Jolanta Szulc
Poland
https://orcid.org/0000-0002-8926-3098

Distance Learning – the Current Status and Directions for Further Research

Abstract

The article aims to discuss current research trends in the field of Distance Learning (DL). It consists of the following parts: (1) the definitions and characteristics of DL; (2) current directions of research in the field of DL, among others: measuring transactional distance in Web-Based Learning Environments, Problem-Based Learning (PBL) in DL, development of learning content and the task for MOOCs, effects of online course efficiency perceptions on Student Evaluation of Teaching (SET) measures, new technologies for the DL, the use of metacognitive and affective model Self-Regulated Learning (MASRL), questionnaire (Constructivist Learning on a Scale Higher Settings of Education [CLHES]) as a method of research of constructivist learning environment in higher education, Transactional Distance (TD) theory in DL and online community culture; (3) summary and conclusions with a particular focus on the use of DL methods in higher education. The article is based on the study of literature registered in the databases ERIC, LISA, and LISTA.

K e y w o r d s: Constructivist Learning, Distance Learning, Massive Online Open Courses, Problem-Based Learning, Self-Regulated Learning, Student Evaluation of Teaching, Transactional Distance

Introduction

Distance education has been around for a long time, but has evolved in a number of ways. Open learning is a more recent phenomenon and its definition varies from country to country and is has been evolving over the recent years (What, 2019). Traditionally, it consisted of correspondence courses in which the student corresponded with the school via mail. Currently the following types of courses are distinguished: hybrid courses (51% or more), blended, 100% distance learning or open online courses (MOOCs) (Wikipedia, 2019a). Online courses enable Distance Learning (DL). Our considerations will begin with the presentation of the research method and the definition of DL.

The Methodology of Research

The study uses the analysis of literature on the subject registered in the following databases: Education Resources Information Center (ERIC), Library and Information Science (LISA), and Library and Information Science Abstracts (LISTA). Based on the initial analysis of the literature on the subject, seven main research topics have been identified (see sections 2.1 to 2.6). Then, in each of the databases, bibliographic records were searched according to accepted search queries (see Table 1). Subsequently, the most important and recent publications were selected and discussed. Conclusion presents the analysis of the results obtained and separates the specific subjects and research directions.

Table 1
Search results in selected databases (as of September 29, 2019)

Database name	Search query	No. of records	Publication period
ERIC	("Transactional Distance") AND ("Distance Learning")	111	1988–2019
	("Problem-Based Learning") AND ("Distance Learning")	142	1992–2019
	("MOOC") AND ("Distance Learning")	129	2009–2019
	("Student Evaluation of Teaching") AND ("Distance Learning")	70	1983–2019
	("New Technology") AND ("Distance Learning")	265	1977–2018
	("Self-Regulated Learning") AND ("Distance Learning")	65	2000–2019
	("Constructivist Learning") AND ("Distance Learning")	56	1993–2019
LISA	("Transactional Distance") AND ("Distance Learning")	22	2002–2018
	("Problem-Based Learning") AND ("Distance Learning")	129	1994–2019
	("MOOC") AND ("Distance Learning")	130	2012–2019
	("Student Evaluation of Teaching") AND ("Distance Learning")	3	2004–2018
	("New Technology") AND ("Distance Learning")	425	1982–2019
	("Self-Regulated Learning") AND ("Distance Learning")	56	2002–2019
	("Constructivist Learning") AND ("Distance Learning")	73	2001–2019
LISTA	("Transactional Distance") AND ("Distance Learning")	6	2002–2015
	("Problem-Based Learning") AND ("Distance Learning")	9	2002–2015
	("MOOC") AND ("Distance Learning")	14	2014–2019
	("Student Evaluation of Teaching") AND ("Distance Learning")	348	1981–2019
	("New Technology") AND ("Distance Learning")	16	1988–2015
	("Self-Regulated Learning") AND ("Distance Learning")	8	2012–2019
	("Constructivist Learning") AND ("Distance Learning")	5	2001–2016

S o u r c e: Own work

1. The Definition and Development of Distance Learning

According to some researchers, Distance Learning (DL) (or long-distance learning) is "a way of learning remotely without being in regular face-to-face contact with a teacher in the classroom" (Midgley, 2019). Another definition assumes that DL or Distance Education (DE) is the education of students who may not always be physically present at school (Wikipedia, 2019b). In addition, we use a term such as Open and Distance Learning (ODL) – the combination of distance education (i.e., the ability to study from distance) and open learning (i.e. the ability for anyone to access the educational offer) (What, 2019).

The elements of the DL evaluation are: the legal framework, Distance Learning standards, accreditation for distance education, organising Distance Learning, teacher training, educational resources and development of distance education.

The DL supplying institutions are, among others:

1969 – The Open University (UK)
1973 – Everyman's University Tel-Aviv (Israel)
1973 – Universidad Nacional de Educación a Distancia (Spain)
1973 – Fernuniwersitat (Germany)
1975 – University of Lagos Correspondence and Open Studies Unit (Nigeria)
1978 – Universidad Nacional Abierta (Venezuela)
1984 – Open University of The Netherlands
1986 – University of Paris 8 – Vincennes – Saint Denis (France). (Korzan, 2003)

The Open University (OU) is one of the oldest universities in Europe providing DL. The OU referred to the Michael Young's (Lord Young of Dartington's) idea of the University of the Air started in former BBC television studios. The OU was established in 1969, and the first Vice-Chancellor was Professor Walter Perry. The university's administration is based at Walton Hall in Milton Keynes in Buckinghamshire, but it also has administrative centers in other parts of the UK. In addition, the university has branches in almost all European countries.

