An Introduction to Education

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Edited by

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FOREWORD

The book "An Introduction to Education" is a set of strategies and materials in education, developed to assist teachers in guiding their classroom and students in understanding fundamental subjects of teaching. Introduction to education means to ensure the highest levels of academic achievement for all students and it helps students develop a positive self-concept by providing knowledge about various dimensions of teaching. Introduction to Education which includes the contributions of academics and researchers aims to provide highest academic achievement in teacher education. The book concludes eight chapters: Fundamental Concepts of Education, Teachers and Teaching, Social Foundation of Education, Philosophy and Educational Philosophy, Psychology and Educational Psychology, Foundation of Educational Politics, Comparative Educational Systems, and Sociocultural Perspectives: An Opportunity To Understand Science Education in a Different Dimension.

The first chapter is dedicated to **the Fundamental Concepts of Education**. Hasan ARSLAN underlines the concepts of education in teacher education. The author gives theoretical perspectives and descriptions in education and states that education is a process that begins at birth and continues till the end of life. The early stage of life is very crucial since this period affects the following process. However, we are not able to totally control the early stage because children remain under the care of their families until they begin attending school. Even if children study in schools, many factors such as friends in and out of the school affect their educational process.

The second chapter deals with **Teachers and Teaching**. Alina Andreea DRAGOESCU focuses on all aspects related to learning and puts forward a critical enquiry regarding what confers value upon the educational experience. The discussion emphasises language learning, as well as the basic factors which affect learning in general – learner motivation, language acquisition, and other processes related to cognition – from the standpoint of cognitive learning theories.

The third chapter examines **Social Foundation of Education.** In this chapter, Mehmeet Ali ICBAY first defines the two disciplines, education and sociology, and then talks about what research the sociology of education does. After that, he presents a brief history of the theoretical

framework. Starting with the classical works by Durkheim and Weber in the sociology of education, the chapter continues with the three turning points after the Second World War.

The fourth chapter is dedicated to **Philosophy and Educational Philosophy: Theoretical-Practical Considerations.** Tomas BUTVILAS, Eva KRÁLOVÁ and Kęstutis TRAKŠELYS present theoretical and application. In the theoretical part, the authors mainly focus on existing philosophical schools of education while presenting six approaches that are still in use all over the world in classrooms in schools and auditoriums at higher education institutions. On the other hand, the presented educational philosophies give some basis for describing real educational activities with children and adults in both country cases.

Another chapter on **Psychology and Educational Psychology** by Mirela SAMFIRA argues why is psychology important in the field of education? While the question is a simple one, the answer is much more complex. Information in the field of psychology is extremely important in almost all human fields where humans exist. The goal of this chapter is not to debate the role and importance of psychology in humans' life, but to emphasise its applications in the field of education.

The sixth chapter draws attention on **Foundation of Educational Politics.** Ferda BEYTEKİN provides a historical, philosophical, political, and sociological reflection on the relationship connecting education with sociology, culture, anthropology, politics, and economics. Education policy refers to the collection of laws and rules that govern the operation of education systems.

The seventh chapter focuses on **Comparative Educational Systems.** Sari HOSOYA states that an educational system is political to some extent. When the objectives of education behind the educational system are suitable for the social environment and the needs of the people, the system functions quite well. On the other hand, if it does not match the needs, it does not work effectively. The government is required to balance the aims of the educational system and the needs of the people thoughtfully.

The last chapter is written by S. L. Ramos-de ROBLES and A. J. Gallard MARTÍNEZ. The authors draw attention on **Sociocultural Perspectives: An Opportunity To Understand Science Education In A Different Dimension.** The authors suggest that in the science education community in terms of ranking of importance, research into the social and cultural aspects of teaching and learning is second to the cognitivist who seems to mainly use positivism as a way make sense of data.

Hasan ARSLAN

CHAPTER ONE

FUNDAMENTAL CONCEPTS OF EDUCATION

HASAN ARSLAN

Education is a process that begins at birth and continues until the end of life. The early stage of life is very crucial since this period affects the following process. However, we are not able to totally control the early stage because children remain under the care of their families until they begin attending school. Even if children study in schools, many factors such as friends in and out of the school affect their educational process.

The educational system focuses on children from pre-school until graduate education. Educational gains mainly shift from public to individual gains as they attend a higher level of school each year. That is why education is compulsory in the first 10 or 12 years for children. Otherwise, greater and more costly social problems would occur if we could not educate them to be good citizens.

