed by the student at any time[505]. This type of distance instruction allows students to access the materials, lectures, instruction from any place and at any time, as opposed to synchronous distance education. Asynchronous distance learning, commonly facilitated by media such as e-mail and discussion boards, supports work relations among learners and with teachers, even when participants cannot be online at the same time. It is thus a key component of flexible online learning. In fact, many people take online courses because of their asynchronous nature, combining education with work, family, and other commitments. Asynchronous distance learning makes it possible for learners to log on to an online learning environment at any time and download documents or send messages to teachers or peers. Students may spend more time refining their contributions, which are generally considered more thoughtful compared to synchronous communication[506].

Advantages and disadvantages of synchronous distance learning. Kock's media naturalness hypothesis[507] stipulates that synchronous communication enhances psychological arousal. At the same time, Robert and Dennis's[508] cognitive model of media choice predicts that synchronous communication increases motivation. Kock stresses that every element that characterizes "natural" media (for instance, the ability to convey and perceive facial expressions and body language) contributes to psychological arousal.

Hrastinski in the conducted research[509] revealed that a lot of e-learners felt that synchronous communication was more like talking compared with asynchronous communication. The scholar explained the results stating that the online learners felt more psychologically aroused and motivated, since this type of communication more closely resembles face-to-face communication. This finding was especially evident in the smaller class.

According to the outcomes, during synchronous distance learning, students respond quickly because they do not want to disrupt the conversation. A drawback revealed in the interviews is that the focus is often on quantity rather than quality[510].

It is significant to note that synchronous distance learning better supports personal participation. It means a more arousing type of participation appropriate for less complex information exchanges, including the planning of tasks and social support[511].

Figure 1 illustrates both benefits and limitations of synchronous distance learning.

Advantages and disadvantages of asynchronous distance learning. Hrastinski's findings have revealed that asynchronous distance learning can be classified as content-related[512]. Besides, if e-learners rarely meet face-to-face and teachers mainly rely on asynchronous online learning,

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[503] Hrastinski, S. (2007): The Potential of Synchronous Communication to Enhance Participation in Online Discussions, paper presented at the 28th International Conference on Information Systems, Montreal, Canada, December 9-12, 2007.
[504] Hrastinski S. (2008): Asynchronous and Synchronous E-Learning. EDUCAUSE Quarterly, October-December 2008, Vol. 31, No. 4.
[505] Birnbaum, B. W. (2001): Foundations and practices in the use of distance education. Mellen Studies in Education, Lewiston: The Edwin Mellen Press, 2001, Vol. 66, p. 4.
[506] Hrastinski, S. (2007): The Potential of Synchronous Communication to Enhance Participation in Online Discussions, paper presented at the 28th International Conference on Information Systems, Montreal, Canada, December 9-12, 2007.
[507] Kock, N. (2005): Media Richness or Media Naturalness? The Evolution of Our Biological Communication Apparatus and Its Influence on Our Behavior Toward E-Communication Tools, IEEE Transactions on Professional Communication, June 2005, Vol. 48, No. 2, pp. 117-130.
[508] Robert, L. P. & Dennis, A. R. (2005). Paradox of Richness: A Cognitive Model of Media Choice. IEEE Transactions on Professional Communication, 2005, Vol. 48, No. 1, pp. 10-21.
[509] Hrastinski S. (2008): Asynchronous and Synchronous E-Learning. EDUCAUSE Quarterly, October-December 2008, Vol. 31, No. 4.
[510] Ibidem.
[511] Ibidem.
[512] Ibidem.