The OU teaches in English using its own unique distance learning method, called "supported open learning." The following features characterise this method: flexible, all-inclusive, supportive, and social. The OU offers certificates, diplomas, and bachelor degrees, depending on the amount of material and its level (1, 2, or 3), which correspond to the level of the first, second, or third year of study. The OU qualifications are expressed in CATS (Credit Accumulation and Transfer Scheme). The UO also grants "Open" Bachelor's degrees. The university also offers a range of MBA and MPA, MSc, MA and MEd, and MRes, as well as the professional PGCE qualification and a number of postgraduate diplomas and certificates. In

addition, the university provides the opportunity to study for a PhD. By 2013, over 200,000 students were studying at The Open University (The Open, 2019).

The beginnings of remote education in Poland date back to 1776, when the first correspondence courses were launched at the University of Krakow. They were intended for people from outside the university – for craftsmen. In 1886, the Flying University in Warsaw was established, which in 1907 – during the revolution – was legalised and adopted the name the Society of Scientific Courses. At the turn of the 19th and 20th century, other institutions dealing with distance learning were also established in Poland – the Association of Academic Courses for Women and Universal University Lectures.

In 1960, educational television was launched – "School programmes". Initially experimentally, and then systematically broadcast lectures by great scientists from large Polish academic centres. Up to 900 schools applied for the programme organised by Telewizja Polska (Polish Television). Unfortunately, it was very difficult to base their education on these programmes because it required changes to the school's lesson plans and curricula. In the years 1966–1971 in Poland, the Television Polytechnic was active, offering a preparatory programme for candidates for higher education and auxiliary materials for students.

Since the 1980s, the development of remote education in Poland corresponds to the development of this form of education in the world. In the 1990s there was a rapid development of the Internet and multimedia. Interest in remote education increased, e-learning has been created. During the period 2001–2007, there was observed a dynamic development of e-education in Poland. In 2008, the Open University of the Warsaw University was established to implement and promote the idea of lifelong education (Uniwersytet, 2019). Universities are increasingly introducing DL education. Corporate e-learning is also developing dynamically.

The report published in 2013 by the National Center for Supporting Vocational and Continuing Education presents conclusions regarding the state of distance education in Poland, in particular in the area of vocational and continuing education. The report states that:

1. A share of DL in vocational and continuing education (lifelong learning) in Poland is marginal.
2. The lack of recognition of the benefits of DL by teachers and persons managing vocational and lifelong learning institutions is the most serious reason for the limited use of this form of education organisation.
3. The number of teachers prepared for DL is insufficient for its development in vocational and contuining education.
4. The way of DL implementation in the vocational and continuing education system is highly ineffective.
5. Polish legal regulations regarding DL are inconsistent with European trends.

6. There is a lack of commonly used standards and related assessment and quality assurance systems regarding DL as well as institutions that accredit this form of education.
7. The degree of exchange and use of open didactic materials for DL is small.
8. The existing ICT infrastructure for DL does not limit its current use in vocational and continuing education learning, but is used in an ineffective manner.
9. The types of distance learning most commonly used in education professional and continuing education (lifelong learning) are not suitable for the education sector.
10. Due to the low popularity, it is difficult to talk about adjusting the current DL offer to the needs of the labour market (Chmielewski & Chomczyński, 2013).

2. Current Directions of Research in the Field

2.1 Measuring transactional distance in the Web-Based Learning Environments

Measurement of the transaction distance in the Web-Based Learning Environments is conducted using the so-called transactional distance theory. The concept of the transaction comes from Dewey (Dewey & Bentley, 1949). As explained by Boyd and Apps (1980), the transaction "connotes the interplay among the environment and the patterns of behavior in a situation." The transaction which we call distance education occurs between teachers and students in an environment characterised by a special feature separating teachers from students. This separation leads to special patterns of behaviour of the student and teacher. This separation of students and teachers has a profound impact on distance learning methods. Along with separation, there is a psychological-communication space, that is, the possibility of misunderstandings between the instructor and the students. Psychological and communication spaces between a single student and an instructor are never exactly the same. In other words, the transaction distance is a continuous variable, not discrete, and relative rather than absolute (Moore, 1997).

The literature on the subject of transactional distance was searched in selected databases and features in Table 1.

As can be seen from the presented data, most publications were registered in the ERIC database in 1988–2019. The publications concerned, among others, such the following topics: higher education (77 records), foreign countries (45 records), post-secondary education (44 records), online courses (43 records), educational

technology (41 records), student attitudes (31 records), teacher-student relationship (27 records).