Durkheim (1956) states that "education is the influence exercised by adult generations on those that are not yet ready for social life" (p.71). In other words, the primary objective of education is to help children develop intellectual skills and improve their physical capabilities. Additionally, they should be motivated at school to acquire the moral values that are demanded by political society, because society may suffer some social problems and pay more to fix them if we do not help children achieve these objectives.

Dewey (1897) believes that education functions properly when there is a relationship between the individual and the environment, and that the purpose of education is to live for today, not to prepare students for future living. Thus, firstly moral training should be offered and schools should serve "as a form of community". Additionally, education is not a part of life and it should be regarded as "a continuing reconstruction of experience". If children gain experiences at school, then they may be able to learn about real life and become prepared for the future. Therefore, "what kind of experiences will they gain?" and "how should we help them

acquire these experiences?" are the questions that should be answered. Specialists study curricula in terms of grades and subjects in order to help children develop the expected behaviours to have a better society.

Moore (2010) explains education in relation to the commitment by society to have a desirable type of individual and the expected values. Thus, children may have some expected characteristics, attitudes, knowledge and skills that society would like to see. The author states that an educated man should have the desired intellectual abilities and at the same time should be very sensitive about moral matters, mathematical efficiencies and have a scientific vision and a historical and geographical perspective. When we look at society, it seems that the educational system has not been successful in training the expected educated man.

Russel (1926) explains that education should provide children with a guide to allow them to develop their capabilities and skills. An education system should offer children, be they boys or girls, the opportunity to receive the highest level of education. Furthermore, Durkheim (1956) underlines that the focus and primary function of education is to prepare children for their roles as workers and members of a larger society and identifies the purpose of education as the shaping of the social being.

Formal and Non-Formal Education

Education can be divided into two categories: formal education and non-formal education. There is no certain line to distinguish one from the other because formal education to some extent consists of non-formal education. Children learn not only at the classroom but also from each other at the school environment.

Formal Education

Formal education (Ngaka, Openjuru and Mazur 2012) denotes a "hierarchically structured and chronologically graded educational system", which starts at pre-school and continues through university and includes "academic studies, a variety of specialized programs and institutions for full-time technical and professional training" (p. 110).

Children, families, and adults voluntarily participate in formal education because they believe that formal education will provide a certificate or diploma for their children, and these official documents will help them receive a higher level of education and to build a better professional career. If unemployment is high and there is high competition for employment, then there will be a higher demand for formal education.

It might be speculated that governments are pleased to see that people demand more formal education and people to see that they get better employment opportunities at the end of formal education. Contrarily, if people cannot get better opportunities and positions when they graduate, they may lose their desire to continue with and participate in formal education. This may cause crucial problems in society.

Non-Formal Education

Non-formal education (Ngaka, Openjuru and Mazur 2012) refers to that type of education which does not take place in formally structured schools "such as adult literacy and continuing education programs for adults and out of school youth which does not necessarily emphasize certification" (p. 111).

Non-formal education may cause children to develop desirable or undesirable behaviours. The environment plays a crucial part in this point. Even if it is impossible to monitor students out of school, parents should know where their children play and with whom they spend time. On the other hand, children may develop some unexpected behaviours even in a formally organized school while playing with friends at breaks (MoNE of Turkey 2016).

Non-Formal Education: Non-formal education is intended for citizens who have never entered the formal educational system to develop their skills, e.g. in order to have a better professional career. Additionally, non-formal education may accompany formal education and may appear in many different forms. For example, improving reading and writing skills of citizens, professional development in a specific field, learning about a healthy life style, teaching socialization processes to immigrants and acquiring the habit of spending time productively is non-formal education.

The differences between formal and non-formal education can be seen in terms of the purpose, timing, content, delivery system and level of control (p.111).

Table 1. Ideal Type/Models of Formal and Non-formal Education

Differences	Formal Education	Non-formal Education
Purpose	- Long-term and general – Certified	- Short-term and specific - Certificate not necessarily the main purpose
Timing	- Long cycle/preparatory/full-time	- Short cycle/recurrent/part-time
Content	- Standardized/input centred- Academic - Entry requirements determine clientele	- Individualized/output centred - Practical - Clientele determine the entry requirements
Delivery system	-Institution-based, isolated from environment -Rigidly structured, teacher-centred and resource intensive	-Environment-based and embedded in the community -Flexible, learner-centred and resource efficient
Control	External/hierarchical	-Self-governing/democratic

Source: Adapted from Simkins (1977: 12–15, cited in Fordham 1993)

Learning, Teaching and the Teacher

What is a "learning experience"? Nyagah (2010) expresses that learning refers to the encountering interaction between the external conditions and the learner in the environment. Students have various interactions and are involved in some activities where learning takes place (UNESCO-IBE 2013).