students may feel isolated and not part of learning communities, which is significant for cooperation and learning[513, 514]. A finding supported by previous research indicates that when comparing the smaller to the larger class, it appears complicated to hold asynchronous discussions going with few participants[515]. It is essential to add that asynchronous online learning better supports cognitive participation which describes a more reflective type of participation appropriate for discussions of complex issues[516].
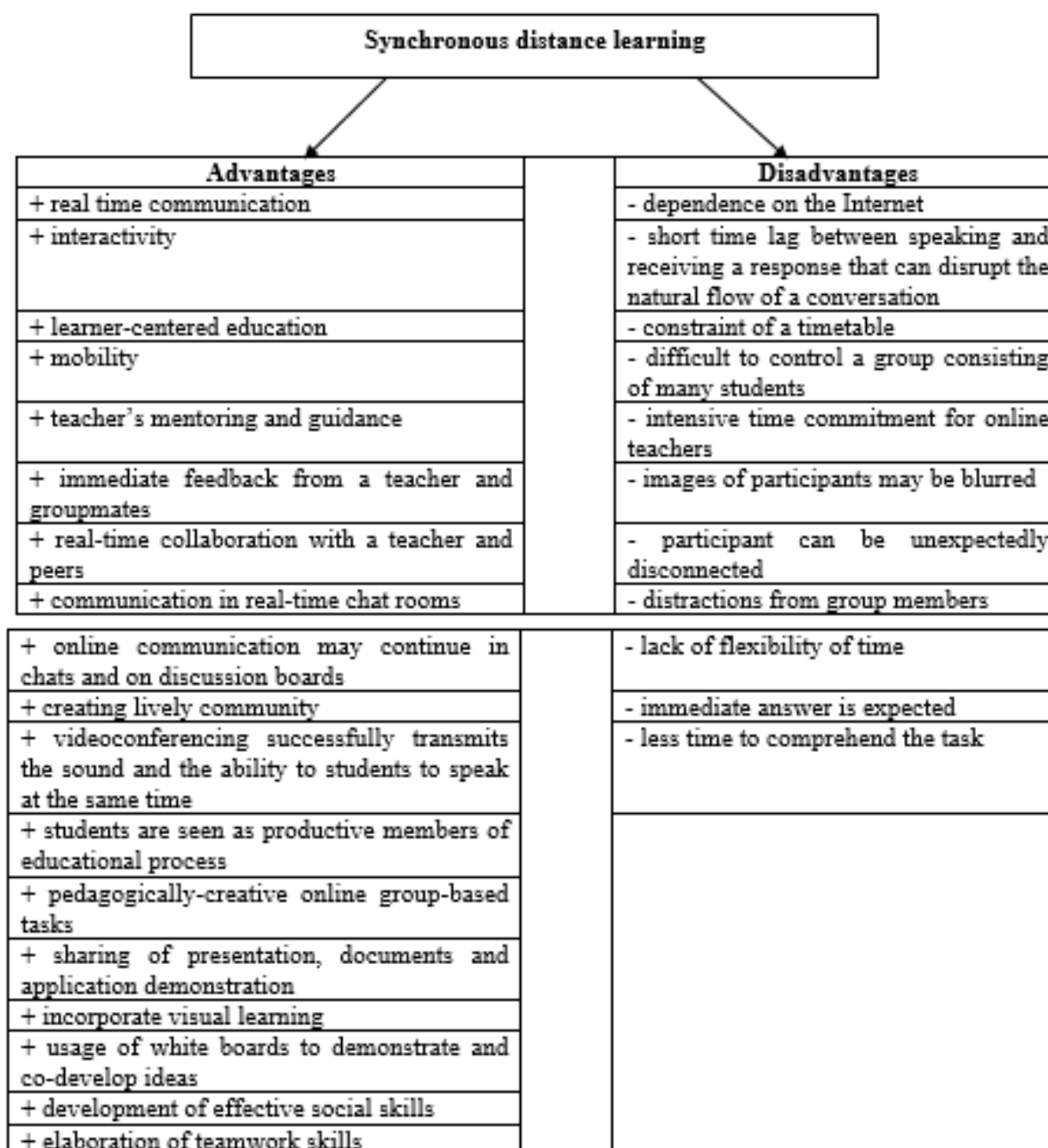
Synchronous distance learning	
Advantages	**Disadvantages**
+ real time communication	- dependence on the Internet
+ interactivity	- short time lag between speaking and receiving a response that can disrupt the natural flow of a conversation
+ learner-centered education	- constraint of a timetable
+ mobility	- difficult to control a group consisting of many students
+ teacher's mentoring and guidance	- intensive time commitment for online teachers
+ immediate feedback from a teacher and groupmates	- images of participants may be blurred
+ real-time collaboration with a teacher and peers	- participant can be unexpectedly disconnected
+ communication in real-time chat rooms	- distractions from group members
+ online communication may continue in chats and on discussion boards	- lack of flexibility of time
+ creating lively community	- immediate answer is expected
+ videoconferencing successfully transmits the sound and the ability to students to speak at the same time	- less time to comprehend the task
+ students are seen as productive members of educational process	
+ pedagogically-creative online group-based tasks	
+ sharing of presentation, documents and application demonstration	
+ incorporate visual learning	
+ usage of white boards to demonstrate and co-develop ideas	
+ development of effective social skills	
+ elaboration of teamwork skills	

Figure 1 Benefits and limitations of synchronous distance learning

[513] Haythornthwaite, C. & Kazmer, M. M. (2002): Bringing the Internet home: adult distance learners and their Internet, home and work worlds, in The Internet in Everyday Life, ed. B. Wellman & C. Haythornthwaite, Blackwell, Oxford, 2002, pp. 431-463.