Transactional distance theory was proposed in 1970 by Michael G. Moore, professor of education at Pennsylvania State University (Moore, 1972, 1973). This theory describes a course model that designates pedagogical aspects in three collections of variables. The first set consists of elements describing the structure of learning materials. The second set of variables contains elements that interact or dialogue between the teacher and students during the implementation of a curriculum. The third set creates the characteristics of each individual student, taking into account the self-management or autonomy of pupils who interact with teachers as part of the planned structure (Moore & Kearsley, 2012). These variables interact to create a transaction distance that Michael G. Moore defines as "a psychological and communication space for the crossed-up learner" (Moore, 1997, p. 22).

Many researchers have used Moore's theory as the theoretical basis to develop scales to measure transaction distances. These include: Zhang's Scale of Transactional Distance (Zhang, 2003), Relative Proximity Theory (Swart et al., 2013), Revised Scale of Transactional Distance (Paul et al., 2015), Coll-TD Scale (Wengrowicz et al., 2014), Coll-TD / F Scale (Paul et al., 2015).

Shen et al. (2015) proposed measuring the transaction distance in the online learning environment using the new method. This study was the initial attempt to operationalise Moore's distance theory by developing and validating principles measuring related elements, such as:

- Transactional distance: interpersonal closeness, sharedness, perceived learning.
- Dialogue: learner-instructor interaction and learner-learner interaction.
- Structure: learner-content interaction and learner-interface interaction.
- Learner autonomy: independence of learning and study habits.

The data provided by 227 students online was analysed using exploratory factor analysis. The results indicate that the developed method is a reliable and reliable measure of structures associated with distance theory. Despite the potential limitations, the results of the study present preliminary empirical evidence confirming the validity of a constructive theory of transaction distances.

The subject of research is also the role of communication technologies and fields of study in strengthening and reducing transaction distance in mixed learning. Factor analysis and modeling of structural equations of different communication modes (face to face, e-mail, and telephone) revealed that students experience at least part of the transaction distance when they are separated from their teachers. E-mail messages were found to have made it easier for students to attain the highest level of directness in the dialogue. The conclusion is that strategic students have the best conditions to enjoy the benefits of blended learning, and the effects of

transactional distance can be analysed further if two variables of dialogue are recognised. They are social presence (perception of the relationship between students and their guardians) and directness (temporary effects of dialogue).

The usefulness of this theory also lies in the fact that it provides instructional designers the tips on course planning: for instance, if structure, dialogue, and autonomy will be built into the course to minimise transaction distances and thus maximise learning outcomes.

2.2 Problem-Based Learning (PBL) in DL

Problem-based learning (PBL) "is a student-centered pedagogy in which students learn about a subject through the experience of solving an open-ended problem found in trigger material" (Wikipedia, 2019c, accessed 29 September 2019c). When teachers skip the problem formulation phase – by providing students with facts and procedures, without giving them a chance to develop their own questions and self-examination – students may remember the material but will not fully understand it or be able to use it. Problem-based learning (PBL) provides a framework for discovery that helps students internalise learning and leads to greater understanding.

Therefore, the PBL process does not focus on solving problems using a specific solution, but it enables the development of other skills and attributes. The PBL includes knowledge acquisition, improved group collaboration and communication (Kolmos, 2009).

The number of records regarding PBL in DL, distinguished based on the database they were found in, is presented in Table 1. As can be seen from the collected data, most publications were registered in the ERIC database in the years 1992–2019. The record numbers for selected specific topics are: distance education (124), problem-based learning (111), higher education (104), foreign countries (64), educational technology (57), postsecondary education (53), online courses (50).

The most important publications cover issues such as:

(1) The theory of learning the design and implementation of research into the digital education of medical professions, as well as the indication of areas for future research on technologically supported education in this area (Bajpai, Semwal, Bajpai, Car, & Ho Ahy, 2019).

(2) Surveys among education managers, teachers and university students about experience in the application of PBL principles, support for PBL in terms of human and infrastructure resources (Okyere, Tawiah, Lamptey, & Oduro, 2019).

(3) Research on the PBL method, for instance:

– research on the implementation of the online PBL environment and the new student evaluation method. An example of such an environment is the system called Problearn, which allows students to remotely solve problems in small

groups. The system creates behavioural profiles of students during the problem solving process and evaluates each student based on them (Tadjer, Lafifi, & Seridi-Bouchelaghem, 2018);

– examination of the impact of knowledge representations on problem-oriented learning in online learning environments. The study compared the impact of knowledge map representation with traditional hierarchical representation in relation to learning memory and problem solving efficiency. Better results were achieved by participants who used the knowledge map representation, had a better memory of educational content, especially about the relationship between knowledge nodes (Gao, Wang, & Gao, 2015);

– research on comparison of online and campus-based PBL on the example of the Swedish firefighter training system. The results showed that online PBL, compared to campus-based PBL, has evolved into a more individual, real and reading-oriented process for solving problems with instructors and self-education among students (Holmgren, 2013).

(4) Using the PBL method in building scenarios supporting library services in long-distance teaching in strategic planning. Creating a scenario for a new strategic plan should be useful for library administrators interested in discovering new ways of planning business (Casey, Cawthorne, & Citro, 2014).

2.3 Development of learning content and the task for MOOCs

Massive Online Open Courses (MOOCs) are online courses aimed at unlimited participation and open access via the Web (Kaplan & Haenlein, 2016). In addition to traditional training materials, such as filmed lectures, readings and problem sets, many MOOCs provide interactive user forums to support community interaction between students, professors and teaching assistants, as well as instant feedback for quick quizzes and assignments (Masson, 2014).

