Hacettepe University Institute of Social Sciences
Department of Foreign Language Teaching
English Language Teaching

THE ROLE OF THE PROCESS AND THE INTERACTIVE MODELS IN DEVELOPING READING SKILLS IN ELT WITH SPECIAL REFERENCE TO CONSTRUCTIVISM

Bahadır Cahit Tosun

Ph. D. Dissertation

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KABUL VE ONAY

Bahadır Cahit Tosun tarafından hazırlanan "**The Role of the Process and the Interactive Models in Developing Reading Skills in ELT with Special Reference to Constructivism**" başlıklı bu çalışma, 11,07,2011 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Doktora Tezi olarak kabul edilmiştir.

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ÖZET

TOSUN, Bahadır Cahit. Yapılandırıcılık'a Özel Gönderide Bulunarak Süreçsel ve Etkileşimsel Modellerin İngiliz Dili Eğitiminde Okuma Becerilerini Geliştirmedeki Rolü , Doktora Tezi, Ankara, 2011.

Son otuz yıllık süreçte en önemli akım olarak süregelmiş olan yapılandırmacılığın eğitim alanı açısından dayandığı iki temel unsuru vardır; bunlardan ilki 1970 lerin bilişsel devrimi ile başlamış olan öğrenim teorileri ile iligili araştıramalarken, ikincisi 1980 lerden sonra gündeme oturmuş olan öğrenmenin sosyal yönüdür. 1970 lerdeki bilişsel devrimle başlayarak ve ardından yapılandırmacılık akımı boyunca, bilişsel devrimin bir getirisi olan anlama modelleri evrimlerini sürdürmüşlerdir. Bunlar arasında eğitim çeverelerince çok fazla ilgi görmüş olan iki tanesi vardır; süreçsel ve etkileşimsel modeller.

Bu çalışmanın amacı, süreçsel ve etkileşimsel olmak üzere, bu iki anlama modelinin İngiliz Dili Eğitimindeki yerinin belirlenmesinde yapılandırmacılığa özel gönderide de bulunarak niceliksel bir katkıda bulunmaktır. Böylelikle bu iki modelin rollerini araştıran bir anket çoğaltılarak Gazi Üniversitesi ve Hacettepe Üniversitesi birinci sınıf öğrencilerine dağıtılmıştır. Öğrencilerin okuma becerilerindeki başarı puanları ile tutumlarını temsil eden anket puanları arasında bir korelasyon aranmıştır.

Herne kadar mevcut çalışmanın sonuçlarının gösterdiği kadarıyla öğrencilerin tutumlarıyla başarı puanları arasında önemli bir korelasyon bulunmasa da, yaş ve cinsiyet türünden sosyo demografik değişkenler açısından önemli farklılık elde edilmiştir.

Anahtar Sözcükler

Yapılandırmacılık, süreçsel model, etkileşimsel model, bilişselcilik, sosyal etkileşim.

ABSTRACT

TOSUN, Bahadır Cahit. The Role of the Process and the Interactive Modals in Developing Reading Skills in English Language Teaching with Special Reference to Constructivism, Ph. D. Dissertation, Ankara, 2011.

Constructivism, the most favored stream during the past three decades, has two grounds for education field; the first one of which consists of cognitive researches as to learning theories initiated with the cognitive revolution of 1970s while the second one of which stands as the social aspects of learning put on the agenda following the 1980s.
Starting from the cognitive revolution of 1970s and then within the stream of constructivism, comprehension models, a gathering of cognitive revolution, maintained their evolution. Among these are the two models, the process and the interactive models, that have been paid much attention by the education circles.

The aim of this study is to have a quantitative contribution to shed light on determining the role of these two text comprehension models, the process and the interactive, in English Language Teaching with special reference to constructivism. Therefore, a questionnaire investigating the role of these models was duplicated and distributed to the first year students of ELT at Gazi University and Hacettepe University. The achievement scores of the students in reading skills were correlated with the questionnaire scores that represent students' attitudes. At the end of the study, the results were discussed with special reference to the theory of constructivism.

The results of the current study showed that there was no significant correlation between the students' attitudes and their achievement scores, though; significant difference was secured in terms of socio-demographic variables such as age and gender.

Key Words
Constructivism, the process model, the interactive model, cognition, social interaction.

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CHAPTER 1

INTRODUCTION

1.1. INTRODUCTION

Piaget's cognition understanding which constitutes one of the primary roots of constructivism on the one hand, and Vigotsky, Bruner, and the following next generation social scientists' contribution to the formation of constructivism on the other, both have affected brain based learning theories and education community starting from the 80s. Thus, there have been various researches on how learners comprehend a written text, how they construct the message (knowledge) of a text, how they comment on this massage, how they develop and improve their comprehension skills, et cetera.

Likewise, comprehension skills being the issue, there have been multifaceted studies (Koda, 1999; Chikamatsu, 1996; Shimron and Savon, 1994) carried out in the past decades, which in general terms, shows diversity subject to the language teaching methodology. As is generally acknowledged, learning theories relevant to language teaching methodology are of great importance since they play a substantial role in the construction of this methodology. Among these learning theories are three philosophical frameworks such as behaviorism, cognitivism, and constructivism ascertained to be of major importance (Ertmer & Newby, 1993).