[514] Haythornthwaite, C. (2002): Building social networks via computer networks: Creating and sustaining distributed learning communities, in Building Virtual Communities: Learning and Change in Cyberspace, ed. K. A. Renninger and W. Shumar, Cambridge University Press, Cambridge, 2002, pp. 159-209.

[515] Palloff, R. M. & Pratt, K. (1999): Building Learning Communities in Cyberspace: Effective Strategies for the Online Classroom. San Francisco: Jossey-Bass, 1999.

[516] Hrastinski S. (2008): Asynchronous and Synchronous E-Learning. EDUCAUSE Quarterly, October-December 2008, Vol. 31, No. 4.

The cognitive model of media choice advocated by Robert and Dennis presupposes that asynchronous communication enhances a person's ability to process information. The receiver is given more time to comprehend a message because an immediate respond is not required[517]. It should also be noted that in the asynchronous discussions it is easier to find some more facts, since there is an opportunity to consult a book and do more thorough postings[518].

The advent of on-demand entertainment and information coupled with the willingness to have more time control may be conditioning society to expect education on-demand as well. This "on-demand" mentality values independence over social interaction with groupmates or teachers. Learners who opt for this alternative can be more contented with the product and results, not necessarily because of the quality of the material, but because they are able to control the timing of its availability[519].

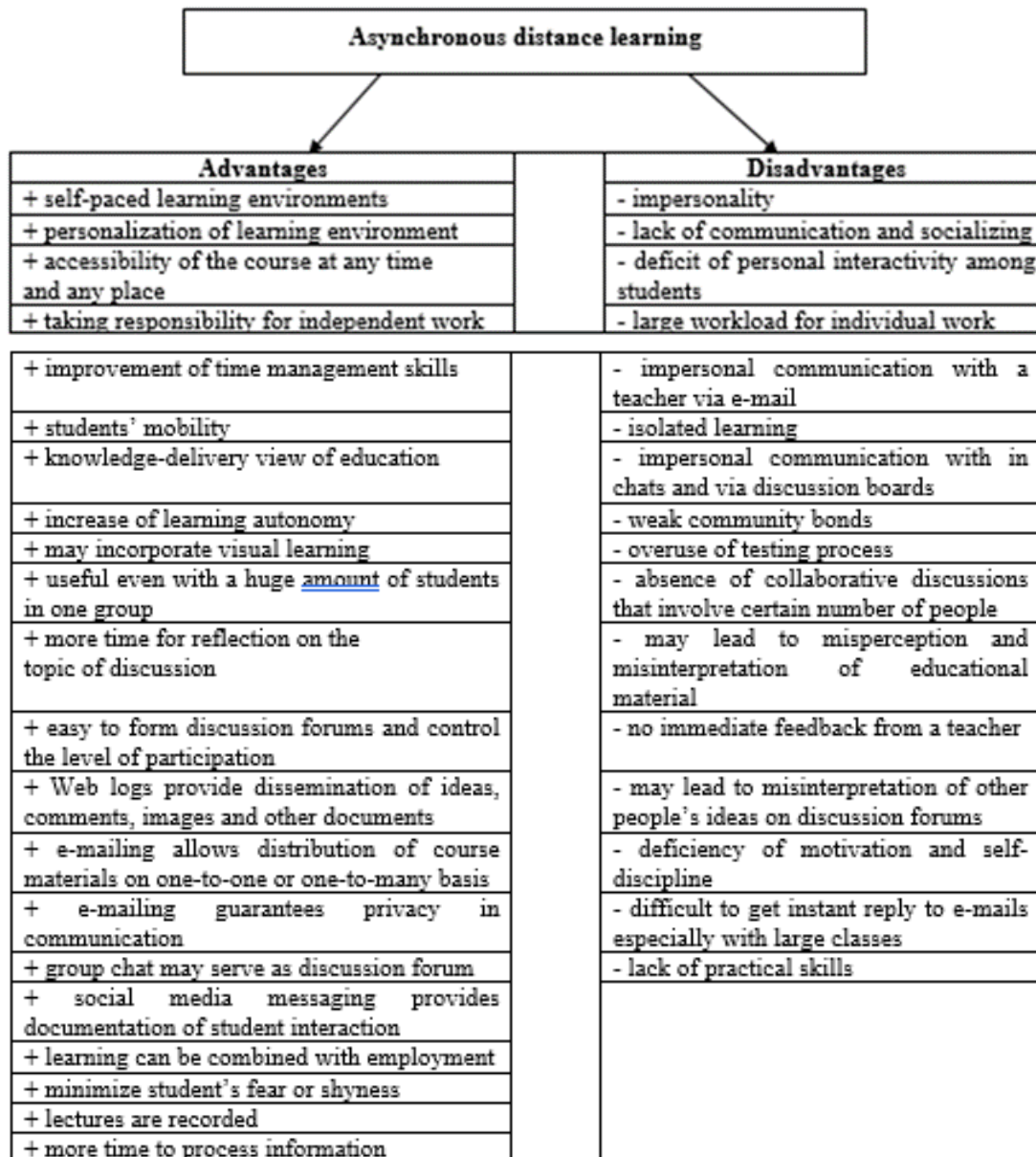Figure 2 provides benefits and limitations of asynchronous distance learning.