Learning: What is learning? How do we learn? Learning is not only a complex process, but also some kind of a long-term psychosocial process. Learning includes individual acquisition of competencies, behaviours, skills, values, and knowledge. Children acquire these attributes though instruction or experience. The learning process is explained with psychological and physiological approaches. The learning process can be described with three important models. These models are behaviourism, cognitivism, and constructivism. Briefly, behaviourism underlines a

measurable change of behaviours in the learning process. Environmental factors are very important for children and affect their behaviours. Cognitive theories focus on the internal mental structure of the knowledge that shapes children's behaviours. Acquisition of knowledge and the processing of information happen through internal mental organization. The last model is constructivism which views the learning process as the addition of concepts and new ideas to existing knowledge and experiences (Kridel 2010).

These learning theories highlight the changes in knowledge, understanding, skills, competencies and behaviours through environmental factors, internal mental actions or construction of new ideas. Learning is to feel different and to motivate individuals to explore new knowledge and ideas.

Teaching: "There are diverse approaches to teaching which also implicitly reflect the approach to learning. The didactic approach mainly entails lecturing and is typically teacher-centred and content-oriented, i.e. teaching as transmission where the learners are considered to be passive recipients of information transmitted. Teaching can also be seen as supporting the process of learners' knowledge construction and understanding, building on what is already known by the learner and involving a learner-centred approach (i.e. teaching as facilitation). Another approach emphasizes the development of learners' cognitive processes and awareness and control of thinking and learning" (UNESCO-UNICEF 2014: 222).

Teaching as a Profession

Teaching is a professional job. Individuals spend most of their time in teaching activities either at school or at home. Teaching is a full-time job even if they spend 4-6 hours at school because teachers make preparations before going in class, evaluate students' performances, assess exam papers and so on. Teaching covers all educational activities and teachers are responsible for children's education. Teachers manage the teaching process and provide students information, knowledge and skills, and they teach students how to attain information, knowledge, and skills (Kadı, Beytekin and Arslan, 2015). They direct students' activities over class time (Nyagah 2010). All educational systems focus on the importance of teaching. The question is how we can offer good teaching in class. This question reminds us of teacher education programs and the quality of education. Who can be a teacher? What kind of skills should be taught to them?

According to Nyagah (2010), the following qualities make a good teacher:

- spending most of his/her time with students,
- increasing their skills by learning new ideas continuously increasing their knowledge,
- being a good model for students and conducting their personal life with good character,
- having appropriate and adequate knowledge of his/her specialization,
- adapting to new circumstances and managing crises successfully at school.

Durkheim (1956) describes a teacher as "the interpreter of the great moral ideas of his time and of his country" (p. 89). Teachers should have willpower and demonstrate confidence in their authority to transmit information. A teacher should be able to establish his authority without an external influence.

In relation to the quality of teachers and teacher programs, Motivans, Smith and Bruneforth (2006) state that specific training is very important in teacher education if we desire to offer a good quality of education to students. Teacher quality requires "a range of motivation, competencies, and skills" (p. 49).

In consideration of teaching as a profession, a teacher training program should include at least three aspects: general studies, subject-specific knowledge and pedagogical knowledge. Additionally, holding a knowledge of psychology, sociology, educational psychology, educational administration, curriculum knowledge, the education system, educational history, motivation theories, class management and school administration helps preservice teachers be "good" teachers. Preservice teachers need these various skills to develop themselves in order to answer students' different questions because students ask questions not only in a teacher's field but also in different subjects. That is why teacher training programs are very important to train individuals to be "good" teachers.

Curriculum

The term 'curriculum' comes from the Latin word 'curere' that means "to run a course". Therefore, the word denotes a subject which should have some special goals and produce outputs for learners. There are various kinds of courses in varying scopes. If there is a formal course, there should be a curriculum, too. Formal education cannot be established without a structured curriculum. There are different types of curricula and different types of descriptions in a curriculum (Nyagah 2010). The definitions of curriculum can be grouped into two: narrow definition and broad

definition. The narrow definition of curriculum is a plan and program. Learners follow a course and by the end of the course they have learned what the course is supposed to teach. The other definition is a broad one which sees curriculum as an educational process. This is a more comprehensive and longer process. The course reflects learners' social needs. The broader concepts consist of behaviours, values, attitudes, and experiences of students both in and out of school. Pratt (1994) states that the broad definition looks like a blueprint for instruction and incorporates teaching and learning processes.