The first one, behaviorism as a doctrine has three fundamental claims asserting that psychology is not the science of mind; rather it is the science of behavior; that the sources of behavior are not internal but external, namely, behavior may be explained regardless of mental events merely making emphasis on the effects of environment; that the theory development of psychology should be grounded on behavioral terms instead of mental ones (Baum, 2005).

Cognitivism predominated over behaviorism in psychology in the late 20th century though, it was not an exhaustive refutation of behaviorism but just an assertion that mental state exists. This was a result of the increasing opposition to the simplistic learning models of 1950s. One of the most profound criticisms was Chomsky's assertion that language could not be acquired precisely through conditioning but an internal mental state should exist in order to explicate this process, which, therefore, made inner mechanisms of human thought be of interest in terms of cognitive psychologists (Odlin, 2002).

As for constructivism, although constructivism has not a precise origin in terms of its founder, it is generally acknowledged to rest on the works of the famous cognitive psychologist feature Jean Piaget. Constructivism which constitutes one of the major theories of child development arising from Piaget's theory of Cognitive Development, is not a kind of pedagogy, rather, it is an epistemology, that is, a theory of knowledge.

Constructivism counts on the idea that apart from the reality that stands independently, knowledge is constructed in human mind (Airasian & Walsh, 1997). Piaget alleged that if human intelligence is to be adaptive, it is obligatory that it have functions to represent both the transformational and the static aspects of reality. He proposed that while operative intelligence is responsible for the representation and manipulation of the dynamic or transformational aspects of reality, the figurative intelligence is responsible for the representation of the static aspects of reality. In this sense, figurative aspects of intelligence derive their meaning from the operative aspects of intelligence since states cannot exist independent of the transformations that interconnect them. Piaget believed that the figurative or the representational aspects of intelligence are subservient to its operative and dynamic aspects, which means understanding essentially derives from the operative aspect of intelligence. Piaget hinged these two aspects of intelligence again upon two fundamental functions; assimilation and accommodation through which his famous developmental stage theory work (Boeree, 2006). Through his cognitive development theory he organized cognitive process of human mind into developmental stages via observing children, which constitutes one side of the dichotomy constructivism proceeds; one is relevant to internal mechanism and the other is about

external social aspect consistent with the advocates of Vigotsky (Karagiorgi & Symeou, 2005). In fact, constructivism has two flexible grounds, one turning face towards internal mechanisms, the other towards social interaction.

In addition, since constructivism emerged as a combination of ideas from philosophy, sociology, psychology, and education, still it is in need of time to be demarcated. In the past decades, it became more flagrant that constructivism is perceived profoundly different in various circles of science. Moreover, the dearth of a precise pedagogy in regard to constructivism is another factor that precludes the formation of a substantial ground for constructivism. Anyway, whether precise in its essence or not, constructivism has had some telling consequences in terms of education.

Text comprehension models, a gathering of cognitivist revolution, maintained their evolution starting from 1970s within the stream of constructivism. It was not until 1978 that Kintsch and van Dijk proposed their article *Toward a Model of Text Comprehension and Production* that was a turning point for analyzing discourse with a benchmark such as process models instead of descriptive systems. This was only a beginning. It has been 33 years from this occasion and during these years this first model of text comprehension has been exposed to many alterations and improvements. Today, this model, improved both by Kintsch and other linguists, plays a substantial role in the field of education.

Another up to date and more prevalent model of comprehension that is referred to in line with constructivism is the interactive model of comprehension which is proposed by Rumelhart (1977) and further improved by Mc Callen & Rumelhart (1981) and finally by Lesgold and Perfetti (1981). This model as a new generation model that unites both top-down and bottom-up theories of reading has had a substantial influence among the linguistics community over the past decades (Richards et. al., 1992) .

Ultimately, this study seeks to convey another contribution to define the role of these two models in developing reading skills in English language teaching (hereafter ELT) with special reference to constructivism. The importance of such a study is assumed to

be that the abovementioned models are frequently opted for by both the practitioners and the theoreticians in the field of ELT.

1.2. BACKGROUND OF THE STUDY

Language teaching as a pedagogy that has always been and will be improved under the light of theories of learning and pursuits of methodological innovations is also primarily concerned with the process of reading, one of the most profound skills of language learning as is with all kinds of learning processes. At this point, as an active factor in second language teaching, reading process in education and its development has been exposed to a groundbreaking change with the cognitive revolution that emerged in 1970s. This revolution induced a new predisposition of relinguishing bottom-up concepts towards a top-down conception of reading. Namely, data driven process definition that banks on the stimuli taken from outside such as letters and words for reading was drastically exposed to change towards a conception dwelling on storing knowledge adding on the reader's individualistic prior knowledge and/or expectations (Treiman, 2001). The process model was the very first design of such a conception (Kintsch, 1999). It would, however, later begin to be perceived with the interactive model of reading process (Rumelhart, 1977) that there was a necessity to give place both to top-down and bottom-up processes to function interactively for an adequate level of understanding in reading, and with the schema theory (Carrell, Devine, & Eskey, 1988) that of a second language reading. This was a view being shaped by constructivism.

