

## BASIC THEORIES OF ORGANIZATION AND MANAGEMENT OF DISTANCE EDUCATION

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**Abstract.** *In the context of the global Covid-19 pandemic, educational institutions of all levels had to switch to distance education. This led to significant difficulties for those heads of educational institutions whose work teams were unfamiliar with the basics of distance education and were unable to train teachers. That is why the purpose of the article is to study the basic theories of distance education. The main methods used in the article are methods of analysis of scientific papers on distance education and synthesis of theories of distance education. The main results of the study were to identify the main theories and stop their characteristics. The main theories are: Theories of autonomy and independence; Theory of industrialization; Theories of interaction and communication. Studies of the history of distance education and the evolution of theories of its organization have shown that future opportunities for distance education are limitless. Each of the considered theories proved their necessity and effectiveness in appropriate conditions. The main area that needs to be addressed in further research is related to the relationship between the quality of educational services in distance education and the cost of its organization.*

**Keywords:** distance education; theories of distance education; quality of educational services; educational institutions.

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**Introduction.** In the context of the global Covid-19 pandemic, educational institutions of all levels had to switch to distance education. This led to significant difficulties for those heads of educational institutions whose work teams were unfamiliar with the basics of distance education and were unable to train teachers.

**Literature review.** A controversial topic in higher education today revolves around the enormous growth of distance education [1, 2]. According to Mehrotra, Hollister, and McGahey [3], “distance learning, or distance education, 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”.

Interest in the concept of distance education has grabbed the attention of university and college administrators, faculty, and other professionals all over the world [4]. A myriad of questions, concerns, and opinions from professionals in these university and college settings regarding the topic of distance education has bombarded the literature base. However, with all the excitement and buzz around the potential applications of interactive computer technology, the one big question that professionals have been asking for years is, How do you ensure that distance education coursework and degrees are of high quality? [2, 6].

According to Sherry [7], “translating ideals of academic excellence into applicable terms for providers and users of distance education is not an easy task.

However in this new century, with distance education expanding worldwide, the urgency of quality assurance is apparent". The issues surrounding quality of distance education have been discussed and debated by many different parties, including: federal government, state governments, accrediting associations, faculty, and even students [2]. Regardless of who is interested in quality of this unique educational environment that distance education establishes, "all stress the need to have a better understanding of what contributes to quality" in distance education courses and programs [2].

Although there has been a recent explosion of distance education, particularly due to the new technologies available, the origin of distance education can be traced back to over 100 years ago [8, 2, 9, 10]. According to Moore (1990), distance education, referred to in Moore's writing as correspondence study, began in the late 1800's. Correspondence study was developed in Germany by two researchers named Charles Toussaint and Gustav Langenscheidt, who were both language teachers in Berlin [11]. Another pioneer of distance education is Englishman, Isaac Pitman. He taught shorthand via correspondence study in England in the 1840's [12]. The concept of correspondence study made its way to the United States in 1873, when Anna Eliot Ticknor founded a Boston-based society named The Society to Encourage Studies at Home. Within 24 years, this society had attracted approximately 10,000 students [11].

The state of New York authorized academic degrees through the Chautauqua College of Liberal Arts from 1883-1891 to students completing the required correspondence courses. Support for the new educational method is apparent in Yale Professor William Rainey's comments about correspondence study [distance education].

The student who has prepared a certain number of lessons in the correspondence school knows more of the subject treated in those lessons, and knows it better, than the student who has covered the same ground in the classroom. The day is coming when the work done by correspondence will be greater in amount than that done in the classrooms of our academies and colleges; when the student who shall recite by correspondence will far outnumber those who make oral recitations [11].

Since the early 1900's, distance education has been incorporated into the practices of many institutions, as has the traveling of faculty to meet students off campus to conduct educational instruction [13]. According to Meyer [2] in order to help alleviate the demands of travel for faculty and students, institutions began utilizing available technologies, such as audio connections (i.e. telephones), videotapes, and television, to conduct distance education efforts. These types of delivery methods and media continued to be used, as distance education began to grow as a form of education.