Asynchronous distance learning	
Advantages	**Disadvantages**
+ self-paced learning environments	- impersonality
+ personalization of learning environment	- lack of communication and socializing
+ accessibility of the course at any time and any place	- deficit of personal interactivity among students
+ taking responsibility for independent work	- large workload for individual work
+ improvement of time management skills	- impersonal communication with a teacher via e-mail
+ students' mobility	- isolated learning
+ knowledge-delivery view of education	- impersonal communication with in chats and via discussion boards
+ increase of learning autonomy	- weak community bonds
+ may incorporate visual learning	- overuse of testing process
+ useful even with a huge amount of students in one group	- absence of collaborative discussions that involve certain number of people
+ more time for reflection on the topic of discussion	- may lead to misperception and misinterpretation of educational material
+ easy to form discussion forums and control the level of participation	- no immediate feedback from a teacher
+ Web logs provide dissemination of ideas, comments, images and other documents	- may lead to misinterpretation of other people's ideas on discussion forums
+ e-mailing allows distribution of course materials on one-to-one or one-to-many basis	- deficiency of motivation and self-discipline
+ e-mailing guarantees privacy in communication	- difficult to get instant reply to e-mails especially with large classes
+ group chat may serve as discussion forum	- lack of practical skills
+ social media messaging provides documentation of student interaction	
+ learning can be combined with employment	
+ minimize student's fear or shyness	
+ lectures are recorded	
+ more time to process information	

Figure 2 Benefits and limitations of asynchronous distance learning

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[517] Robert, L. P. & Dennis, A. R. (2005). Paradox of Richness: A Cognitive Model of Media Choice. IEEE Transactions on Professional Communication, 2005, Vol. 48, No. 1, pp. 10-21.

[518] Hrastinski S. (2008): Asynchronous and Synchronous E-Learning. EDUCAUSE Quarterly, October-December 2008, Vol. 31, No. 4.

[519] Buxton, E. C. (2014): Pharmacists' Perception of Synchronous Versus Asynchronous Distance Learning for Continuing Education Programs. American Journal of Pharmaceutical Education, 2014, Vol. 78, No. 1, Article 8, p. 6.

Conclusion. The research discussed demonstrates that synchronous and asynchronous distance learning possess benefits as well as limitations, with advantages prevailing. It means that we may state that these types of online learning complement each other. An implication for teachers is to supply students with several types of asynchronous and synchronous communication so that appropriate means are available for different learning activities. The combination of these two types of distance learning supports several ways for learners and teachers to exchange information, collaborate on work, and become acquainted with each other[520].