The MOOC is the latest and widely researched DL development direction, which was first introduced in 2006 and had become a popular way of learning by 2012 (Wikipedia, 2016d). The literature on the subject was searched in selected databases and is presented in Table 1.

As can be seen from the collected data, most publications regarding the topic in question were registered in the LISA database in the years 2012–2019. At the same time, the majority of them appeared in 2013 (30), and similar numbers of publications fall in 2014–2015 (respectively, 17 and 19) and in 2017–2018 (respectively, 20 and 21). The most frequently discussed specific topics were: distance learning (112), online instruction (80), open learning (30), students (30), higher education (24), academic libraries (22), computer assisted instruction CAI (20), colleges & universities (16).

The most important publications cover such issues as:

(1) The MOOC design. Some researchers believe that there is no right or wrong way to design an MOOC. However, you can take practical steps that will allow you to initiate one: 1. Select a particular MOOC platform. 2. Gather interested, committed colleagues. 3. Identify the course topic and goals. 4. Specify the course requirements. 5. Create the structure and content of the course. 6. Define the tasks and assessment methods (Turner, 2015).

(2) Creating and using MOOCs for specific tasks, for instance, literature search according to a personal study model (Hong-Jun, 2015), training librarians involved in literature search (Young, McLaren, & Maden, 2017), multi-lingual and multi-cultural MOOC for information literacy instruction (Robinson & Bawden, 2017).

(3) The use of MOOC in remote medical education. The subject of research are the following issues: domestic and foreign MOOC, the universities offering medical MOOC, the languages used in teaching medical MOOC, the identification of MOOC, and the development of domestic and foreign medical MOOC on platforms of Coursera, edX.

(4) The reviews of MOOCs. Technological changes over the years of distance learning are most frequently analysed, and how relevant and beneficial these courses can be for distance learners. The studies also contain detailed information on various MOOC platforms, such as ALISON, Coursera, EduKart, edX, Iversity, Open Learning, The Open University, Udacity. The availability of MOOCs in various countries and the activities of various institutions and companies that provide MOOCs for academic environments are examined. Theoretical studies concern the limitations of MOOCs, their future, and business models and costs for MOOCs (Nisha & Senthil, 2015; Porter, 2015).

The research methodology deserves attention here. The Massive Open Online Course (MOOC) is an educational technology that includes both education and technological innovation. Some researchers believe that currently available MOOCs are very limited in terms of research methodology for this interdisciplinary area. The latest approach proposed examining the degree of complexity of MOOC in terms related to education and IT, and determining Mooc diffusion pattern at international and country-specific levels. The research used social network analysis, bibliometrics, text mining and idea of epidemic model (Guo & Zhang, 2017).

Another issue is understanding of the MOOC setting. The use of Netnography methodology can be helpful in this regard. "Netnography is a new qualitative method devised specifically to investigate the consumer behavior of cultures and communities present on the Internet" (Kozinets, 1998, p. 366). This methodology is a specific set of research practices related to data collection, analysis, research ethics and representation, based on observation of participants in a given

community. It is often used to study interactions and experiences manifested in digital communications. It has also been used to the Coursera community description (Saadatdoost, Sim, Jafarkarimi, & Hee, 2016).

An interesting issue raised in the latest literature is the cooperation between various institutions in creating MOOCs. An example of such cooperation is the MOOC titled "Changing Weather and Climate in the Great Lakes Region", initiated by the University of Wisconsin-Madison (University of Wisconsin–Madison, accessed 29 September 2019) and the Wisconsin Library Service in 2015. 21 public libraries took part in the preparation of the course. Thanks to the cooperation, forums were created where the residents of Wisconsin will study the changing weather and climate together with university faculty, students, librarians and the staff who managed this enterprise (Ackerman et al., 2016).

2.4 Effects of online course efficiency perceptions on Student Evaluation of Teaching (SET) measures

The Student Evaluation of Teaching (SET) is often used in assessing teacher performance, in making decisions regarding promotions and the term of office of employees. There has been a debate for a long time about the use of SET to evaluate learning outcomes. In general, there are two locations in the assessment of SET utility. Proponents of this method claim that SET are useful in the formal assessment of lecturers: "SETs serve to measure a school's effectiveness in support of its core mission, are valid measures based on feedback from the recipients of educational delivery, and provide formative feedback to improve faculty accountability to the institution" (Rowan, Newness, Tetradis, Prasad, Ko, & Sanchez, 2017, p. 1362). Opponents of this method believe that SETs should not be taken into account when hiring, because higher scores in SET do not correlate with good student performance. In addition, fear of student criticism can affect how content is presented and tested. Without prejudice to the validity of each of these concepts, we will briefly list the main assumptions of this method on the example of the principles published by one of the universities.

The Student Evaluation of Teaching (SET) should be part of an overall strategy to improve student learning. The SET should be used along with other assessment methods (e.g. mid-term feedback, peer observation, teaching portfolios). The university administration and staff should specify how information on student assessment is collected and what their purpose is. This information can be used in a variety of ways (e.g., providing information for course evaluation, feedback to lecturers, contributing to promotion, making employment decisions) (Iowa, 2019).