The current study was inspired by an article on *The New Developments In Teaching of Turkish And Constructivist Approach* pertaining to Prof. Dr. Firdevs Güneş (2009) when met during a literature review realized by the supervisor of its researcher. Although the models, both the process and the interactive, were given in the context of teaching Turkish language, it appeared to be a sound idea both for the supervisor of the researcher and him to realize a similar but an extended study as a Ph.D. dissertation on the role of these two models in ELT since constructivism still stands out to be the most striking contemporary stream for the time being.

1.3. PURPOSE OF THE STUDY

The purpose of this study is to project the role of the process and the interactive models in developing reading skills in ELT in reference to constructivism. Therefore, the current study targets to accumulate data subject to which an evaluation whether the theoretical background of the models, process and interactive, stands valid is aimed to be investigated. As a reliable research method, a qualitative one utilizing a questionnaire is bound to be applied in this study.

1.4. SIGNIFICANCE OF THE STUDY

The concept of reading research has relatively a nascent history, a period slightly less than a century and a half, when traced back to its origins. The papers of Emily Javal and James Mc Keen Cattell, in 1879 and 1886 respectively, were the first samples of academic concerns questioning the very traits of the reading process. While Emily Javal was examining eye movements in regard to reading, Cattell was a bit more assertive with his curiosity of letters versus words. In fact, the stance for a more comprehensive investigation that embraces all stages of reading starting from the very movement that the eye meets the page up until the end of comprehension has a past of merely a little bit more than 40 years or thereabouts (Samuel & Kamil, 2000).

As a sustained effort exerted to the development of reading models initiating with cognitive revolution and continuing more recently with constructivism, process and interactive models of comprehension are so in favour in an extensive circle of education, even in second language teaching. Accordingly, the present study may provide contribution to the existing body of literature with its provision of an insight generally both for all sorts of education programs beside their teachers and specifically for language teaching programs and their teachers.

1.5. DEFINITIONS OF TERMS

Comprehension: Comprehension is the ability to understand something: it is full knowledge and understanding of the meaning of something (Collins, 2004).

Process Model: The process model helps learners to select, build and organize the information in the text.

Interactive Model: An interactive reading model attempts to combine the valid insights of bottom-up an top-down models by taking into account the strong points of these two models and tries to avoid the criticisms leveled against each, making it one of the most promising approaches to the theory of reading today (Mc. Cormick, 1988).

Behaviorism: Behaviorism is a learning theory that only focuses on objectively observable behaviors and discounts any independent activities of the mind.

Cognitivism: A learning theory that defines learning as a semi-permanent change in mental processes or associations.

Cognition: Cognition is a term referring to the mental processes involved in gaining knowledge and comprehension, including thinking, knowing, remembering, judging and problem-solving. These are higher-level functions of the brain and encompass language, imagination, perception and planning. In sort it is the scientific term for the process of the mind (Kelly, n.d.)

Cognitive Science: A discipline which draws on research in linguistics, psycholinguistics, cognitive psychology, and artificial intelligence (Richards et. al., 1992).

Constructivism: An epistemology that unites cognitivism with social aspect.

Epistemology: Epistemology is the study of knowledge and justified belief (Steup, 2010).

ELT: An abbreviation for English language teaching. It is used especially in Britain to refer to the teaching of English as a second language or English as a foreign language. In North American usage this is often referred to as TESOL (Richards et. al., 1992).

1.6. RESEARCH QUESTIONS

The following questions are the research questions of the present study:

1. Is there a statistically significant correlation between the students' attitudes towards the process and interactive models and the participants' achievement scores in reading in general?

2. Is there a statistically significant correlation between the students' attitudes towards the process and interactive models and gender?

3. Is there a statistically significant correlation between the students' attitudes towards the process and interactive models and age?

4. Which items of the process model are mostly preferred by the learners?

5. Which items of the interactive model are mostly preferred by the learners?

CHAPTER 2

LITERATURE REVIEW

2.1. BEHAVIORISM

Founded by John Broadus Watson and later supported and improved by Edward Lee Thorndike, Clark Leonard Hull, Edward Chace Tolman, Burrhus Frederic Skinner and Edwin Ray Guthrie, behaviorism is fundamentally a philosophy of psychology. As a doctrine it has three fundamental claims asserting that psychology is not the science of mind, rather it is the science of behavior; that the sources of behavior are not internal but external; that the theory development of psychology should be grounded on behavioral terms instead of mental ones Although there is no clear-cut classification as to the versions of behaviorism, the foremost and well-known types may be uttered as John Broadus Watson's Classical Behaviorism (also methodological), Burrhus Fredderic Skinner's Radical Behaviorism, and finally Analytical (Logical) Behaviorism that may be met in the works of Gilbert Ryle or Ludwig Wittgentstein (Graham, 2010).