Beginning in the 1980's, satellite telecommunications used to transmit broadcasting of lectures and instruction to off-campus locations became a popular way to conduct distance education. From the late 1980's to the 1990's, microwave-based interactive video was utilized, and this method of educational delivery was used until land-based interactive video was developed and used in the late 1990's.

When the Internet and the World Wide Web became available, “a growing comprehension that education need not be site- or time-bound” began to develop throughout university and college settings.

As noted by Meyer [2], research conducted by the National Center for Education Statistics [14] indicated that higher education institutions offering distance education courses from Fall 1995 to academic year 1997-98 increased from 33 percent to 44 percent. Seventy-two percent of two-year public institutions and 79% of four-year institutions offered distance education courses. Within the same time period, the study reported that the number of degree or certificate programs and courses doubled from 860 to 1,520 programs and from 25,730 to 52,270 courses. Student enrollment experienced a two-fold increase, from 753,640 to 1.6 million. Additionally, Internet use increased to 60% of institutions during 1997-1998. Meyer’s [2] analysis of the study indicates that “this doubling of effort (courses and programs) and student response from 1995 to 1997-1998 is a tribute to institutional entrepreneurialism, even though at times the demand for and potential seen for Web-based distance education outpaced what higher education could currently provide”.

Another study that reveals the increase in distance education course offerings in higher education was conducted by Green, and the results of this project, entitled *The Campus Computing Project: 2001 Results in Claremont, CA*, indicated that during the time of the study, 55% of college campuses provided web-based course registration and 56% offered courses that are taught completely online. The increasing percentages of distance education offerings indicate that the support of distance education from institutions of higher education has only increased from year to year.

Support for distance education goes well beyond the university/college setting.

According to Mingle’s [16] report entitled, *New Technology Funds: Problem or Solution*, in 1996-1997, legislatures appropriated over \$370 million to technology applications in higher education. In a report by the National Education Association entitled, *Going the Distance: State Legislative Leaders Talk about Higher Education and Technology*, state legislatures indicate their support for distance education to help improve access, student learning, cost of higher education, and productivity of administration and faculty efficiency. In 1999, the National Governor’s Association published *Transforming Learning through Technology*, and in 2001, the association developed two additional reports on the use of technology in postsecondary education and in the workforce, which provided information on how governors can benefit from investing in technology applications in the educational and worksite settings (National Governor’s Association, 1999, 2001a, 2001b.). Lastly, in a U.S. Department of Education Agenda Project [18], ideas on how to improve the Higher Education Act was contemplated, and within this report, distance education was given high priority and the importance of department support in adopting the ideas surrounding distance education was emphasized. As noted by Meyer [2], “the support of the federal government has been essential in the effort to revise current regulations to remove barriers to new forms of distance education and to extend federal benefits

(i.e. student aid) to distance education students,” although this role is more constrained than the state government role.

**Aims.** The purpose of this article is to provide an extensive look into the history and theories of distance education.

**Methods.** The main methods used in the article are methods of analysis of scientific papers on distance education and synthesis of theories of distance education.

**Results.** The opening sentence in the 2003 *Handbook of Distance Education* states, “America’s approach to distance education has been pragmatic and atheoretical” [19]. In addition, Charles Wedemeyer, a theorist who has made notable contributions in the area of distance education theory, claims that distance education has yet “to develop a theory related to the mainstream of educational thought and practice” [20]. As noted by Saba [19], distance education’s roots in the United States date back to the 1800’s; however, the first scholarly journal, *The American Journal of Distance Education*, was not started until 1987, by Michael G. Moore. This journal and the symposia of the American Center for the Study of Distance Education, organized by Moore, emphasize the importance of distance education theory and recognize the contributions of research and practice in the discipline of distance education [19] (Saba, 2003).

Distance education theories, developed from leading scholars in the discipline, such as Holmberg, Wedemeyer, Moore and Peters, can be categorized into three broad groups [19, 20].

1. *Theories of autonomy and independence.* Borje Holmberg, Charles Wedemeyer, Rudolf Delling, and Michael G. Moore developed theories of distance education that placed the learner in the middle of the educational process [19, 20]. According to Saba [19], “the centrality of the learner is one of the distinguishing features of distance education, and understanding this fact is essential for discerning why it is essentially different from other forms of education”.

