Most students and many teachers cringe at the thought of a discussion of theory. This need not be the case. This section is designed not to intimidate or to bore, but to inform. Theory is important to the study of distance education because it has a direct impact on the practice of the field. Traditionally, theories of distance education have come from sources external to America. Recently the field in the United States has matured to the point where indigenous definitions and theories have begun to emerge.

The Need for Theory
Although forms of distance education have been in existence since the 1840s and attempts at theoretical explanations of distance education had been undertaken by leading scholars in the field, the need for a theory base of distance education was still largely unfulfilled in the 1970s. Holmberg (1986) stated that further theoretical considerations would contribute results that will give distance educators a firmly based theory, a touchstone against which decisions can be made with confidence. In 1985, Holmberg continued to recognize the need for theoretical considerations:

One consequence of such understanding and explanation will be that hypotheses can be developed and submitted to falsification attempts. This will lead to insights telling us what in distance education is to be expected under what conditions and circumstances, thus paving the way for corroborated practical methodological application. (p. 3)

Moore (1994) was concerned that the progress of distance education would be hindered by the lack of attention to what he called the “macro factors.” He indicated that in this area of education there was a need to describe and define the field, to
discriminate between the various components of the field, and to identify the critical elements of the various forms of learning and teaching.

Keegan (1988) implied the continued need for a theory of distance education when he lamented the lack of it:

Lack of accepted theory has weakened distance education: there has been a lack of identity, a sense of belonging to the periphery, and the lack of a touchstone against which decisions on methods, on media, on financing, on student support, when they have to be made, can be made with confidence. (p. 63)

More recently, Keegan stated his ideas about what the theory should encompass: According to Keegan (1988), a firmly based theory of distance education will be one that can provide the touchstone against which decisions—political, financial, educational, social—when they have to be taken, can be taken with confidence. This would replace the ad hoc response to a set of conditions that arise in some “crisis” situation of problem solving, which normally characterizes this field of education.

In a general sense, theory is taken to mean a set of hypotheses logically related to one another in explaining and predicting occurrences. Holmberg (1985) stated that

the aim of the theoretician is to find explanatory theories; that is to say, the theories that describe certain structural properties of the world, and which permit us to deduce, with the help of initial conditions, the effects to be explained. . . . Theoretical, to bring explanation, on the other hand practical, to provide for application or technology. (p. 5)

Keegan added (1995):

A theory is something that eventually can be reduced to a phrase, a sentence, or a paragraph and which, while sub-
suming all the practical research, gives the foundation on which the structures of need, purpose, and administration can be erected. (p. 20)

In 1995 Holmberg gave a more specific definition of the concept of theory. He stated that a theory means a systematic ordering of ideas about the phenomenon of our field of inquiry and an overarching logical structure of reasoned suppositions which can generate intersubjectively testable hypotheses. (p. 4) Holmberg suggested that distance education has been characterized by a trial and error approach with little consideration being given to a theoretical basis for decision-making. He suggested that the theoretical underpinnings of distance education are fragile. Most efforts in this field have been practical or mechanical and have concentrated on the logistics of the enterprise.

To some, distance education represents a deviation from conventional education. Holmberg claimed it was a distinct form of education. Keegan (1986) concluded that distance education is a distinct field of education, parallel to and a complement of conventional education. Shale (1988) countered that all of what constitutes the process of education when teacher and student are able to meet face-to-face also constitutes the process of education when the teacher and student are physically separated.

Cropley and Kahl (1983) compared and contrasted distance education and face-to-face education in terms of psychological dimensions and claimed neither set of principles emerged in a pure form. Peters (1988) strongly stated:

Anyone professionally involved in education is compelled to presume the existence of two forms of instruction which are strictly separable: traditional face-to-face teaching based on interpersonal communication and industrialized teaching, which is based on objectivized, rationalized technologically-produced interaction. (p. 20)
In his landmark work, *The Foundations of Distance Education*, Keegan (1986) classified theories of distance education into three groups:

- Theories of independence and autonomy
- Theories of industrialization of teaching
- Theories of interaction and communication

A fourth category seeks an explanation of distance education in a synthesis of existing theories of communication and diffusion, as well as philosophies of education.