Curriculum describes each detail of teaching and learning process and attempts to answer what, why, and how questions. A good curriculum fosters quality of learning in schools. This is a systematic and intentional way to have expected results at the educational system (UNESCO, IBE 2011). A school tries to help students gain all learning experiences through the curriculum. Experiences are planned for children through their educational curriculum (Scottish Government 2009). Learning outcomes and some learning experiences are designed in order to teach children at school.

Educational systems are intended to improve children's knowledge and skills. To do so, they need a plan of action and curriculum, and the plan consists of teaching methods, learning objectives, assessments, learning content and educational materials. The system implements formal and non-formal education programs.

Learning content consists of subject areas. These subject areas have no limitation. There might be on any subject.

Learning objectives are targets for curriculum process. At the end of the process, students are supposed to develop attitudes and behaviours and to acquire skills and knowledge. Emotional, social, and cognitive development is promoted by educational activities.

Teaching methods are tools to improve knowledge and skills. There are various teaching methods and techniques and teachers prefer these methods and techniques in terms of their teaching abilities and course targets and contents.

Instructional materials help learners better understand courses. There are various teaching and learning materials such as books, maps, teacher's guides, toys and supplementary resources.

Assessment refers to a measurement tool in order to understand what has been learned from the course (knowledge, skills, attitudes…). Assessment helps teachers and learners understand how much course goal has been reached at the end of educational program (UNESCO International Bureau of Education 2016).

A curriculum is a blueprint of learning and teaching and consists of many elements such as goals and objectives, content, teaching methods and techniques, learning activities and organization of learning experiences. The quality of teaching depends to the greatest extent on implementing curriculum elements which are strongly connected to each other. For instance, if you do not implement the right teaching method or technique in the classroom, it is not possible to reach the goals and objectives of a course.

The educational curriculum has various dimensions. There might be formal or informal (hidden) structures. Learners should be helped to attain knowledge, beliefs, attitudes and some other desirable skills through an effective curriculum. The question is what knowledge, what beliefs and what attitudes should be taught to learners. Policy makers decide on the above questions on systemic scale and subject teachers decide on the above questions in terms of course goals.

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CHAPTER TWO

THEORIES IN LANGUAGE LEARNING AND TEACHING

ALINA ANDREEA DRAGOESCU

This chapter pursues all aspects related to learning and puts forward a critical enquiry regarding what confers value upon the educational experience. The discussion emphasises language learning, as well as the basic factors which affect learning in general – learner motivation, language acquisition, and other processes related to cognition – from the standpoint of cognitive learning theories. Aspects of cognitive theory which will be discussed range from Constructivism, Holistic and Gestalt theory to Piaget's model and other important research conducted in the field of learning and teaching. The cognitive approach and its proposed methods of language teaching and learning represent the main focus of the discussion proposed in this chapter.

Upon pondering on the real meaning of 'learning', two basic trends may be noted in the literature on education. The humanistic tradition puts forth a discourse inspired by the idea of learning as a goal in itself and highlights the self-transformational capability of the learner by means of education. On the other hand, the vocational tradition focuses more on practical outcomes than on condition validity, on the achievement of very specific and measurable competences which are to be acquired. Based on these two distinct standpoints, numerous systems of thought have been proposed with respect to possible modalities of teaching/learning, among which the holistic model is analysed in greater depth.

What is Learning?

'Learning' may mean different things, depending on whether deep or surface connotations are given to the concept. It may be seen as a quantitative increase in knowledge as a result of acquiring information, as

well as an increased understanding of reality. Alternatively, it may be limited to the meaning of memorising or storing information that can be reproduced. It can also be seen as the acquisition of skills and methods that can be grasped and then used when necessary in practical contexts. On the other hand, learning may also mean simply making sense of abstract meaning, relating parts of the subject matter to each other and to the real world of experience.

From an overall educational point of view, what is considered 'learning' is certainly contingent on cultural, social, and various other constellations. One may wonder whether learning always serves a good purpose, for instance in cases such as learning for learning's sake or learning unlawful skills. However, that domain which is deemed 'desirable' knowledge by society at large generally enjoys an affirmative attitude to learning – as the driving force which encourages the evolution of human civilisation.

The philosophy of education further inspires reflection on many critical issues – *e.g.*: Should learning have a teleological or pragmatic end or is it desirable and ought to be pursued in and for itself? What may be accepted or even cherished as worthwhile knowledge? Which faculties can/should be trained and valued? How much and what exactly can one individual set forth to learn? Is any type of knowledge accessible to all kinds of learners? Thus, as framed by conceptual schools of thought, the subject matter lies mainly within the issue of human consciousness and the enduring quest for further enhancing the faculties of the human mind.