It should be taken into consideration that some learners enrol in online courses due to their asynchronous nature. When complex issues are concerned, synchronous distance learning by such media as videoconferencing, instant messaging and chat, and arranging real-time meetings as a supplement, can be significant as sustain for students to get to know each other and to plan the tasks within easy reach. Nevertheless, when discussing complex issues, in which time for reflection is required, it seems preferable to turn to asynchronous online learning and use such media as discussion boards, e-mail, and blogs.

A substantial challenge is to critically examine the benefits and limitations of emerging types of asynchronous, synchronous, and hybrid e-learning. This analysis will foster understanding of the perplexed task – taking advantage of emerging media in ways that benefit learning.

References

1. Barker, B., Frisbie, A. & Patrick, K. (1989): Broadening the definition of distance education in the light of the new telecommunications technologies. The American Journal of Distance Education, 1989, Vol. 3, No. 1, pp. 20-29.

2. Berge, Z. (ed.) (2001): Sustaining Distance Training. San Francisco: Jossey-Bass., 2001, p. 20-21.

3. Birnbaum, B. W. (2001): Foundations and practices in the use of distance education. Mellen Studies in Education, Lewiston: The Edwin Mellen Press, 2001, Vol. 66, pp. 1-174.

4. Buxton, E. C. (2014): Pharmacists' Perception of Synchronous Versus Asynchronous Distance Learning for Continuing Education Programs. American Journal of Pharmaceutical Education, 2014, Vol. 78, No. 1, Article 8, pp.1-7.

5. Delling, R. (1996): Versuch der Grundlegung zu einer systematischen Theorie des Fernunterrichts, in L. Sroka (Ed.). Fernunterricht, Hamburg: Hamburger Fernlehrinstitut, 1966.

6. Hanson, D., Maushak, N. J., Schlosser, C. A., Anderson, M. L., Sorenson, C. & Simonson, M. (1997): Distance education: Review of the literature (2nd ed.). Washington, DC: Association for Educational Communications and Technology. Ames, Iowa: Research Institute for Studies in Education.

7. Haythornthwaite, C. & Kazmer, M. M. (2002): Bringing the Internet home: adult distance learners and their Internet, home and work worlds, in The Internet in Everyday Life, ed. B. Wellman & C. Haythornthwaite, Blackwell, Oxford, 2002, pp. 431-463.

8. Haythornthwaite, C. (2002): Building social networks via computer networks: Creating and sustaining distributed learning communities, in Building Virtual Communities: Learning and Change in Cyberspace, ed. K. A. Renninger and W. Shumar, Cambridge University Press, Cambridge, 2002, pp. 159-209.

9. Holmberg, B. (2003): A theory of distance education based on empathy. In M. Moore & W. G. Anderson (Eds.) Handbook of distance education, Mahwah, NJ: Lawrence Erlbaum Associates, 2003, pp. 79-86.

10. Hrastinski, S. & Keller, Ch. (2007): Computer-Mediated Communication in Education: A Review of Recent Research, Educational Media International, March 2007, Vol. 4, No. 1 pp. 61-77.

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[520] Haythornthwaite, C. & Kazmer, M. M. (2002): Bringing the Internet home: adult distance learners and their Internet, home and work worlds, in The Internet in Everyday Life, ed. B. Wellman & C. Haythornthwaite, Blackwell, Oxford, 2002, pp. 431-463.

11. Hrastinski, S. (2007): The Potential of Synchronous Communication to Enhance Participation in Online Discussions, paper presented at the 28th International Conference on Information Systems, Montreal, Canada, December 9-12, 2007.

12. Hrastinski S. (2008): Asynchronous and Synchronous E-Learning. EDUCAUSE Quarterly, October-December 2008, Vol. 31, No. 4.

13. Keegan, D. (Ed.) (1996): Foundations of distance education (3rd ed.). London: Routledge, 1996.

14. Kock, N. (2005): Media Richness or Media Naturalness? The Evolution of Our Biological Communication Apparatus and Its Influence on Our Behavior Toward E-Communication Tools, IEEE Transactions on Professional Communication, June 2005, Vol. 48, No. 2, pp. 117-130.

15. Lim, F. P. (2017): An Analysis of Synchronous and Asynchronous Communication Tools in e-Learning. Advanced Science and Technology Letters, 2017, Vol. 143, pp. 230-234.

16. Mayer, R. E. (2001): Multimedia learning. New York: Cambridge University Press.

17. Mehrotra, C. M., Hollister, C. D., & McGahey, L. (2001): Distance learning: Principles for effective design, delivery, and evaluation. Thousand Oaks, CA: Sage Publications, Inc., 2001.