**Theory of Independent Study—Charles Wedemeyer**

*Simonson, 2003*

For Wedemeyer, the essence of distance education was the independence of the student. This was reflected in his preference for the term *independent study* for distance education at the college or university level. Wedemeyer was critical of contemporary patterns of higher education. He believed that outdated concepts of learning and teaching were being employed and that they failed to utilize modern technologies in ways that could alter the institution.

Wedemeyer set forth a system with 10 characteristics emphasizing learner independence and adoption of technology as a way to implement that independence. According to Wedemeyer, the system should:

1. 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
2. Place greater responsibility for learning on the student
3. Free faculty members from custodial-type duties so that more time can be given to truly educational tasks

*Distance Education*
4. Offer students and adults wider choices (more opportunities) in courses, formats, and methodologies

5. Use, as appropriate, all the teaching media and methods that have been proved effective

6. Mix media and methods so that each subject or unit within a subject is taught in the best way known

7. Cause the redesign and development of courses to fit into an “articulated media program”

8. Preserve and enhance opportunities for adaptation to individual differences

9. Evaluate student achievement simply, not by raising barriers concerned with the place, rate, method, or sequence of student study

10. Permit students to start, stop, and learn at their own paces

Wedemeyer proposed the separation of teaching from learning as a way of breaking education’s “space-time barriers.” He suggested six characteristics of independent study systems:

1. The student and teacher are separated.

2. The normal processes of teaching and learning are carried out in writing or through some other medium.

3. Teaching is individualized.

4. Learning takes place through the student’s activity.

5. Learning is made convenient for the student in his or her own environment.

6. The learner takes responsibility for the pace of his or her own progress, with freedom to start and stop at any time.
Wedemeyer noted four elements of every teaching-learning situation: a teacher, a learner or learners, a communications system or mode, and something to be taught or learned. He proposed a reorganization of these elements that would accommodate physical space and allow greater learner freedom. Key to the success of distance education, Wedemeyer believed, was the development of the relationship between student and teacher.

Formulated in the early 1970s, Moore’s theory of distance education, which he calls “independent study,” is a classification method for distance education programs. Shaped in part by Moore’s adult education and university extension experience, it examines two variables in educational programs: the amount of learner autonomy and the distance between teacher and learner.

For Moore, distance is composed of two measurable elements. First is the provision for two-way communication (dialogue). Some systems or programs offer greater amounts of two-way communication than others. Second is the extent to which a program is responsive to the needs of the individual learner (structure). Some programs are very structured, while others are very responsive to the needs and goals of the individual student.

In the second part of his theory, Moore addresses learner autonomy. He notes that in traditional school settings learners are quite dependent on teachers for guidance; and that in most programs, conventional and distance, the teacher is active, while the student is passive.

In distance education, there is a gap between teacher and student, so the student must accept a high degree of responsibility for the conduct of the learning program. The autonomous learner needs little help from the teacher, who may be more of a respondent than a director. Some adult learners, however, require help in formulating their learning objectives, in identifying sources of information, and in measuring objectives.
Moore classifies distance education programs as “autonomous” (learner-determined) or “nonautonomous” (teacher-determined), and gauges the degree of autonomy accorded the learner by answers to the following three questions:

1. Is the selection of learning objectives in the program the responsibility of the learner or of the teacher (autonomy in setting of objectives)?

2. 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)?

3. Are the decisions about the method of evaluation and criteria to be used made by the learner or by the teacher (autonomy in evaluation)?


In a major treatise on education, Otto Peters of Germany developed a view of distance education as an industrialized form of teaching and learning. He examined a research base that included an extensive analysis of the distance teaching organizations of the 1960s. This led him to propose that distance education could be analyzed by comparing it with the industrial production of goods. He stated that, from many points of view, conventional, oral, group-based education was a preindustrial form of education. His statement implied that distance teaching could not have existed before the industrial era. Using economic and industrial theory, Peters proposed the following new categories (terminology) for the analysis of distance education.