2. *Theory of industrialization.* Otto Peters, Desmond Keegan, Randy Garrison, and John Anderson are theorists in distance education that have developed theories that are mainly interested in how the field functions and how it is organized. Structural concerns and issues (e.g. industrialization) are the main foci of this group of theories, along with how those issues influence the teaching and learning process [19, 20].

3. *Theories of interaction and communication.* Contemporary ideas and views of Holmberg, John A. Baath, Kevin C. Smith, David Stewart, and John S. Daniel highlight the constructs of interaction and communication as important factors in distance education [20].

In order to better understand the ideas behind the development of each type of distance education theory, descriptions of several well-known theories are given in the following sections.

*Theory of Independent Study by Charles Wedemeyer.* For Wedemeyer [21] the fundamental nature of distance education is “a distinct ‘nontraditional’ type of education,” which focuses on the independence of the student learner [19, 20]. The

ideal distance education system that encompasses what Wedemeyer believed to be the essence of distance education is made up of ten characteristics. In order to emphasize independence and autonomy, the system should:

- be capable of operation any place where there are students – or even only one student – whether or not there are teachers at the same place at the same time;
- place greater responsibility for learning on the student;
- free faculty members from custodial-type duties so that more time can be given to truly educational tasks;
- offer students and adults wider choices (more opportunities) in courses, formats, methodologies;
- use, as appropriate, all the teaching media and methods that have been proved effective;
- mix and combine media and methods so that each subject or unit within a subject is taught in the best way known;
- cause the redesign and development of courses to fit into an “articulated media program”;
- preserve and enhance opportunities for adaptation to individual differences;
- evaluate student achievement simply, not be raising barriers concerned with the place, rate, method, or sequence of student study; and
- permit students to start, stop, and learn at their own pace (In Keegan, 1986, p. 63).

Additionally, Wedemeyer indicated four essential elements involved in every teaching- learning scenario: a teacher, a learner(s), communications system, and information to be taught or learned. His philosophy of successful distance education efforts included the development of a relationship between the teacher and the student [22]; however, Wedemeyer’s proposal on the separation of teaching from learning, included the following six characteristics of independent study:

- The student and teacher are separated.
- The normal processes of teaching and learning are carried out in writing or through some other medium.
- Teaching is individualized.
- Learning is made convenient for the student in his own environment.
- The learner takes responsibility for the pace of his or her own progress, with freedom to start and stop at any time [23].

*Theory of Independent Study – Michael G. Moore.* Building on the work of [24] formulated a theory that investigates two variables in distance education programs: learner autonomy and distance between learner and teacher [22]. The latter variable became known as “transactional distance”, which is used to define the unique relationship between the student learner and the teacher [19]. For Moore, two factors are the essence of ‘distance’ – two-way communication (dialog) and the level of responsiveness to the needs of the individual learner (structure) [22]. According to Saba [19], “Moore’s concept of transactional distance is important because it grounds the concept of distance in education in a social science framework and not in its usual physical science interpretation...this is a significant paradigm shift” (p. 5).

The second part to Moore’s theory involves learner autonomy; due to the

distance between the teacher and the learner, a distance education student must accept responsibility for the learning process. Moore categorizes distance education programs into two categories: (1) learner-determined or “autonomous” and (2) teacher-determined or “non-autonomous” [22]. In order to determine to degree of autonomy, Moore utilizes the following three questions:

- Is the selection of learning objectives in the program the responsibility of the learner or of the teacher (autonomy in setting of objectives)?
- Is the selection and use of resource persons, of bodies and other media, the decision of the teacher or the learner (autonomy in methods of study)?
- Are the decisions about the method of evaluation and criteria to be used made by the learner or the teacher (autonomy in evaluation)? [23].

*Theory of Industrialization – Otto Peters.* Peters (1988, 1994) theory of industrialization incorporates the idea that distance education is an industrialized method of teaching and learning, which can reach a mass audience [19, 22]. He compares distance education to the industrial production of goods, and in 1988, he introduced new terminology to be used in analyzing distance education.