18. Moallem, M. (2015): The Impact Of Synchronous And Asynchronous Communication Tools On Learner Self-Regulation, Social Presence, Immediacy, Intimacy And Satisfaction In Collaborative Online Learning. The Online Journal of Distance Education and e-Learning, 2015, Vol. 3, No. 3, pp. 55-77.

19. Palloff, R. M. & Pratt, K. (1999): Building Learning Communities in Cyberspace: Effective Strategies for the Online Classroom. San Francisco: Jossey-Bass, 1999.

20. Peters, O. (1973): Die Didaktische Struktur des Fernunterrichts, Weinheim: Beltz, 1973.

21. Pirrong, G. D. & Lathen, W. C. (1990): The Use of Interactive Television in Business Education. Education Technology, 1990, Vol. 30, No. 5, pp. 49-54.

22. Robert, L. P. & Dennis, A. R. (2005). Paradox of Richness: A Cognitive Model of Media Choice. IEEE Transactions on Professional Communication, 2005, Vol. 48, No. 1, pp. 10-21. DOI: 10.1109/TPC.2004.843292.

23. Romero, P. (1984). English for business: developing communication skills. Katha Publishing Co., Inc. Quezon: Philippines.

24. Romiszowski, A. & Mason, R. (2004): Computer-Mediated Communication, in Handbook of Research for Educational Communications and Technology, ed. David H. Jonassen (Mahwah, NJ: Lawrence Erlbaum, 2004), pp. 397-431.

25. Tendero, E. (2009). Fundamentals of effective speech and oral communication. Mutya Publishing House, Inc. Malabon City: Philippine; FME, 2013. Effective Communication Skills. [Cited 10. 02. 2021.] Available online: www.free-management-ebooks.com.

26. University of Nairobi, (2016). Introduction to Communication. goo.gl/gDW33n.

27. Wang, S. K. (2008): The Effects of a Synchronous Communication Tool (Yahoo Messenger) on Online Learners' Sense of Community and their Multimedia Authoring Skills. Journal of Interactive Online Learning, 2008, Vol 7, No.1, pp. 59-74.

2.7. Oksana Pasko. POTENTIAL OF PROJECT ACTIVITIES IN THE DESIGNERS' PROFESSIONAL EDUCATION: COMPETENCE APPROACH

The article is devoted to the analysis of the phenomenon of «project activity» and its possibilities in the development of future design specialists' professional competencies. The special attention is paid to the possibilities of project activity in the development of students' compositional project thinking. The clauzura and its influence on the development of design students' compositional thinking as one of the effective means of project activity are characterized.

2.8. Yuliia Roik. ETHNODESIGN AS AN ISSUE FOR DISCUSSION IN FOREIGN SCIENTIFIC LITERATURE

The article reveals the experience of formation and implementation of ethnic design in foreign countries. This work is based on the analysis of the scientific literature that historically reveals the unity of design and folk crafts in education of the world's developed countries such as Great Britain, Germany, Italy, France and Japan.

The author distinguished and characterized the main stages in design development, which are correlated with changes in meaning of concept "design": "Protodesign","Art construction", "Art projection», "Ethnodesign".

It is substantiated that art education should originate from national traditions and the methodological system of teaching ethnodesign should include both the technology of art projecting (designers) and the technology of technical projecting (engineers).

2.9. Olena Shenderuk. COMMUNICATIVE APPROACH IN LEARNING ENGLISH

Nowadays there is a great number of different approaches and methods of learning English. But not all of them are efficient. The scientists point out communicative approach that is directed to speaking practice as the most methodical and productive. Among the peculiarities of communicative approach are studying a language as a mean of communication, through a personal activity of a student, English classes are considered to be communicative ones. Communicative approach includes preparatory, organizational, correctional and generalizing and simulative stages. The main aim of communicative learning of a language is studying it as a communicative competence.

2.10. Nataliya Shandra, Olena Fonariuk, Iryna Chystiakova. SYNCHRONOUS AND ASYNCHRONOUS DISTANCE LEARNING: BENEFITS AND LIMITATIONS

This paper provides the definition of the notion "distance education", which is regarded as a planned and systematic activity which comprises the choice, didactic preparation and presentation of teaching materials as well as the supervision and support of student learning and which is achieved by bridging the physical distance between student and teacher by means of at least one appropriate technical medium. The research describes two basic types of distance learning, namely synchronous and asynchronous, in details. The benefits and limitations of both types are analysed. Distance education theory is provided.