**Rationalization.** The use of methodical measures to reduce the required amount of input of power, time, and money. 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.
**Division of labor.** The division of a task into simpler components or subtasks. In distance education, separate individuals perform the tasks of conveying information, counseling, assessment, and recording performance. To Peters, the division of labor is the main prerequisite for the advantages of distance education to become effective.

**Mechanization.** The use of machines in a work process. Distance education, Peters noted, would be impossible without machines. Duplicating machines and transport systems are prerequisites; later forms of distance teaching have the additional facilities of modern means of communication and electronic data processing installations.

**Assembly line.** Commonly, a method of work in which workers remain stationary while objects they are working on move past them. In traditional distance education programs, materials for both teacher and student are not the product of an individual. Rather, instructional materials are designed, printed, stored, distributed, and graded by specialists.

**Mass production.** The production of goods in large quantities. Peters noted that because demand outstrips supply at colleges and universities, there has been a trend toward large-scale operations not entirely consistent with traditional forms of academic teaching. Mass production of distance education courses, however, can enhance quality. Peters believed that the large number of courses produced forced 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.

**Preparatory work.** Determining how workers, machines, and materials can usefully relate to each other during each phase of the production process. Peters believed that the success of distance education depended decisively on a preparatory phase. The preparatory phase concerns the development of the distance study course involving experts in the various specialist
fields with qualifications often higher than those of other teachers involved in distance study.

**Planning.** The system of decisions that determines an operation before it is carried out. Peters noted that planning was important in the development phase of distance education, as 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.** Creating general or permanent arrangements for purpose-oriented activity. Peters noted the relationship between rational organization and effectiveness of the teaching method. 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, and for consultations to take place at fixed locations at fixed times. Organization, Peters pointed out, was optimized in large distance education programs.

**Scientific control methods.** 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, at the same time making the best possible use of working time and available staff. In distance education, some institutions hire experts to apply techniques of scientific analysis to the evaluation of courses.

**Formalization.** The predetermination of the phases of the manufacturing process. In distance education, all the points in the cycle must be determined exactly, from student to distance teaching establishment to the academics allocated.

**Standardization.** The limitations of manufacture to a restricted number of types of one product, in order to make products
more suitable for their purpose, cheaper to produce, and easier
to replace. In distance education, not only is the format of cor-
respondence units standardized, so is the stationery for written
communication between student and lecturer, the organization-
al support, and the academic content.

**Change of function.** The change of the role or job of the work-
er in the production process. In distance education, change of
function is evident in the role of the lecturer. 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 coun-
selor 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 peri-
odically recurrent contributions.

**Objectification.** The loss, in the production process, of the sub-
jective element that was used to determine work to a consider-
able degree. In distance education, most teaching functions are
objectified as they are determined by the distance study course
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 events on campus has the teacher
some individual scope left for subjectively determined variants
in teaching method.

**Concentration and centralization.** Because of the large
amounts of capital required for mass production and the divi-
sion of labor, there has been a trend to large industrial concerns
with a concentration of capital, a centralized administration,
and a market that is monopolized. Peters noted the trend
toward distance education institutions serving very large num-
bers of students. The Open University of the United Kingdom,
for instance, recently had more than 70,000 students. 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 concluded that for distance teaching to become effective, the principle of the division of labor is a constituent element of distance teaching. The teaching process in his theory of industrialization is gradually restructured through increasing mechanization and automation. He stated that:

- The development of distance study courses is just as important as the preparatory work taking place prior to the production process.
- The effectiveness of the teaching process is particularly dependent on planning and organization.
- Courses must be formalized and expectations from students standardized.
- The teaching process is largely objectified.
- The function of academics teaching at a distance has changed considerably vis-à-vis university teachers in conventional teaching.
- Distance study can only be economical with a concentration of the available resources and a centralized administration.

According to Peters, within the complex overall distance teaching activity, one area has been exposed to investigation that had been regularly omitted from traditional analysis. New concepts were used to describe new facts that merit attention. He did not deny that there were disadvantages to a theory of the industrialization of teaching; but in any exploration of teaching, the industrial structures characteristic of distance teaching need to be taken into account in decision-making.