The literature on the subject was searched in selected databases and is presented in Table 1. As can be seen from the collected data, the majority of publications were registered in the LISTA database in 1981–2019. The numbers of records for

selected specific topics are: distance education (225), computer-assisted instruction (96), internet in education (79), online education (72), alternative education (47), information literacy (40), education (39).

2.5 New technologies for the DL

Distance learning technologies are changing rapidly and are moving from one innovation to another.

One of the negative aspects of constantly evolving technology is that teachers have trouble keeping up with change. As a result, there are sometimes delays between implementing a new technology and using it as an educational tool. However, the irresistible progress of information technology opens up new perspectives for DL (GoDistanceLearning.com, 2019, accessed 29 September 2019).

The literature on the subject was searched in selected databases and is presented in Table 1. As can be seen from the collected data, most publications were registered in the LISA database in the years 1982–2019. At the same time, the largest number of publications (199) falls in 2000–2009, and in the remaining decades respectively: 2010–2019 – (160), 1990–1999 – (62). The most frequently discussed specific topics included: distance learning (140), libraries (100), studies (89), librarians (67), learning (57), academic libraries (54), education (48), information technology (48).

2.6 Other research issues

The use of Metacognitive and Affective model Self-Regulated Learning (MASRL) is an interesting research field in DL. The SRL is closely adapted to the interests of teachers. It refers to learning based on "metacognition (thinking about one's own thinking), strategic action (planning, monitoring, and assessing personal progress against the standard) and motivation to learn" (Wikipedia, 2019e, accessed 29 September 2019e). "Self-regulation" describes the process of taking control and assessing your own learning and behaviour (Ormrod, 2009).

Literature reviews indicate a positive relationship between self-regulation, the use of learning strategies and academic achievement. Research results indicate that distance learners who have successfully completed the academic module use more and/or other self-regulating learning strategies than failed students (Bothma, Monteith, 2004).

The literature on the subject was searched in selected databases and is presented in Table 1. The data in the table shows that most publications were registered in the ERIC database in the years 2000–2019. The numbers of records on selected specific topics are: higher education (51), online courses (31), postsecondary

education (29), learning strategies (25), electronic learning (23), foreign countries (23), and metacognition (20).

Questionnaire (Constructivist Learning on a Scale Higher Settings of Education [CLHES]) is a method of research of constructivist learning environment in higher education. Constructivism can be defined basically as a learning approach, which defends that students subjectively construct, interpret and reorganise their knowledge (Windschitl, 1999). This approach proves to encourage students to discover, discuss and interpret knowledge and organise educational environments to help them create and implement their own theories and motivate to reflect acquired knowledge and skills (Jonassen, 1999; Cirik, Çolak, & Kaya, 2015).

The literature on the subject was searched in selected databases and is presented in Table 1. As can be seen from the collected data, most publications were registered in the LISA database in the years 2001–2019. At the same time, most publications were published in 2007 – (10), and in other years respectively: 2004 – (7), 2005 and 2006 – after (6) publications, 2011 and 2015 – after (5) publications. Since 2016, there has been a decrease in the number of publications (two or fewer publications per year). The most frequently discussed specific topics included: distance learning (33), online instruction (23), studies (19), learning (13), students (12), academic libraries (11), information literacy (11), teaching methods (9).

Conclusions

The most researched and developed topics related to DL include:
(1) New technology for the DL: 425 bibliographic records of papers published in 1982–2019 were registered in the LISA database, although the first publications on this subject appeared in the 1970s.
(2) Student evaluation of teaching in the DL method: The largest number of bibliographic records (348) of papers published in 1981–2019 were registered in the ERIC database.
(3) Problem-based learning in the DL method: 142 bibliographic records of papers published in the years 1992–2019 were registered in the ERIC database, and 129 bibliographic records of papers published in the years 1994–2019 were registered in the LISA database.

The oldest publications related to DL come from the 1970s and 1980s. These are publications on new technologies, problem-based learning and theory of transactional distance in DL. In the latest literature on the subject, publications

on the theory of constructivist learning, self-regulated learning and MOOC are most frequently represented.

Also noteworthy are the results of the analysis of the most frequently undertaken specific topics (exactly the subjects assigned to registered publications) in the context of DL. It should be noted that the most frequently mentioned subjects are: higher education (4 mentions), academic library (3), and foreign country (3). In addition, groups of topics can be distinguished, such as: *learning* – learning strategies – electronic learning; *student* – student attitudes – teacher-student relationship; *libraries* – academic libraries – librarians; *education* – higher education – postsecondary education (see Table 2).