Notwithstanding that Behaviorism could be traced back to the ancient Greeks including empiricism, elementism, associationism, objectivism and naturalism, it is J. B. Watson who is widely acknowledged to be the founding father of behaviorism with his declaration of a new movement in 1913 (Boakes, 1984). After all, the first behaviorists during the nineteenth century were Russians, Ivan M. Sechenov and Vladimir M. Bekhterev, with their scientific declarations in 1863 and 1904 respectively, even prior to Ivan Pavlov who is famous for his conditioned reflex theory (Boeree, 2000).

The movement would maintain its existence throughout overlapping periods from 1900s to 1925, from 1920s to 1940s, from 1940s to 1950s, from 1960s to mid 1970s and finally from 1975 to our current period although it is generally acknowledged to have had a cessation in the 1950s. As for the first period which covers the studies of Watson and Thorndike, it was the halcyon days of behaviorism from 1900s to 1925 and is

generally known as the classical behaviorism period. The next period from 1920s to 1940s in which the theories of Hull, Tolman, Guthrie and Skinner were in great rivalry is acknowledged as the neo-behaviorism. The following period was sealed by Hull's hypothetico-deductive theory from 1940s to 1950s while from 1960s to mid 1970s was the period during which Skinner would devise his operant conditioning theory. Today this period is remembered as Skinnerian behaviorism period. The final period from 1975 to our present day has witnessed a gradually transforming texture since cognitive aspects of behavior have been implicated in the explication of change in behavior. The period is designated as the cognitive behaviorism period as far as behaviorism is concerned (Gilgen, 2009).

2.1.1. Classical (Methodological) Behaviorism

Pavlov's classical conditioning was a profound inspirational touchstone for Watson who was indeed under the direct impact of British empiricism and its great figure John Locke although he never enunciated. Also, Pavlov's stimulus- response model would be another underpinning for him and even for further behavioristic thought that would be so much in favour in the wake of Watson.

> Thorndike (1911) likewise, advocated that psychology should appeal to independent empirical utensils much the same as physics do, disclaiming introspective methods and turning his face towards empiricist pursuits as far as psychology is concerned. The results of his puzzle solving experiments with cats besides other animals in particular denoted that the prior puzzle exposure of these animals enhances the speed of solution, which induced him to formulating his laws of behavior. The most widely known one of these laws is his Law of Effect whereby he reached the resolution that rewarded responses are inclined to be reinforced whereas punished ones languish (Hauser, 2002).

Watson up until 1916 would underestimate Pavlov's conditioned reflex theory. He had also entirely rejected Thorndike's Law Effect. However, later in 1916 he would realize his underestimation and adopt the necessity of Pavlov's study. In 1913 Watson with his famous manifesto Psychology as the Behaviorist Views It ushered in a new approach to the philosophy of psychology which in strict contrast to the introspectionist approach in contemporary psychology disregards the consciousness of the mind and replaces it with

the behaviors that are assessed to be tangible and objective by him. In terms of Watson, this new behaviorism coined by him was more reliable and scientific since it consisted of elements that are open to experimental investigation. Indeed, the first paragraph of his manifesto blatantly monitors his behaviorist stance against introspection of his contemporary psychology;

> Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation (Watson, 1913).

While in Watson's standpoint, psychological introspectionism was devoid of objectivity on account of its subjective artifact, conscious experience, the only truth in psychological terms, were reaching substantial findings towards objectivity. From now on, rather than their mental state, people's reactions to their environment were of importance to him. However, the manifesto was not adopted by the psychology cycle at first step on account of its lack of a specific mechanism though; the widely realized citations of his article in 1950s would stand the case on its head.

2.1.2. Radical Behaviorism

While classical behaviorism, codified by Watson (1913), disregards introspective processes such as the abstract and non-measurable aspects of human, thinking, feeling etc., and advocates that everything existing should be assessed subject to behaviors that are concrete and measurable, Skinner's (1957) radical behaviorism implicates the inward experiential processes in the issue of behaviorist strictures. In other words, Skinner, in contrast to classical behaviorism, accepts the existence of inner processes, and does not assess the organisms as tabula rasa. There is no bifurcation towards an inner and an outer world in terms of Skinner. As such behaviors are the end result of environment because behaviors whether they are introspective or from outer world cannot be resolved exclusive of the historical background of the individual (Hauser,

2005). In this respect, Skinner's assertion is not that inner processes are nonexistent; nevertheless, they are irrelevant to the explication of behavior (Skinner 1953). That is why; it would be more becoming to focus on the certain variables that constitute behavior, which makes the current environment of the individual the mere place embracing the real causes of the behavior (Skinner, 1987).

As for the scientific underpinning of behaviorism, it is a concept that rests on Thorndike's (1905) Law of Effect (Thorndike, 2001); operant conditioning. Operants are ordinarily preexistent parts of behaviors sent out by an organism before any kind of realized conditioning. These are normal behavior types that are not shaped by any clinical interference. These behaviors such as walking, pecking, etc. are followed by reinforcement (e.g. food or water) thereby coming under the control of discriminative stimuli (e.g. lights or tones) just before the response, which lead to the shaping of grift behavioral sequences. Skinner (1957) via his radical behaviorism seeks to provide a resolution for high-level human behaviors such as speech. This kind of shaping in Skinner's view brings about such end results.