However, if the educational system is to be scrutinised under the magnifying glass, then one may certainly notice the limits of modern learning institutions (Becker in Burgess 1998). Matters of cost-benefit pragmatics, the assessment and accreditation procedures of educational institutions, overly restrictive curricula, as well as many other limitations are often imposed on the content of learning, as much as they are on the methods of teaching. It is possible that such factors, and above all the teacher in the very classroom, may obstruct or distort, but could also inspire quite diverse styles of learning and, hopefully, kindle the will to learn. Not least important, the learner comes into play with his/her own propensities and predilections, as well as the decisions s/he makes about what is worth learning.

Therefore, teaching must be considered from a larger perspective and several points of view, taking into account the interaction between the teacher, learner and content that is being taught. The question has been asked which of this triad ought to come first, but any one pick and the very concept of instating a hierarchy would be arguable and hardly the least

unbiased point of view. Regarding the learner, s/he has his/her personal values, skills, motivation, and is always different, though also part of a larger group of learners. On the other hand, any teacher would certainly have his/her level of skill, favoured approach to learning, personal style and experience.

Another important factor in the learning process is the context, especially the reasons for learning, whether compulsory education or personal choice. The context with all its variables may have considerable impact upon the desired outcome of the learning experience. The learner's motivation may also be regarded as part of the context; for instance, if the learning is pursued in an instrumental manner because qualifications are needed for practical purposes, such aspects may lead to very different approaches and outcomes of the educational process. Thus, an alternative systemic approach highlights the interconnection between the components of the system, pointing out that any change in one component will affect the others in their turn. The mental shift underpinning the new systems paradigm switches from the fragmentary mechanistic view, from objects, to processes and relationships set within the social context (Capra 1997).

Cognitive Approaches to Learning and Teaching

Several ways of conceptualising the teaching/learning process have been proposed, depending on the influencing factors each model focuses on. The most recurrent model generally focuses on the three main components of the teaching/learning process: the Learner, the Subject, and the Teacher – formally capitalised and impartially presented in alphabetical order. The more common Subject-Teacher-Learner (STL) models are different from those focusing on the Learner or Subject in that they propose different curricula, different procedures, roles and power relations, different views on the relevance of the content being taught, which all trigger highly different implications which affect the teaching/learning process.

Different approaches to the educational process have favoured one or another order of this overall triad, as will be discussed below. One of the foremost schools of thought in language acquisition is the cognitive approach, which was officially initiated by Ulric Neisser's *Cognitive Psychology* (1967). Cognitive psychology had already become of great importance in the mid 1950's, when the emphasis shifted away from the study of conditioned behaviour and the psychoanalytical study of the mind, towards an understanding of human information processing, deploying the most rigorous laboratory investigation for this purpose. By

the late 1970s, this approach had become the dominant perspective, as the work of Piaget (1957) and others drew attention on mental processes and internal representation of reality.

Later, the computer would provide cognitive theorists with the proper terminology and with the precise metaphor they needed to investigate the human mind. The analogy with the artificial use of computers allowed an enhanced understanding of the complexities of human cognition as compared with a simulated system like a computer. As it became a tool for decoding how the human mind handles information, this representation became known as the computer analogy. The paradigm of information processing was adopted by cognitive theory to explain the functioning of human mind, just as a computer codes, stores, and then processes information to produce an output by retrieving stored data. This approach was based on a series of assumptions, such as: information from the environment is processed by a series of processing systems (e.g. attention, perception, short-term memory); the latter transform information in systematic ways; information processing in humans resembles computer processing.

As opposed to this approach, behaviourism only studies observable external behaviour that can be objectively quantified. From the behaviourists' point of view, internal behaviour cannot be an object of study due to the fact that what happens in our minds cannot be seen and objectively measured. Behaviourism endorses the physical sciences and it is mainly associated with conditioning and stimulus-response processes, which entails certain limitations. Regarding the conditions of learning, it is largely the teacher that dominates the educational setting from the standpoint of behaviourism. The organization of instruction is thus essentially profiled according to the guidance of the teacher and the learning process is perceived as an imposition upon learners.

Conversely, the cognitive approach assumes that internal mental behaviour can be scientifically studied by means of laboratory or classroom experiments. Cognitive psychology also suggests that mediational processes occur between stimulus and response or between input and output of learning. Such mental events like memory, perception, problem solving, *etc.*, are considered meditational processes given that they mediate between the stimulus and the response. Although behaviourist theory declined during the cognitive revolution of the last decades, it remains appreciated as the first psychological account of learning.