Table 2

List of subjects most frequently assigned to bibliographic records (number of occurrences) in selected databases (as of September 29, 2019)

Topic 2.1. Transactional Distance	Topic 2.2. Problem-Based Learning	Topic 2.3. MOOC	Topic 2.4. Student Evaluation of Teaching	Topic 2.5. New Technologies	Topic 2.6. Self-Regulated Learning	Topic 2.7. Constructivist Learning
higher education (77)	distance education (124)	distance learning (112)↑	distance education (225)	distance learning (140)↑	higher education 51	distance learning (33)↑
foreign countries (45)	problem-based learning (111)	online instruction (80)	computer-assisted instruction (96)	libraries (100)↑	online courses (31)	online instruction (23)↑
postsecondary education (44)	higher education (104)	open learning (30)↑	internet in education (79)	studies (89)↑	postsecondary education (29)	studies (19)↑
online courses (43)	foreign countries (64)	students (30)↑	online education (72)	librarians (67)↑	learning strategies (25)	learning (13)↑
educational technology (41)	educational technology (57)	higher education (24)↑	alternative education (47)	learning (57)↑	electronic learning (23)	students (12)↑
student attitudes (31)	postsecondary education (53)	academic libraries (22)	information literacy (40),	academic libraries↑ (54)	foreign countries (23)	academic libraries↑ (11)
teacher student relationship (27)	online courses (50)	computer assisted instruction - CAI (20)	education (39)	education (48)	metacognition (20)	information literacy (11)

S o u r c e: Own work

These topics/topic groups are most frequently represented in the discussed literature and reflect the directions of research in the field of DL.

In conclusion, based on the analysis of the literature on the subject, four directions for further research on DL can be distinguished: education (especially higher education), learning, libraries (especially academic libraries) and student.

The level of DL development varies from country to country. Permanent participation in vocational and lifelong learning, determining the benefits of DL, insufficient number of teachers prepared to conduct classes using DL, inefficient way of implementing DL, and no legal regulations deciding about the development of DL. The question of whether DL is the education of the future is still open.

References

Ackerman, S., Mooney, M., Morrill, S., Morrill, J., Thompson, M., Balenovich, L.K. (2016). Libraries, massive open online courses and the importance of place. *New Library World*, London *117*(11/12), 688–701.

Bajpai, S., Semwal, M., Bajpai, R., Car, J., & Ho, A. H. Y. (2019). Health Professions' Digital Education: Review of Learning Theories in Randomized Controlled Trials by the Digital Health Education Collaboration. *Journal of Medical Internet Research*, Mar 21(3), e12912, 1–8.

Bothma, F., Monteith, JL dK (2004). Self-regulated learning as a prerequisite for successful distance learning. *South African Journal of Education*, January *24*(2), 141–147.

Boyd, R. A. (1966). Psychological definition of adult education. *Adult Leadership, 13*, November, 160–181.

Casey, A. M., Cawthorne, & J. E., Citro, K. (2014). Gazing into the Crystal Ball: Using Scenarios for Future Visioning of a Distance Learning Library Service. *Journal of Library & Information Services in Distance Learning, 8* (3/4), 181–203.

Chmielewski, K., Chomczyński, P., Głowacka, E., Mytkowski, D., Naftyński, M., Niedzielska, E., Zieliński, W. (2013). *Diagnosis of the distance education in Poland and selected European Union countries: final report.* Demos Polska, Warsaw: National Center for Supporting Vocational and Continuing Education.

Cirik, J., Çolak, E., & Kaya, D. (2015). Constructivist learning environments: the teachers' and students' perspectives. *International Journal on New Trends in Education and Their Implications* April 6(2)03, 30–44.

Dewey, J., & Bentley, A. F. (1949). *Knowing and the Known*. Boston: Beacon Press.

Gao, Q., Wang, D. X., Gao, F. (2015). Impact of knowledge representations on problem-oriented learning in online environments. *International Journal of Human-Computer Interaction, 31*(2), 922–993.

GoDistanceLearning.com, https://en.wikipedia.org/wiki/Self-regulated_learning#cite_note-4 (accessed 29 September 2019).

Guo, S., Zhang, G. (2017). Analyzing concept complexity, knowledge ageing and diffusion pattern of Mooc. *Scientometrics, 112*(1), 413–430.

Holmgren, R. (2013). ICT as a Catalyst in Problem-Based Learning Processes? A Comparison of Online and Campus-Based PBL in Swedish Fire-Fighter Training. *International Journal of Adult Vocational Education and Technology*, *4* (2), 1–14.

Huang, H., Chandra, A., Depaolo, C., & Cribbs, J. (2015). Measuring transactional distance in web-based learning environments: an initial instrument development. *Open Learning*, *30*(2), 106–126.

Hong-Jun, Y. (2015). MOOC-based innovation in teaching of literature retrieval course. *Zhonghua Yi XueTu Shu Qing BaoZaZhi = Chinese Journal of Medical Library and Information Science, 24*(6), 12–15.

Iowa State University, Center for Excellence in Learning and Teaching (CELT) (2019, September 29). Student Evaluation of Teaching (SET): Guidelines and Recommendations for Effective Practice. Retrieved from http://www.celt.iastate.edu/teaching/assessment-and-evaluation/student-evaluation-of-teaching-set-guidelines-and-recommendations-for-effective-practice/.

Jonassen, D. H. (1999). Designing constructivist learning environments. In C. M. Reigeluth (Ed.), *Instructionaldesign theories and models, a new paradigm of instructional theory* (pp. 215–239). New Jersey: Lawrence Erlbaum Associates.

Kaplan, A. M., Haenlein, M. (2016). Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster. *Business Horizons, 59*(4), 441–450. DOI:10.1016/j.bushor.2016.03.008.

Kolmos, A. (2009). Problem-Based and Project-Based Learning. In O. Skovsmose, P. Valero, O. R. Christensen (Eds.), *University Science and Mathematics Education in Transition* (pp. 261–280). Springer-Verlag Berlin Heidelberg.