- *Rationalization*: the utilization of methodical measures to decrease the amount of input of power, money, and time that is required [22]. In distance education, “ways of thinking, attitudes, and procedures can be found which only established themselves in the wake of an increased rationalization in the industrialization of production processes” [25].
- *Division of labor*: the dividing of duties or tasks into simpler subtasks [22]. With distance education, all tasks, such as conveying information, assessment and performance recording, are conducted by individuals separately. Peters (1988) stated, “the division of labor is the main prerequisite for the advantages of [distance education] to become effective”.
- *Mechanization*: without machines, distance education would not be possible [25]. “Duplicating machines and transport systems are prerequisite, and later forms of distance learning have the additional facilities of modern means of communication and electronic data processing installations” (p. 101).
- *Assembly line*: workers usually remain stable, and the objects on which they are working move past them [22]. This is similar to instruction materials in distance education, because they are “designed, printed, stored, distributed, and graded by specialists” [22].
- *Mass production*: large quantities of good production. According to Peters (1988), the demand of distance education outweighs the supply in universities and colleges; therefore, large-scale operations, which are not common with traditional classes, have become the trend. Peters claims that such operations can help to enhance quality. He stated, “the large number of courses produced forces distance teaching organizations to analyze the requirements of potential distance learners far more carefully than in conventional teaching and to improve the quality of the courses” [25].
- *Preparatory work*: this involves determining “how workers, machines and materials can usefully relate to each other during each phase of the production

process.” Peters (1988) indicated that he believes that success of distance education depend on a “preparatory phase.” “It concerns the development of the distance study course involving experts in the various specialist fields with qualifications also often higher than those of other teachers involved in distance study”.

- *Planning*: includes the “system of decisions which determines an operation prior to it being carried out.” Peters (1988) notes the high importance of planning, due to the fact that “the contents of correspondence units, from the first to the last, must be determined in detail, adjusted in relation to each other and represented in a predetermined number of correspondence units. The importance of planning is even greater when residential study is a component of a distance education program”.
- *Organization*: Peters (1988) defines this construct as “creating general or permanent arrangements for purpose-oriented activity.” He claims that “organization makes it possible for students to receive exactly predetermined documents at appointed times, for an appropriate university teacher to be immediately available for each assignment sent in” (p. 105). The concept of organization is “optimized in large distance education programs” [22].
- *Scientific control methods*: Peters (1988) indicates that these are the methods by which “work processes are analyzed systematically, particularly by time studies, and in accordance with the results obtained from measurements and empirical data the work processes are tested and controlled in their elementary details in a planned way, in order to increase productivity, all the time making the best possible use of working time and the staff available”.
- *Formalization*: In order to have successful distance education, the phases of the manufacturing process must be predetermined exactly, and this is termed formalization [22, 25].
- *Standardization*: restricts the “number of types of one product, in order to make these more suitable for their purpose, cheaper to produce and easier to replace.” A characteristic of distance education is that “not only is the format of the correspondence units standardized, [so is] the stationery for written communication between student and lecturer, and the organizational support, as well as each single phase of the teaching process, but also the academic contents”.
- *Change of function*: changing of the roles of workers within the production process (Hanson et al, 1997). “The original role of provider of knowledge in the form of the lecturer is split into that of study unit author and that of marker; the role of counselor is allocated to a particular person or position. Frequently, the original role of lecturer is reduced to that of a consultant whose involvement in distance teaching manifests itself in periodically recurrent contributions”.
- *Objectification*: the decrease of the “subjective element which used to determine” the work of craftsmen (p. 108). According to Peters (1988), in distance education, “most teaching functions are objectified as they are determined by the distance study courses as well as technical means. Only in written communication with the distance learner or possibly in a consultation or the brief additional face-to-face

event on campus has the teacher some individual scope left for subjectively determined variants in teaching method”.

- *Concentration and centralization*: Due to the large amount of capital needed for large-scale productions, the trend has been to established “large industrial concerns with a concentration of capital, a frequently centralized administration, and a market that is not seldom monopolized”. According to Hanson and colleagues (1997), “it is more economical to establish a small number of such institutions serving a national population, rather than a larger number of institutions serving regional populations.

Peters’ theory of industrialization has received much attention, and according to Saba (2003), “industrialization has been a feature of distance education for many years...in fact, it is hard to imagine distance education without some elements of industrialization” (p. 5). However, with the development and use of the Internet in the recent years, a potential for a “postindustrial form of education” has led to criticisms of the theory of industrialization [21].