However, the stalemate of radical behaviorism was that it was shy of devising a judicious explanation as to complex high level human behaviors such as language learning and usage. This deficiency of the theory would be pungently criticized by Chomsky with a new theory; Innate theory.

2.1.3. Analytical Behaviorism

Loosely speaking, analytical behaviorism is the theory postulating that a person's beliefs, ideas and concepts are directly consistent with the stimuli that he or she acquires in the course of his or her life. The labels people appeal to in defining characteristics of others when they speak of them reflect their impressions accumulated resting on the direct evaluations of the other people's behaviors they witnessed. Namely, the way a person thinks could be studied in terms of his or her behavior in line with the type of words the person uses. Founded by Hempel, analytical behaviorism favors that the sentences that convey constituents appealing to senses could be rendered into those

comprising physicalistic units whereby the mentalistic aspect of any sentence is ridded (Bunnin & JU, 2004).

While seeking to shed light on the very true nature of analytical behaviorism, it is, in the first place, a prerequisite to make a straightforward distinction between analytical behaviorism and classical (methodological) behaviorism lest there should be any misunderstanding especially for those who study psychology. Behaviorism in psychology, actually, may be more close to be understood as the science of behavior pertaining to human and animal, thereby making assertions as to defining some kind of methodology that psychology should utilize. More overtly, the focal point here is the human and animal behaviors rather than their minds. Behaviorism in psychology in this respect may be considered as the study of human and animal behavior instead of their introspective aspects. Whence, analytical behaviorism could be enunciated as the thorough characterization of behaviorism. This standpoint contrary to Cartesian duality which investigates human behavior as an outcome of an interaction between body and mind first frustrates the body-mind interaction problem since it does not regard mind as the cause of behavior but behavior itself. Then, with this stance of evaluating mind as a mere behavior, simultaneously annuls the mysteriousness of the mind and mental processes. In addition, the predicament of the Cartesian duality that acknowledges it improbable to penetrate into others' minds loses its importance as an old problem automatically (Maslin, 2007).

Hempel as a member of a group of logical positivists put forth this idea of analytical behaviorism in order to fortify behaviorism and find a solution to embrace the high level human behaviors such as private inner processes pertaining to human beings. Later the idea was criticized by Roderick Chisholm with his argument that it cannot convey a resolution to the concept of belief. His main argument was that analysandum, the meaning of a linguistic expression, cannot amount to the belief sentences. Chisholm classifying analysandum that are employed in the course of analyses of behavior under four main titles such as the specific-response analysis, the appropriate-behavior analysis, the satisfaction analysis, and verbal-response analysis, refuted each of them

one by one. All in all, resting on these refutations he provided a sound ground to dismiss analytical behaviorism on his side (Cornman & Lehrer & Pappas, 1992).

2.1.4. Behaviorism and Language

In 1957 Skinner published his Verbal Behavior which would be painstakingly criticised by Chomsky later in 1959. In his book Skinner resorted to biological adaptation as the ultimate resolution for the maintanence of behavior. This, in the same sense, was applied to the issue of languge acquisition since he identified the process of language acquisition with habit formation comprising a chain of habits established by reinforcement and rewards. More overtly, similar to Pavlov's experiment, Skinner held that rewards and punishments are the very factors that shape human behavior promulgating the environment as the precise factor that is to be controlled so as to shape or control human behavior ("Behaviorism," n.d.)

When language is enunciated in line with behaviorism, spoken language perspiciously holds a primary place compared to written language as human beings utilize many a good deal of languages without any written forms. This occasion imparts a secondary place to written language. Also, language regarded by behaviorism as a habit formation embraces no space for such processes as problem solving; rather the focal point here turns out to be structural grammar. Another important point is that behaviorist theory holds stimulus-response chain as a definite case of conditioning proliferating more complex behaviors. Correspondingly, if the learning condition of the learners is set under equal terms, then each learner realize the learning process with an equal efficiency (Demirezen, 1988).

During World War II behaviorism was utilized to devise a drastic method with the aim of teaching foreign languages to soldiers. The audio lingual method which is also called Army Method was invented exclusively for this purpose. The soldiers were due to learn at least a minimum amount of verbal communication skills for the prominant languages other than their native language such as German, French, Italian etc., in addition to the indigenous languages spoken on the territories where they were bound to be distributed.

Meanwhile, the contemporary scientific inclination was behaviorism, and the audio lingual method, very similar in trait to direct method, was the most becoming to teach en masse. Therefore, disregarding vocabulary teaching and focusing on drilling as the sole discriminating characteristic of it compared to direct method, it was enthusiastically welcomed by the linguists of the period consistent with behaviorism (Richards & Rogers, 2006).