Furthermore, Constructivism includes a set of theories closely connected to the cognitive approach due to its humanistic perspective on

education. This theory looks at the ways learners take in the content to be learned and 'construct' it inside their mind, but also deals with the output learners and teachers construct together through dialogue. However, this approach is also limited by the assumption that it is the learner's role mainly to assimilate what the teacher brings forth. From a social point of view, Constructivism implies that the learner is more actively involved together with the teacher in the cooperative enterprise of constructing knowledge. If the learner actively constructs meanings, it falls on the teacher to construct a dialogue with the learner, thereby constructing new ways of understanding (Vygotsky 1962).

In the same line of reasoning, George Kelly (1955) is the proponent of another related theory, as the very label suggests – Personal Construct Psychology (PCP). This theory which offers a far-reaching analysis of cognition sees people as products of learning and memory, based on their inherent personal construct system. PCP is also a cognitive theory in that it envisions learning as the way individuals make sense of the world and construct their personal worlds. Kelly's Personal Construct model aimed at replacing previous behaviourist models which limited the learning experience to stimulus and response.

Moreover, behaviourism was also dismissed for its assumption that humans are born 'tabula rasa' (a blank slate) and lack cognitive functions such as schemas, memory or perception. On the contrary, Piaget (1969) suggests that children's minds are not empty, but actively process the material with which they are presented by those who help them better process meaning. As will be expanded upon later, Piaget proposed the accommodation and assimilation processes to account for this insight.

The most substantial framework of the constructivist theory was put forth by Lev Vygotsky (1962) in his elucidation of the 'Zone of Proximal Development' (ZPD) which he defined as 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers' (Vygotsky 1978: 86). In empirical research, the author noted that children performed tasks better when they engaged in them with an adult rather than on their own. It was not necessarily always the case that the adult was guiding the children, but that the cooperation with the adult had a refining effect upon their thinking. Also, he deemed the development of language and articulation of ideas pivotal to learning and development in general.

Furthermore, Vygotsky also employed the 'culture' concept in social development theory and pointed out its implications for teaching and learning (Daniels 1996). The social dimension of learning is also central to

the idea of situated learning and communities of practice. Interaction with peers is considered the most highly effective way of developing skills in classroom instruction. The author suggests that teachers use cooperative or collaborative learning strategies, which would ensure that less competent children have a chance to develop with help from more skilful peers (Vygotsky 1978). The ZPD has become synonymous in the literature with the term 'scaffolding', which was introduced by Wood *et al.* (1976). As soon as students in the zone of proximal development, having the benefit of scaffolding, have mastered the task, the scaffolding can be removed and the students will then be able to complete the task on their own (Wood *et al.* 1976: 90).

Such theories have had great impact upon the growing current focus on collaborative learning, which proposes that group members should have different levels of ability so more advanced peers can help less advanced members activate within their 'zone of proximal development'. Moreover, 'reciprocal teaching' is another contemporary application of Vygotsky's ideas, which is used to improve students' ability to learn from their peers with the teacher acting as a mere moderator. This method suggests that teachers and students collaborate in learning and enhance skills such as questioning and predicting, while the teacher's role is gradually diminished, allowing space for peers to interrelate.

Another model of teaching in higher education which is also based on constructivist theory is David Kolb's approach, which represents a highly expedient model of the learning process and offers a descriptive inventory of learning styles. Much of his work is concerned with the learner's internal cognitive processes and involves cognition. The experiential learning theory (Kolb 1984) functions on two levels: a four stage cycle of learning and four learning styles. The theory of the cycle of adult learning includes four stages in learning which follow from each other: Concrete Experience is followed by Reflection on that experience, which may then be followed by the derivation of general rules describing the previous experience, or the application of existing abstract concepts to it (Abstract Conceptualisation), hence leading to the construction of ways of adapting or altering the following experience (Active Experimentation). Thus, the theorist deems learning a coherent 'process whereby knowledge is created through the transformation of experience' (Kolb 1984: 38).

Kolb (1984) also proposes a testing instrument (the Learning Style Inventory) and an experiential scheme to work with. Concrete Experience corresponds to 'knowledge by acquaintance', direct practical experience, as opposed to 'knowledge about' something, which is theoretical and represented by the application of Abstract Conceptualisation. The fact that

different subject areas call for different learning styles also raises the question as to whether a certain discipline requires a particular learning style, or whether a preferred learning style leads to choosing an adequate subject of study.