Holmberg’s theory of distance education, which he calls “guided didactic conversation,” falls into the general category of
communication theory. Holmberg noted that his theory had explanatory value in relating teaching effectiveness to the impact of feelings of belonging and cooperation as well as to the actual exchange of questions, answers, and arguments in mediated communication.

Holmberg offers seven background assumptions for his theory:

1. The core of teaching is interaction between the teaching and learning parties; it is assumed that simulated interaction through subject matter presentation in preproduced courses can take over part of the interaction by causing students to consider different views, approaches, and solutions and to generally interact with a course.

2. Emotional involvement in the study and feelings of personal relationship between the teaching and learning parties is likely to contribute to learning pleasure.

3. Learning pleasure supports student motivation.

4. Participation in decision-making concerning the study is favorable to student motivation.

5. Strong student motivation facilitates learning.

6. 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 preproduced 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).

7. The effectiveness of teaching is demonstrated by students’ learning of what has been taught.
These assumptions, Holmberg believes, are the basis of the essential teaching principles of distance education. From these assumptions he formed his theory:

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 in activities, discussions, and decisions, and generally [promoting] helpful real and simulated communication to and from the learner.

Holmberg himself notes that this is admittedly a leaky theory. However, he adds, it is not devoid of explanatory power. It does, in fact, indicate essential characteristics of effective distance education.

In 1995 Holmberg significantly broadened his theory of distance education. This expanded theory encompasses the theory just stated above, and stated that:

1. Distance education serves individual learners who cannot or do not want to make use of face-to-face teaching. These learners are very heterogeneous.

2. Distance education means learners no longer have to be bound by decisions made by others about place of study; division of the year into study terms; and vacations, timetables, and entry requirements.

3. Distance education thus promotes students’ freedom of choice and independence.

4. Society benefits from distance education, on the one hand, from the liberal study opportunities it affords individual learners, and, on the other hand, from the professional/occupational training it provides.
5. Distance education is an instrument for recurrent and lifelong learning and for free access to learning opportunities and equity.

6. All learning concerned with the acquisition of cognitive knowledge and cognitive skills as well as affective learning and some psychomotor learning are effectively provided for by distance education. Distance education may inspire metacognitive approaches.

7. Distance education is based on deep learning as an individual activity. Learning is guided and supported by noncontiguous means. Teaching and learning rely on mediated communication, usually based on preproduced courses.

8. Distance education is open to behaviorist, cognitive, constructivist, and other modes of learning. It has an element of industrialization with division of labor, use of mechanical devices, electronic data processing, and mass communication, usually based on preproduced courses.

9. Personal relations, study pleasure, and empathy between students and those supporting them (tutors, counselors, etc.) are central to learning in distance education. Feelings of empathy and belonging promote students’ motivation to learn and influence the learning favorably. Such feelings are conveyed by students being engaged in decision-making; by lucid, problem-oriented conversation-like presentations of learning matter that may be anchored in existing knowledge; by friendly, noncontiguous interaction between students and tutors, counselors, and other support persons; and by liberal organizational-administrative structures and processes.

Holmberg (1995) implied that while it is an effective mode of training, distance education runs the risk of leading to mere fact learning and reproduction of accepted “truths.” However, it can be organized and carried out in such a way that students are encouraged to search, criticize, and identify positions of
their own. Distance education thus serves conceptual learning, problem solving, and genuinely academic ends.

In sum, Holmberg’s approach represents, on the one hand, a description of distance education and, on the other hand, a theory from which hypotheses are generated and which has explanatory power in that it identifies a general approach favorable to learning and to the teaching efforts conducive to learning.

**Andragogy—Malcolm Knowles (1990)**

Most educators now consider Knowles work to be a theory of distance education. It is relevant because most often adults are involved in distance education, and andragogy deals with frameworks for programs designed for the adult learner. At its core is the idea that “the attainment of adulthood is concomitant on adults’ coming to perceive themselves as self-directing individuals” (Brookfield, 1986).

Knowles spent a career formulating a theory of adult learning based on research and experience related to the characteristics of the adult learner (Knowles, 1990). The andragogical process consists of seven elements.

1. The establishment of a climate conducive to adult learning. This includes a physical environment that is conducive to the physical well being of the adult learner and a psychological environment that provides for a feeling of mutual respect, collaborativeness, trust, openness, and authenticity.