In 1954 Chomsky with his review of Skinner's famous book of Verbal behavior, propounded that behaviorist approach for the phenomenon of language acquisition was in devoid of a reasonable elucidation especially when the ancient Platonic issue, poverty of stimulus is the case in question. Put briefly, the term Plato's Problem designated to the problem of poverty of stimulus by Chomsky ("Plato's Problem," n.d.) represents the inequity between the experience and the knowledge one holds as far as language is concerned. In other words, there is a dearth of information exposed to by the environment when the ultimate speech is compared to the input one recieves and this quandary in Chomsky's stand point remains to be an enigma when behaviorism seeks to provide an explanation by means of its famous ground; habit formation. Another challange that Chomsky put forward was the issue of time constriction. He rejects the position the task of acquiring a language is such a simple issue to be implemented in an astonishing short period of time as is in the case of animal's operant conditioning and continues with the necessity that any learning theory be more persuasive with this fact of time constriction (Chomsky, 1959).

For the following period, no sooner the very moment Chomsky had shared his review of Skinner's Verbal Behavior, did behaviorism begin to languish gradually in the face of incoming innatist and cognitivist approaches. Although innatist approaches could be traced back to ancient Greek philosophers Socrates, Plato, Aristotle and later in the seventeenth century again in philosophical stance of René Descartes, it is generally acknowledged to be Chomsky as one of the two major grounds of innatism. As for the second ground, it was Eric Lenneberg's Critical Period Hypothesis (CPH) enunciated in 1967 (Suharno, 2009).

Chomsky started his pursuit of solution for the problem how people are potent to have knowledge that is not present in their environment tracking language. His preliminary proposition was a language acquisition device postulated to be present in a part of human brain, which would be improved and altered towards a universal grammar position again by Chomsky. However, it is proper at this point to remind that the focal point of Chomsky's investigation was on first language acquisiton (Chomsky, 1972).

The second ground for innatism was Lenneberg's CPH that rests on the studies carried out ad hoc on the scope of second language acquisition. Leneberg proposed that unless people acqire a second language before a certain period of age, it is improbable to secure a native-like mastery of language (Leneberg, 1967). The cases such as Genie who was a feral child found strapped to a potty chair and the famous American politician Henry Kissenger are all adopted to be a vindication for CPH. However, the common denominator of both cases is language acquisition though, Genie was suffering from not being able to acquire her first language whereas Henry Kissinger with a German accent was lacking in a native like pronunciation in English as his second language. Both cases are usually shown to be a proof for innatism since CPH rests on an innate mechanism valid for each human that becomes unavailable after puberty.

Although ostensibly Chomsky gave way to the ignition of a new revolution with his nativism and Lenneberg to some extent contributed to this stream with his CPH, later on in the following period Albert Bandura would assert a new theory that goes betwixt and between behaviorism, and innatism, which, therefore, makes him a father of the cognitivist movement. Bandura with his social learning theory, sought to develop behaviorism since he found it too simple to explain the whole phenomenon of language acquisition. Thus, accepting the behavioristic view that environmental factors induce behaviors, he also added that behaviors shape the environmental factors mutually. Then, one stage up, he incorporated personal psychological phases into the interaction of behavior and environment embarking on a new journey from behaviorism towards cognitivism (Boeree, 2006).

Today, when compared to the days during which Chomsky promulgated his review of Skinner's Verbal behavior, the two theories, that is, behaviorism and innatism are not acknowledged to be in strict clash. After all, following Bandura, various learning theories were advanced in the course of time, that would compromise behaviorism and innatism and even cognitivism.

2.2. COGNITITVISM

Although in general terms, it can be traced back to Aristotle, as early as ancient history, and then to Descartes in the 17th century, cognitivism as a school of thought in psychology emerged during 1960s in order to cope with the inadequate aspects of behaviorism. In strict contrast to behaviorism that disregards internal cognitive processes, cognitivism focuses on the process of cognition. Methodologically speaking, cognitivism follows relatively more, a rational manner in that it seeks to find a resolution for human behaviour merely depending on rational thinking. It utilizes tools such as reason and extrapolation in defiance of empirical study that was strictly resorted to by behaviorism. Indeed, it is concerned with the question *Why* more than is it with the question *What* (Brown, 2002).

On condition that cognitivism is evaluated regarding its roots with psychology, then it is compulsory to date back to 1879 to the date on which Whilhelm Wund established the first psychology laboratory in Leipzig, Germany. Also, he was the first to devise a methodological approach with his term *introspection* so as to deal with the mind by means of self observation. However, more specifically it is incumbent to stress the nub of cognitivism to be improved by three psychological currents which comprise Gestalt psychology, Edward Tolman's cognitive learning theory and Piaget's cognitive development theory ("Cognitive theories of learning," n.d.). In addition, as an indispensible theory for cognitivism Bernard Bloom's Taxonomy has always been on the agenda (An, 2005).