Garrison and Anderson [26], built their research around the distinction between the role of what Daniel’s [27] research terms the “mega university” and research universities. This research also draws on “Schramm’s [28], distinction between ‘big media’ and ‘little media’” [19]. Garrison and Anderson [26], “argued that, whereas mega universities might rely on big media to respond to a mass audience, research universities might rely on little media to offer a seemingly postindustrial form of education, or ‘little distance education’ (LDE)” [19].

Due to the emergence of a postmodern era in the area of distance education, Peters changed his definition of distance education from...

A rationalized method – involving the division of labor – of providing knowledge which, as a result of applying the principles of industrial organization as well as the extensive use of technology, thus facilitating the reproduction of objective teaching activity in any numbers, allows a large number of students to participate in university study simultaneously, regardless of their place of residence and occupation [25, 19] ...to the following extended definition of distance education, which acknowledges the postindustrial era:

Distance education can be defined as a complex, hierarchical, nonlinear, dynamic, self-organized, and purposeful system of learning and teaching [19].

*Theory of Interaction and Communication – Borje Holmberg*. In 1986, Holmberg developed a theory of distance education that fits into the classification of a communication theory. The following are seven background assumptions for this theory:

- The core of teaching is interaction between the teaching and learning parties; it is assumed that simulated interaction through subject-matter presentation in pre-produced courses can take over part of the interaction by causing students to consider different views, approaches and solutions to generally interact with a course.
- Emotional involvement in the study and feelings of personal relation between the teaching and learning parties are likely to contribute to learning pleasure.



- Learning pleasure supports student motivation.
- Participation in decision-making concerning the study is favorable to student motivation.
- Strong student motivation facilitates learning.
- A friendly, personal tone and easy access to the subject matter contribute to learning pleasure, support student motivation and thus facilitate learning from the presentations of pre-produced courses, i.e. from teaching in the form of one-way traffic simulating interaction, as well as from didactic communication in the form of two-way traffic between the teaching and learning parties.
- The effectiveness of teaching is demonstrated by students' learning of what has been taught [29].

In 1986, Holmberg formed his “normative teaching theory” from the above assumptions: Distance teaching will support student motivation, promote learning pleasure and make the study relevant to the individual learner and his/her needs, creating feelings of rapport between the learner and the distance – education institution (its tutors, counselors, etc.), facilitating access to course content, engaging the learner the activities, discussions and decisions and generally catering for helpful real and simulated communication to and from the learner [29].

In 1995, Holmberg developed an expanded and more comprehensive theory of distance education, and it is divided into eight different parts. This new theory incorporates concepts, such as the idea of the centralized learner, student freedoms and independence, the concept of free access to learning opportunities and equity, mediated communication and deep learning, personal relationships, study pleasure and empathy between students and instructors, and the idea of serving conceptual learning and problem learning [30]. The new theory also emphasizes that “distance education is open to behaviorist, cognitive, constructivist, and other modes of learning” [30]. For a more in-depth look at the eight divisions of Holmberg's new theory, refer to Holmberg's document, entitled *The Sphere of Distance –Education Theory Revisited* (1995).

**Discussion.** A discussion of the earlier studies conducted in the area of distance education is important in article for two reasons:

- 1) to obtain a better understanding of the history of distance education and
- 2) to provide criticisms of the research that may eventually lead to future studies, as the field strives for high quality distance education practice and research.

As noted by Meyer [2], one of the most quoted and perhaps most misunderstood research study conducted in the field of distance education was by Russell [31]. In this comprehensive study, Russell reviewed 355 studies on distance education from the year 1928 to 1998. A majority of the studies in Russell's work compared instruction via some type of distance education technology (i.e. videotape, interactive video, telecourses, and television) to traditional, on-campus courses. The student measures that were compared consisted of test scores, grades, student satisfaction, and/or other measures that were specific to a certain study in the review. The results were overwhelming consistent; statistical tests indicated “no significant differences” between the distance education groups and the traditional, on-campus groups [2]. As