2. The creation of an organizational structure for participatory learning that includes planning groups where learners provide input about what is to be learned and options regarding learning activities.

3. The diagnosis of needs for learning that includes differentiating between felt needs and ascribed needs.
4. The formulation of directions for learning that includes objectives with terminal behaviors to be achieved and directions for improvement of abilities.

5. The development of a design for activities that clarifies resources and strategies to accomplish objectives.

6. The development of a plan that provides evidence when objectives are accomplished.

7. The use of quantitative and qualitative evaluation that provides a rediagnosis of needs for learning.

Knowles’ andragogy suggests a number of characteristics needed in successful distance education systems designed for adults. For example:

- The physical environment of a television classroom used by adults. Students should be able to see what is occurring, not just to hear it.

- The physiological environment should be one that promotes respect and dignity for the adult learner.

- Adults learners must feel supported; and when criticism is a part of discussions or presentations made by adults, it is important that clear ground rules be established so that comments are not directed toward a person, but toward content and ideas.

- A starting point for a course or module of a course should be the needs and interests of the adult learner.

- Course plans should include clear course descriptions, learning objectives, resources, and timelines for events.

- General to specific patterns of content presentation are most effective for adult learners.
• Active student participation should be encouraged, such as by the use of work groups or study teams.

A Synthesis of Existing Theories—Hilary Perraton (1988)
Perraton’s theory of distance education is composed of elements from existing theories of communication and diffusion as well as philosophies of education. It is expressed in the form of 14 statements or hypotheses. The first five of these statements concern the way distance teaching can be used to maximize education:

1. You can use any medium to teach anything.

2. Distance teaching can break the integuments of fixed staffing ratios that limited the expansion of education when teacher and student had to be in the same place at the same time.

3. There are circumstances under which distance teaching can be cheaper than orthodox education, whether measured in terms of audience reached or of learning.

4. The economies achievable by distance education are functions of the level of education, size of audience, choice of media, and sophistication of production.

5. Distance teaching can reach audiences who would not be reached by ordinary means.

The following four statements address the need to increase dialogue:

6. It is possible to organize distance teaching in such a way that there is dialogue.

7. Where a tutor meets distance students face-to-face, the tutor’s role is changed from that of a communicator of information to that of a facilitator of learning.
8. Group discussion is an effective method of learning when
distance teaching is used to bring relevant information to
the group.

9. In most communities there are resources that can be used to
support distance learning to its educational and economic
advantage.

The final five statements deal with method:

10. A multimedia program is likely to be more effective than
one that relies on a single medium.

11. A systems approach is helpful in planning distance educa-
tion.

12. Feedback is a necessary part of a distance learning system.

13. To be effective, distance-teaching materials should ensure
that students undertake frequent and regular activities over
and above reading, watching, or listening.

14. In choosing between media, the key decision on which the
rest depend concerns the use of face-to-face learning.

Equivalency Theory—An Emerging American Theory of
Distance Education
The impact of new technologies on distance education is far
ranging. Desmond Keegan (1995) suggests that electronically
linking instructor and students at various locations creates a
virtual classroom. Keegan goes on to state that:

The theoretical analyses of virtual education, however, have
not yet been addressed by the literature: Is it a subset of
distance education or to be regarded as a separate field of
educational endeavor? What are its didactic structures?
What is the relationship of its cost effectiveness and of its
educational effectiveness to distance education and to con-
ventional education? (p. 21)
It is from this environment of virtual education that the equivalency theory of distance education has emerged. Some advocates of distance education have mistakenly tried to provide identical instructional situations for all students, no matter when or where they learn. Since it is more difficult to control the situations of distant learners, some have decided that all learners should participate as distant learners. This is based on the belief that learners should have identical opportunities to learn. This is a mistake. Simonson (2003) theorizes that for distance education to be successful in the United States, its appropriate application should be based on the belief that:

the more equivalent the learning experiences of distant students are to that of local students, the more equivalent will be the outcomes of the learning experience.