Gestalt psychology founded by Max Wertheimer (Boeree, 2000) as a reaction to Wundt's position of molecularism, posits a reductionist view which holds that

perception can be separated into elemental constituents. All the same, the term was first employed by Christian von Ehrenfels, an Australian philosopher and psychologist. Furthermore, Wolfgang Köhler and Kurt Koffka are generally remembered as the cofounders of Gestalt psychology ("Gestalt Psychology," n.d.). Pioneers of this movement provided some perceptual phenomena that cannot be investigated via reductionist approaches (Gestalt Movement, n.d.). The focal point of Gestalt movement of Berlin School, commensurate with its name which in German language conveys the meaningful whole or shape of an entity's complete form, is the human disposition to perceive similar forms of entities as a group, together in unity. Moreover, our senses, specifically in regard to visual recognition, impart meaning to groups of similar objects perceiving the entities in the environment just as figures and total forms in place of just a conglomeration of simple lines and curves (Barlow, 1981). The famous quotation referred to Aristotle "The whole is greater than the sum of the parts" is employed as the general motto of Gestaltist standpoint and is reinterpreted by Koffka as "It has been said: The whole is more than the sum of its parts. It is more correct to say that the whole is something else than the sum of its parts, because summing up is a meaningless procedure, whereas the whole-part relationship is meaningful." (1935, p. 176). The key principles of Gestalt Psychology can be monitored as emergence, reification, multistability and invariance that are properties of human brain and mind concerned with the visual perception (Lehar, 2004).

Another factor in cognitive revolution, Tolman, on the other hand, contrary to his behaviourist contemporaries did not adopt that learning is a corollary of stimuli response interaction, although he was most famous for his behaviourist studies (Kimbel et al, 1991). Instead he pursued a flair for a theory betwixt and between behaviourism and cognitivism, thereby turning his face towards cognitivism. He sought to incorporate mental processes into behaviourism. What he made was to deny the necessity of reinforcement in learning process unlike radical behaviourists. Therefore, he advocated that animals, more particularly rats, could learn irrespective of any reinforcement drawing on the experiments he implemented with rats. In the end, he managed to prove that reinforcement was not necessary for learning. This is designated as latent learning (Tolman, 1948). This was an important finding since he made use of it in vindicating his

theory that animals could learn with continual stimuli without any explicit interference that lead to learning. Therefore, he differentiated rats' flexible learning process from mechanical instantaneously responsive or rather, reflexive learning occasions pertaining to those of radical behaviourism. Now, it was perspicuous that rats could learn environmental facts in the course of time through subsequent use which could only be explicated by the use of an environmental cognitive map. Accordingly, some of the inferences secured by Tolman's studies stand out that; behaviour is to be investigated at a local level; learning can enact save for reinforcement; learning can be realized without any change in behaviour; interfering factors are to be taken into account; behaviour should be accepted as purposive (Ormrod, 1999). Today, Tolman is acknowledged as a cognitive-behaviorist scientist. The studies he realized during a behaviorist period amidst a body of strict behaviorist colleagues conveyed him to a position to be remembered as the originator of cognitivism, though they could not entitle him to trigger a new cognitive revolution.

Another substantial cognitivist Jean Piaget contributed to the improvement of cognitivism a lot propagating human learning as a cognitive process that maintains specifically in connection with three other processes such as individual's both biological and mental maturation process, individual's activities in the environment, and finally individual's social interaction with other individuals in the society. These three processes give shape to schemes which Piaget favours to be the end results of human inclination to organize both behaviours and notions. Then, he enunciates that learning enacts in line with disequilibrium that face human beings in the course of the encounter with new phenomenon. Individuals learn through conforming new information to an earlier scheme via assimilating this new information or changing the pre-existing scheme in conformity with this new information or entirely constructing a new scheme (Piaget, 2001). Finally, Piaget proposed a theory that evaluates cognitive learning as a process subject to four developmental stages; sensorimotor, preoperational, concrete operational, and formal operational. In terms of his theory sensorimotor stage embraces the period following their birth to the age of 2 in which infants physically learn the environment through sensing and storing this information in their memory (Tuckman & David, 2010). The second period, preoperational one is the stage during which infants

exhibit language capabilities and although they are egocentric and they disregard the other people's standpoint they possess symbolic thinking and logical thinking alike whereas concrete operational stage represents the period between years 7 and 11 in which children are apt for solving physical problems, understanding classification, seriation and conservation. As for the last one, formal operational stage covers the period from 11 to adulthood. In this period children are capable of understanding abstract concepts and finding solutions for abstract problems, manipulating verbal problem solving and becoming aware of their identity (Santrock, 2007).

As for Bloom's taxonomy that has long been on the agenda and still in use even today, it may be best expounded as a categorization of learning in educational setting. Bloom in 1956 with a committee of educators introduced his learning taxonomy that evaluates learning process to take part in three fundamental domains such as cognitive, affective and psychomotor.