For that reason, there appear to be certain subjects lending themselves more easily to Serial learning or to Holistic learning, respectively. For example, there are quite different ways of learning foreign languages: Structural or Serialist variants on the one hand and Communicative or Holistic styles on the other hand. As pertains to learning styles, Holists seek an overall framework and then explore areas within it in a less organized, organic and spontaneous way, until they have filled in the whole. On the contrary, serialists prefer to build up knowledge sequentially and favour linear subjects, but they may lose sight of the broader picture as they move from one step to the next in line.

The Piagetian Impact on the Theory of Education

The cognitive school of thought builds on Gestalt theory regarding the holistic approach it takes to learning. Moreover, it has also been influenced by Piaget's study of cognitive development and the perception patterns used by learners to decode the perceived world. Of great insight is Piaget's detailed account of the specific stages of development, rather than the reduction of learning to a gradual increase in the number and complexity of behaviours and acquisition of concepts. The theory elucidates the mechanisms by which the child develops into an adult individual who can reason based on mental hypotheses and representations. Piaget's theory greatly influenced research in education and has helped enhance the functioning of cognitive development. This process is seen as a gradual reorganization of cognitive mechanisms occurring in lockstep with biological growth and environmental experience.

Jean Piaget's cognitive theory includes three main components which deserve due analysis: schemas, adaptation processes and the stages of development. Schemas are seen by Piaget as the building blocks of intelligent behaviour which facilitate the organization of knowledge. In other words, they are mental models of the world that are useful in employing information from past experience or planning future action on the basis of such cognitive patterns. They each relate to aspects such as objects, actions and abstract concepts, and allow the formation of mental representations of the world (Piaget 1957). Adaptation processes (equilibrium, assimilation and accommodation) enable the transition from one stage to another in the course of learning. As to the stages of development

(sensorimotor, preoperational, concrete operational, and formal operational), these bring forth the gradual development of cognitive processes.

Schemata can also be seen as 'index cards' (Wadsworth 2004) filed in the brain which an individual uses in order to understand and to respond to incoming stimuli according to a mental script. Piaget (1957) illustrated the relevance of schemas in cognitive development and how their complexity developed gradually along the stages. Intellectual growth is seen as a process of adaptation to the world by means of two mechanisms: Assimilation and Accommodation (Piaget and Cook 1952). The former occurs when an existing schema is used to deal with a new situation, whereas the latter is involved when the existing schemata fail and must be replaced in order to understand a new situation (Wadsworth 2004).

As an adaptation process, equilibration is the force which triggers development and disequilibrium takes place when new information cannot be decoded through existing schemas by means of assimilation. Equilibration is also the basis of the learning process, as an individual in disequilibrium will seek to restore equilibrium and avoid frustration by means of accommodation. Thus, the process of assimilating new schemata will be pursued until the following necessity to make an adjustment presents itself.

As regards the theory of stages, Piaget described the four universal stages of cognitive development a child undergoes in order to build a mental representation of the world (Piaget and Inhelder 1969). This biological progression enfolds as the child matures, and the approximate ages that correspond on average to each stage are based on empirical observation. In the Sensorimotor Stage (until 2 years of age), children have already gained the ability to form a mental representation of an object, for instance they can recognize the fact that an object still exists, even if it is hidden. Further on, in the Preoperational Stage (2-7 years old), the ability to think symbolically is developed and children can now make a word stand for something else, but they still have difficulty assuming the viewpoint of others. The next step, the Concrete Operational Stage (7-11 years) is considered a major turning point in the child's cognitive development because it marks the beginning of logical or operational thought. At this stage, children start working things out mentally rather than physically trying them out. Finally, during the Formal Operational Stage (from approximately age eleven into adulthood), the abilities to use abstract concepts and logically relate ideas start developing (Piaget and Inhelder 1969).

While Piaget proposes a systematic theory based on stages and a step-by-step progression along ages of the child or learner**,** Vygotsky deems cognitive development a continuous process. In contrast to the Piagetian view, the Russian author believes 'instruction cannot be identified as development, but properly organized instruction will result in the child's intellectual development, will bring into being an entire series of such developmental processes, which were not at all possible without instruction' (Vygotsky, 1962: 121). Also, in contrast to Piaget's view of the universality of stages in learning, Vygotsky focuses more on effects of culture in shaping cognitive development**.** Moreover, cognitive development is purportedly variable across cultures, whereas Piaget views cognitive development as being largely universal across cultures (Dasen 1994).

Neither does Bruner include a theory of the stages in his theory of learning, which places more emphasis on the child's capacity to understand any meaning and acquire complex information irrespective of the age. 'We begin with the hypothesis that any subject can be taught effectively in some intellectually honest form to any child at any stage of development' (Bruner 1960: 33). Bruner (1960) also explained how this was possible through the concept of the spiral curriculum, which implies that information be structured so that complex ideas can be first taught at a simplified level and later engaged again at more complex levels. The spiral analogy refers to the fact that subjects are to be taught at levels of gradually increasing difficultly. This method of teaching would ideally equip children with the ability to complete tasks and eventually solve problems by themselves.