In other words, each learner might use different instructional strategies, varying instructional resources, or individually prescribed activities. If the distance education course is effectively designed and equivalent experiences are available, then potentially learners will reach the course’s instructional objectives.

Simonson (1995) in elaborating on this theory states:

It should not be necessary for any group of learners to compensate for different, possibly lesser, instructional experiences. Thus, those developing distance educational systems should strive to make equivalent the learning experiences of all students, no matter how they are linked, to the resources or instruction they require.

One key to this theoretical approach is the concept of equivalency. Local and distant learners have fundamentally different environments in which they learn. It is the responsibility of the distance educator to design learning events that provide experiences with equal value for learners. Just as a triangle and a square may have the same area and be considered equivalent even though they are quite different geometrical shapes, the experiences of the local learner and the distant learner should
have equivalent value even though their experiences might be quite different.

Another key to this approach is the concept of the learning experience. A learning experience is anything that promotes learning, including what is observed, felt, heard, or done. It is likely that different students in various locations, learning at different times, with different backgrounds may require a different mix of learning experiences. Some will need a greater amount of observing, and others a larger dosage of doing. The goal of instructional planning is to make the sum of experiences for each learner equivalent. Instructional design procedures should attempt to anticipate and provide the collection of experiences that will be most suitable for each student or group of students.

This approach is supported by Shale (1988), who argued that distance education is not a distinct field of education. He states that the process of education when students and teacher are face-to-face is the same as when students and teachers are at a distance.

A Theoretical Framework for Distance Education—Desmond Keegan
Keegan (1986) suggested that the theoretician had to answer three questions before developing a theory of distance education:

- Is distance education an educational activity? Keegan’s answer was that, while distance education institutions possess some of the characteristics of businesses, rather than those of traditional schools, their educational activities are dominant. Distance education is a more industrialized form of education. The theoretical bases for distance education, Keegan pointed out, were within general education theory.

- Is distance education a form of conventional education? Keegan believed that, because distance education was not based on interpersonal communication and is characterized by a pri-
vatization of institutionalized learning (as is conventional education), it is a distinct form of education. Therefore, while the theoretical basis for distance education could be found within general education theory, it could not be found within the theoretical structures of oral, group-based education.

However, Keegan considered virtual systems based on teaching face-to-face at a distance a new cognate field of study to distance education. He believes that a theoretical analysis of virtual education still needs to be addressed.

- Is distance education possible, or is it a contradiction in terms?

Keegan points out that if education requires intersubjectivity—a shared experience in which teacher and learner are united by a common zeal—then distance education is a contradiction in terms. Distance instruction is possible, but distance education is not.

Again, the advent of virtual systems used in distance education challenges the traditional answer to this question.

Central to Keegan’s (1986) concept of distance education is the separation of the teaching acts in time and/or place from the learning acts. Successful distance education, he believes, requires the reintegration of the two acts of teaching and learning.

The intersubjectivity of teacher and learner, in which learning from teaching occurs, has to be artificially recreated. Over space and time, a distance system seeks to reconstruct the moment in which the teaching-learning interaction occurs. The linking of learning materials to learning is central to this process.

Reintegration of the act of teaching at a distance is attempted in two ways. First, learning materials, both print and nonprint, are designed to achieve as many of the characteristics of interpersonal communication as possible. Second, when courses are presented, reintegration of the teaching act is attempted by a
variety of techniques, including communication by correspondence, telephone tutorial, on-line computer communication, comments on assignments by tutors or computers, and teleconferences.

The process of reintegrating the act of teaching in distance education, Keegan suggests, results in at least five changes to the normal structure of oral, group-based education:

1. The industrialization of teaching
2. The privatization of institutional learning
3. Change of administrative structure
4. Different plant and buildings
5. Change of costing structures

Keegan (1986) offers three hypotheses drawn from his theoretical framework:

1. Distance students have a tendency to drop out of those institutions in which structures for the reintegration of the teaching acts are not satisfactorily achieved.

2. Distance students have difficulty in achieving quality of learning in those institutions in which structures for the reintegration of the teaching acts are not satisfactorily achieved.

3. The status of learning at a distance may be questioned in those institutions in which the reintegration of the teaching acts is not satisfactorily achieved.