noted by Meyer [2], the important finding from Russell's work is that regardless of what technology was utilized, the results were the same – “no significant difference in student achievement”. Therefore, from these results, Russell indicated, “there is nothing inherent in the technologies that elicit improvements in learning,” however, “the process of redesigning a course to adapt the content to the technology” can help to enhance the course outcomes [31]. Meyer [2] re-emphasized these findings by stating, “learning is not caused by the technology but by the instructional method ‘embedded in the media’” (p. 14). Finally, Russell [31] concludes, “No matter how it is produced, how it is delivered, whether or not it is interactive, low-tech or high-tech, students learn equally well”. The same “no significant difference” results were found in two studies conducted by Saba [19, 21], when data gathered from hundreds of comparative studies between traditional classroom instruction and mediated education were analyzed [19]; however, as mentioned earlier, Saba questioned the research designs and foundational theories (or lack thereof) of these comparison studies [21].

In an extensive review of original comparison studies conducted by Meyer (2002), she indicates her surprise in the number of comparison studies, similar in experimental design as the studies reviewed by Russell [31] that have been conducted, even after Russell's work implied the need for additional research. The studies of Bourne, McMaster, Rieger, and Campbell [32], Davies and Mendenhall [33], Dominguez and Ridley [34], Gagne and Shepherd [35], Hahn and colleagues [36], Johnson [37], McNeil and others [38], Miller [39], Mulligan and Geary [40], Ryan [41], Schulman and Sims [42], Sener and Stover [43], Serban [44], Wegner, Holloway and Garton [45], and Wideman and Owston [46] compare distance education delivery methods to traditional forms of educational delivery only to find that there is “no significant difference” in student achievement (Meyer, 2002).

However, Meyer's analysis does indicate that “several [studies] found differences in completion or student satisfaction,” although no differences were found in final grades or exams [2].

In a study conducted by Schutte [47], online students were compared to face-to-face students in terms of the number of points earned for the course; results indicated that online students earned more points (out of 200) than the on-campus students. In Benbunan-Fich's, Hiltz's, and Turoff's [48] study on the differences in face-to-face and asynchronous distance education learning groups, the asynchronous group carried out broader discussion and submitted reports that were more complete than the face-to-face groups; however, the face-to-face group worked through case study problems more sequentially. Another study conducted in 2000 by Hartman, Dziuban, and Moskal, compared asynchronous learning networks (ALN) to traditional courses, and the results indicated that ALN courses had lower withdrawal rates and higher rates of success.

Hiltz's 1997 study on ALN's indicated that students within the ALN tended to procrastinate, which could be related to any number of factors (i.e. asynchronous design, quality of student, proactive actions and behaviors of faculty and student); however, the results also showed that the ALN students felt they had worked harder

in the course, had better access to their professor, and were appreciative of the convenience of learning from a distance [48].

Other comparative studies include Sener [49] and Neuhauser [50], which also compared asynchronous distance education courses to face-to-face courses. Sener [49] found that community college students who participated in ALNs had improved student success rates and high student satisfaction rates. The comparison of two sections of the same course, one taught on-campus and the other via asynchronous distance education methods, by Neuhauser [50] resulted in no significant differences of the two courses in tests scores, assignments, and final grades; however, the online group's overall averages were slightly better than the on-campus group's averages.

In a meta-analysis of 24 studies comparing student satisfaction of distance education courses versus on-campus, traditional courses, Allen, Bourhis, Burrell, and Mabry [51] conclude that there is a slight preference of students to take courses delivered in a traditional method over distance education; however, the findings also support that students are equally as satisfied with instruction via distance education as with traditional course delivery. As evident by the research presented, a majority of the research studies conducted on comparing traditional courses to distance education courses result in similar findings. With that being said, it is also important to note that there are many criticisms of the comparative research studies conducted in this area [2]. A discussion of these criticisms will help dissect where the field of distance education has been thus far, in terms of research and practice, and where the field needs to go in the future.

**Conclusions.** Studies of the history of distance education and the evolution of theories of its organization have shown that future opportunities for distance education are limitless. Each of the considered theories proved their necessity and effectiveness in appropriate conditions. The main area that needs to be addressed in further research is related to the relationship between the quality of educational services in distance education and the cost of its organization.

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