Furthermore, the purpose of education is to develop symbolic thinking, to facilitate reasoning and problem solving skills which learners can transfer to real-life situations (Bruner 1960). Bruner (1961) regards students as active learners who construct their own knowledge by employing a coding system which sorts out information. The broadening of this coding system is best achieved through discovery rather than by receiving instructions from the teacher. The philosophy of discovery learning, also acknowledged as a Constructivist approach, relies on the fact that students construct their own knowledge for themselves. The role of the teacher is reduced to facilitating the learning process by the students and not to teaching information by routine memorisation in the traditional manner. Thus, a good teacher provides learners with the information they need without organizing it for them, but encouraging them to discover meanings by themselves.

Both Bruner and Vygotsky place emphasis upon the learner's environment and particularly on social factors which contribute to cognitive development.

They both agree on the social nature of learning and contend that others should assist the child in developing skills through the process of scaffolding (Wood *et al.* 1976). As reviewed by Bruner, scaffolding refers to 'the steps taken to reduce the degrees of freedom in carrying out some task so that the child can concentrate on the difficult skill she is in the process of acquiring' (Bruner 1978: 19). This idea parallels Vygotsky's 'zone of proximal development', as both require collaboration between an adult and a child in order to support the child achieve a learning task.

Given that language is seen as the foundation of cognitive processes, considerable emphasis is also placed on the role of language. Vygotsky adds that learning occurs in social contexts in cooperation with more skilful people, which essentially affords language opportunities. Thus, the internalization of language is seen as the root of cognitive development (Daniels 1996). By the same token, Bruner (1961) deems symbolic representation and language as being fundamental in determining cognitive development. On the other hand, according to Piaget, language depends on thought for its development and it is seen as subordinate to action. The Russian psychologist argues that the development of language and thought cannot be separated and that cognition is rooted in our interactions with others rather than in the contact with the material world (Vygotsky 1978).

Although the writings of Vygotsky have yet to be explored, researchers have expounded the manifold educational implications of Piaget's theory, showing how it can be applied to teaching and learning. His work (1952, *etc.*) has been extremely influential in developing teaching practice and policy across the world, having massive educational implications. Some of his most influential concepts are the relevance of play in learning, the applicability of the environment, learning by discovery and the importance of individual learning according to the corresponding stages of cognitive growth.

In conclusion, the following approach should be encouraged in the classroom: focusing on the process of learning rather than its end product; using individual activities as much as collaborative ones so children may learn from peers; prompting conditions that present valuable problem-solving situations; and using active methods that require discovering and reconstructing meanings. Since problem-solving skills cannot be taught but must be discovered, cognitive growth requires that learners be active, not passive. In general, teaching should be student-centred and encourage active discovery learning within the classroom. The role of the teacher is essentially that of a facilitator of learning.

Summary

The main emphasis in the present chapter is put on language learning – from the standpoint of cognitive learning theories, as well as the basic factors which affect learning. The methods of teaching, the diverse learning styles of the learners, the content as well as the context of learning, and other such factors are contemplated in detail, as they may hinder or enforce the educational process. The learner comes into play with their own skills, motivation, and predilections, and makes his/her own decisions about what it is worth learning. On the other hand, the teacher also has his/her personal values and experience, different level of skill, and prefers a certain approach to learning.

The models of teaching in higher education which have been discussed are meant to provide readers with the most significant forms of the learning processes and methods. The chapter also furnishes a descriptive inventory of learning styles and discusses an extensive array of language teaching approaches and methods, while surveying research on language acquisition and its theoretical foundations. Among favoured learning styles, the experiential scheme highlights direct practical experience which corresponds to 'knowledge by acquaintance'. Also, if different subject areas call for different learning styles, languages present themselves as subjects which are well suited to a holistic approach as a preferred learning style. Among the favoured ways of learning foreign languages, for instance, the communicative (holistic) style is promoted as a variant which seeks an overall framework and explores it in a less organized but more natural manner.

As proposed by this chapter, an alternative systemic approach highlights the relatedness of all system components, pointing out that any change in one of these will certainly affect the others in their turn. Thus, the educational process is considered from a larger systemic perspective, taking into account the interaction between the teacher, the learner and the context of learning. Such aspects may lead to largely different outcomes of the learning process, taking into consideration processes and interrelatedness rather than objects and separate aspects of the educational experience.

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