Korzan, D. (2003). Ewolucja kształcenia zdalnego [=The evolution of distance education]. In Z. P. Kruszewski, J. Półturzycki, E. A. Wesołowska (Eds.), *Kształcenie ustawiczne – idee i doświadczenia* [=*Lifelong learning ideas and experiences*] (pp. 383–401). Płock: Wyd. Naukowe NOVUM.

Kozinets, R. V. (1998). On Netnography: Initial Reflections on Consumer Research Investigations of Cyberculture. *Advances in Consumer Research, 25*, 366–371.

Masson, M (2014). Benefits of TED Talks. *Canadian Family Physician*, *60* (12), 1080.

Midgley, S. (2019). *What is Distance Learning?* Retrieved from http://www.uflib.ufl.edu/ufdc/UFDC.aspx?n=palmm&c=psa1&m=hd2J&i=45367 (accessed 29 September 2019).

Moore, M. (1972). Learner autonomy: the second dimension of independent learning. *Convergence V*(2), 76–88.

Moore, M. (1973). Toward a theory of independent learning and teaching. *Journal of Higher Education, XLIV*(12), 661–679.

Moore, M. (1997). Theory of transactional distance. In Keegan, D. (Ed.), *Theoretical Principles of Distance Education* (pp. 22–38). New York and London: Routledge.

Moore, M., & Kearsley, G. (2012). *Distance education: A systems view of online learning*. Belmont, CA: Wadsworth.

Nisha, F., & Senthil, V. (2015). MOOCs: Changing Trend Towards Open Distance Learning with Special Reference to India. *DESIDOC Journal of Library & Information Technology*, Mar 35(2), 82–89.

Okyere, G. A., Tawiah, R., Lamptey, R., Oduro, W. (2019). Problem Based Learning Resources and Exposure in higher Education: Evidence from the Kwame Nkrumah University of Science and Technology. *Library Philosophy and Practice, 1*, 1–11.

Ormrod, J. E. (2009). *Essentials of Educational Psychology*. Pearson Education Inc.

Paul, R., Swart, W., Zhang, A., & MacLeod, K. (2015). Revisiting Zhang's scale of transactional distance: refinement and validation using structural equation modeling. *Distance Education*, Retrieved from https://dx.doi.org/10.1080/01587919.2015.1081741 (accessed 29 September 2019). DOI: 10.1080/01587919.2015.1081741.

Porter, S. (2015). The economics of MOOCs: a sustainable future? *The Bottom Line,* Bradford, *28*(1/2), 52–62.

Robinson, L., Bawden, D. (2018). International good practice in information literacy education [=Primeri dobre praksepriizobraževanjuzainformacijskopismenost v mednarodnemprostoru]. *Knjiznica: Revija za Področje Bibliotekarstva in Informacijske Znanosti, 62*(1/2), 169–185.

Rowan, S., Newness, E. J., Tetradis, S., Prasad, J. L., Ko, Ch., & Sanchez, A. (2017 Nov). Should Student Evaluation of Teaching Play a Significant Role in the Formal Assessment of Dental Faculty? Two Viewpoints. *Journal of Dental Education, 81*(11), 1362–1372.

Saadatdoost, R., Sim, A. T., Jafarkarimi, H., & Hee, J. M. (2016). Understanding the Setting of a MOOC: A Journey into Coursera. *International Journal of Information and Communication Technology Education, 12*(1), 77.

Shen Y., Wang, J., Tong, S., & Chen, Y. (2015). Comparative analysis of domestic and foreign medical MOOC. *Zhonghua Yi XueTu Shu Qing BaoZaZhi = Chinese Journal of Medical Library and Information Science, 24*(9), 37–42.

Swart, W., MacLeod, K., Paul, R., Zhang, A., & Gagulic, M. (2014). Relative Proximity Theory: Measuring the Gap between Actual and Ideal Online Course Delivery. *American Journal of Distance Education, 28*(4), 222–240.

Tadjer, H., Lafifi, Y., Seridi-Bouchelaghem, H. (2018). A New Approach for Assessing Learners in an Online Problem Based Learning Environment. *International Journal of Information and Communication Technology Education, 14*(4)2, 18–33.

The Open University, http://www.openuniversity.edu/ (accessed 29 September 2019).

Turner, L. (2015). Case in Point: HOW TO MAKE A MOOC. *Computers in Libraries*, Westport Sep. 35(7), 10–13.

University of Wisconsin–Madison via Coursera. Online Course "Changing Weather and Climate in the Great Lakes Region", https://www.classcentral.com/course/greatlakesclimate-2877 (accessed 29 September 2019).

Uniwersytet Otwarty Uniwersytetu Warszawskiego, https://www.uo.uw.edu.pl/ (accessed 29 September 2019).

What is Open Learning and 4 Ways It Can Help You, https://www.distancelearningportal.com/articles/237/what-is-open-learning-and-4-ways-it-can-help-you.html (accessed 29 September 2019).

Wengrowicz, N., Dori, Y. J. & Dori, D. (2014). Transactional distance in an undergraduate project-based systems modeling course. *Knowledge-Based Systems, 71*(6), 41–51. DOI:10.1016/j.knosys.2014.05.022.