2.11. Olena Shevchenko, Oksana Burkovska. USE OF CASE-STUDY METHOD IN TEACHING HUMANITIES AT MEDICAL UNIVERSITY

The article deals with the peculiarities of case-study method in the teaching humanities at medical university. The reasonability of its implementation in the teaching process has been proved. Learning potential of case-study method for teaching humanities has been analyzed. Positive features of case-study method use have been picked out.

2.12. Daria Shiyan, Olena Lakomova, Tatiana Karpenko, Nadiia Kaida. THE IMPORTANCE OF INTERDISCIPLINARY RELATIONS IN THE EDUCATIONAL PROCESS OF HIGHER EDUCATIONAL INSTITUTIONS IN UKRAINE

Part 2. MODERN APPROACHES FOR EDUCATION DEVELOPMENT

2.1. Mariia Bobrova – PhD in Biology, Associate Professor, Volodymyr Vynnychenko Central Ukrainian State Pedagogical University, Kropyvnytskyi, Ukraine
Halyna Naidonova – PhD of Pedagogical Sciences, Volodymyr Vynnychenko Central Ukrainian State Pedagogical University, Kropyvnytskyi, Ukraine
Svitlana Koval – Senior Lecturer, International European University, Kyiv, Ukraine

2.2. Olga Kryvonos – PhD of Pedagogical Sciences, Associate Professor, Sumy State Pedagogical University named after A. S. Makarenko, Sumy, Ukraine
Zhanna Chernyakova – PhD of Pedagogical Sciences, Associate Professor, Sumy State Pedagogical University named after A. S. Makarenko, Sumy, Ukraine

2.3. Valentin Molodychenko – Doctor in Psychology, Professor, Bogdan Khmelnytsky Melitopol State Pedagogical University, Melitopol, Ukraine
Natalya Molodychenko – PhD of Pedagogical Sciences, Associate Professor, Bogdan Khmelnytsky Melitopol State Pedagogical University, Melitopol, Ukraine

2.4. Olena Murzina – PhD of Pedagogical Sciences, Senior Lecturer, Zaporizhzhia State Medical University, Zaporizhzhia, Ukraine

2.5. Nina Myropoltseva – PhD in Psychology, Associate Professor, Petro Mohyla Black Sea National University, Mykolaiv, Ukraine
Olha Amplieieva – PhD in Psychology, Associate Professor, Petro Mohyla Black Sea National University, Mykolaiv, Ukraine

2.6. Larysa Onishchuk – PhD of Pedagogical Sciences, Associate Professor, National University «Yuri Kondratyuk Poltava Polytechnic», Poltava, Ukraine
Lina Rybalko – Doctor of Pedagogical Sciences, Professor, National University «Yuri Kondratyuk Poltava Polytechnic», Poltava, Ukraine

2.7. Oksana Pasko – PhD of Pedagogical Sciences, Lecturer, Mykhailo Boichuk Kyiv State Academy of Decorative Applied Arts and Design, Kyiv, Ukraine

2.8. Yuliia Roik – PhD Student, Kyiv State Academy of Decorative Applied Arts and Design named after Mykhailo Boychuk, Kyiv, Ukraine

2.9. Olena Shenderuk – PhD of Pedagogical Sciences, Associate Professor, Academy of the State Penitentiary Service Ukraine, Chernihiv, Ukraine

2.10. Nataliya Shandra – PhD of Pedagogical Sciences, Associate Professor, Ivan Franko National University of Lviv, Lviv, Ukraine
Olena Fonariuk – PhD of Pedagogical Sciences, Associate Professor, Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine
Iryna Chystiakova – PhD of Pedagogical Sciences, Associate Professor, Sumy State Pedagogical University named after A. S. Makarenko, Sumy, Ukraine

2.11. Olena Shevchenko – PhD of Pedagogical Sciences, Associate Professor, Donetsk National Medical University, Kramatorsk, Ukraine
Oksana Burkovska – PhD of Pedagogical Sciences, Associate Professor, Donetsk National Medical University, Kramatorsk, Ukraine