Wikipedia. The Free Encyclopedia, entries:

distance education, https://en.wikipedia.org/wiki/Distance_education, (accessed 29 September 2019a).

distance education, https://en.wikipedia.org/wiki/Distance_education (accessed 29 September 2019b).

problem-based learning, https://en.wikipedia.org/wiki/Problem-based_learning (accessed 29 September 2019c).

Windschitl, M. (1999). The challenges of sustaining a constructivist classroom culture. *Phi Delta Kappan, 80*(10), 751–754.

Young, G., McLaren, L., & Maden, M. (2017). Delivering a MOOC for literature searching in health libraries: evaluation of a pilot project. *Health Information and Libraries Journal, 34*(4), 312–318.

Zhang, A. (2003). *Transactional distance in web-based college learning environments: Toward measurement and theory construction* (Unpublished doctoral dissertation). Virginia Commonwealth University. Richmond. [Google Scholar].

Jolanta Szulc

Nauka na odległość – aktualny stan i kierunki badań

Streszczenie

Celem artykułu jest omówienie aktualnych trendów i badań w dziedzinie kształcenia na odległość (DL). Artykuł składa się z następujących części: (1) definicje i cechy DL; (2) współczesne kierunki badań w dziedzinie DL, w tym między innymi: mierzenie odległości transakcyjnej w internetowych środowiskach nauczania, uczenie się oparte na problemach (PBL) w DL, opracowywanie treści edukacyjnych i zadania dla MOOC, efekty wydajności kursów online, postrzeganie miar oceny nauczania przez uczniów (SET), nowe technologie dla DL, stosowanie metapoznawczego i afektywnego modelu samoregulowanego uczenia się (MASRL), kwestionariusz konstruktywistycznego uczenia się (CLHES) jako metoda badań konstruktywistycznego środowiska uczenia się w szkolnictwie wyższym, teoria odległości transakcyjnej (TD) w kulturze DL społeczności internetowej; (3) podsumowanie i wnioski ze szczególnym uwzględnieniem zastosowania metod DL w szkolnictwie wyższym. Metoda badawcza: badanie literatury zarejestrowanej w bazach danych ERIC, LISA, LISTA.

S ł o w a   k l u c z o w e: nauczanie konstruktywistyczne, kształcenie na odległość, masowe otwarte kursy online, uczenie się oparte na problemach, uczenie się z samoregulacją, ocena nauczania przez uczniów, odległość transakcyjna

Jolanta Szulc

Дистанционное обучение – современное состояние и научные направления

Аннотация

Целью статьи является обсуждение современных тенденций / исследований в области дистанционного обучения (ДЛ). Статья состоит из следующих частей: (1) определения и характеристики DL; (2) текущие направления исследований в области DL, среди прочих: измерение транзакционной дистанции в веб-среде обучения, проблемное обучение (PBL)

в DL, разработка учебного контента и задачи для MOOC, эффекты эффективности онлайн-курса представления о показателях оценки учащихся (SET), новых технологиях для DL, использования метакогнитивной и аффективной модели саморегулируемого обучения (MASRL), вопросника («Конструктивистское обучение по шкале более высокие настройки образования» [CLHES]) в качестве метода исследования конструктивистской среды обучения в высшем образовании, теории транзакционной дистанции (TD) в DL и культуре онлайн-сообщества; (3) резюме и выводы с особым акцентом на использование методов DL в высшем образовании. Метод исследования: изучение литературы, зарегистрированной в базах данных ERIC, LISA, LISTA.

К л ю ч е в ы е   с л о в а: конструктивистское обучение, дистанционное обучение, массовые открытые онлайн-курсы, проблемное обучение, саморегулируемое обучение, оценка преподавания студентами, транзакционная дистанция

Jolanta Szulc

Aprendizaje a distancia: el estado actual y las direcciones de investigación

R e s u m e n

El artículo tiene como objetivo discutir las tendencias / investigaciones actuales en el campo de la educación a distancia (DL). El artículo consta de las siguientes partes: (1) las definiciones y características de DL; (2) investigación de direcciones actual en el campo de DL, entre otras: medición de la distancia transaccional en entornos de aprendizaje basados en la web, aprendizaje basado en problemas (PBL) en DL, desarrollo de contenido de aprendizaje y la tarea de MOOC, efectos de la eficiencia del curso en línea percepciones sobre las medidas de Evaluación de la Enseñanza del Estudiante (SET), nuevas tecnologías para la DL, el uso del modelo metacognitivo y afectivo de Aprendizaje Autorregulado (MASRL), cuestionario (Aprendizaje constructivista en una escala de ajustes superiores de educación [CLHES]) como método de investigación del ambiente de aprendizaje constructivista en educación superior, teoría de la distancia transaccional (TD) en DL y cultura de la comunidad en línea; (3) resumen y conclusiones con un enfoque particular en el uso de métodos DL en la educación superior. Método de investigación: estudio de la literatura registrada en las bases de datos ERIC, LISA, LISTA.

P a l a b r a s   c l a v e: Aprendizaje constructivista, Aprendizaje a distancia, Cursos abiertos masivos en línea, Aprendizaje basado en problemas, Aprendizaje autorregulado, Evaluación estudiantil de la enseñanza, Distancia transaccional