Cognitive domain comprises 6 major elements that respectively represent degrees of cognition in regard to their difficulties. Each of these improve before the next one takes place; knowledge, comprehension, application, analysis, synthesis, and evaluation. The knowledge element of the domain represents the memories stored on the mind that belong to the previously learnt materials, and recollection of basic information. Comprehension represents roughly demonstration, that is, it embraces the ability to show how understood a subject. This may be exemplified as the verbal or written explanation of how the constituents of a system or a complex proceeding are fulfilled such as rewriting, translating or extrapolation. One step further, application amounts to the usage of new information; for instance, using an instruction book to create new origami patterns or evaluation of a numerical table in excel sheet for designing graphics. As for analysis, it is regarding disintegrating concepts and systems in mind in order to analyze them better and make conclusions about their principles whereas synthesis works the other way round, namely, puts discrete elements together in order to reach a new whole that makes new senses. While a good example for analysis could be giving instruction to students to list three ways of using electricity for heating and to choose the best way among these to heat an appartment, another for synthesis could be

embodied as converting a kind of soup into a kind of dessert via changing the ingredients. Finally, evaluation in congruous its dictionary meaning covers making judgements about the concepts, notions or new information. The question types of this element could be similar to giving instructions as to evaluation of validity of concepts or quality of work in terms of certain kind of criteria like *Do you think that soup for children as a starter is a good choice of meal?Explain why or why not?* (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956).

Affective domain deals with our emotional aspect, hence it focuses on the awareness and burgeoning in feelings, emotions, and attitudes. Affective domain consists of five sublevels by the names of receiving, responding, valuing, orginizing and characterizing. Receiving, the first level, requires a passive reception or paying attention to the speaker. Responding, the second level on the other hand, entails active respondents and their role taking but not only as a response to a stimulus since the teacher correspondingly takes on such roles like participation in a conversation willingly. Valuing, a bit more complex, may be explained as imparting value to a concept, or object; for instance, attaching importance to democracy in ruling. As for organizing, it needs to fulfill new organization in light of the information secured by juxtaposition of and resolving clashes between two parties or poles. Here, the requirement is the student's ability to consolidate discrete values, notions and pieces of information to erect a new understanding of these as a new whole. Characterizing, also called internalization, is the student's internalization process of a notion, concept or a belief so far as to create a new character of it (Krathwohl, Bloom, & Masia, 1973).

Psychomotor domain as Bloom and his colleagues define, involves physical skills that are manipulated to utilize a tool or an instrument such as a screwdriver or a finger. In other words, it focuses on movement skills, coordinating skills, and motor skill areas that human beings possess. Neither Bloom nor his colleagues taking part in the commity of his taxonomy designed sublevels of psychomotor domain (Clark, 1999). Yet, Clark, 1999 referring to Dave (1967), Simpson (1972), and Harrow (1972), puts forward that the sublevels of the domain were constructed by these names (The Three Types of Learning section, para. 3). The levels comprise perception, set, guided response,

mechanism, complex overt response, adaptation and origination. Clark (1999) states: "...Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution..." (Psychomotor Domain section, para. 2). Then he continues with a chart consisting seven sublevels consisting of elements such as perception, set, guided response, mechanism, complex overt response, adaptation and origination. He defines perception similar to a capability to employ sensory cues to direct motor activity; set akin to readiness to act, which involves dispositions of mental, physical and emotional states; guided response as the prior phase of a skill obtained that entails imitation; mechanism as the intermediate level in learning a complex still and this level skill has semi-automaticity counting on self confidence; complete overt response as the skill level that includes complete automaticity in performing motor acts consisting of complex patterns of movement, adaptation as a well developed skill level that is able to perform responses to spontaneous experiences; and finally origination as the skill level that possesses creativity so far as to create new movement patterns to realize, for instance, new theories, new training programs etc.

Although psychologists have great importance as to the development of cognitivism, another professional group that has had great impact on the development of Cognitivism, at least as much as psychologists have, is linguists. In fact, it was Chomsky who ignited a revolutionary flame as a linguist in the field.

In 1954 Chomsky published his famous review of Skinner's Verbal Behaviour. This revolt of Chomsky against behaviourism ushered in a new journey in both psychology and linguistics. Also, in 1957 Chomsky with his book *Syntactic Structures* gave birth to a term, *transformational generative grammar,* which was concerning his theories about syntax. As a mathematician he was after a grammar theory that compiles solutions for dealing with both surface and deep structures of language which he would call *transformational* to reflect this standpoint of his. Chomsky, with his work, strived to construct certain rules leading to well formed sentences in a language. He took the attention to the situation that through adding and omitting or simply changing the places of the words, it was possible to generate new sentences from a sentence subject to certain rules (Kamran, n.d.). This was the consolidation of Chomsky's new revolution

initiated by his famous criticism of Skinner's *Verbal Behavior.* Now it was perspicuous that Chomsky put forth a new debate positing a necessity that human language be scrutinized through new instruments aside from behavioristic ones such as observable stimuli and response.

However, the gist of the psychologists' and linguists' exhaustive investigations listed thus far depends on the studies and observations executed on first language acquisition. Nonetheless, there is more to add to the list when second language acquisition is implicated in the issue.

Brown (2002, pp. 282-286) utters two momentous cognitive models; Mac Laughlin's attention processing model and implicit and explicit models. As for the first one, Mc Laughlin's attention processing model, Brown epitomizes it to be primarily in regard to processing mechanisms, controlled and automatic, and their allocation to two basic categories of attention; focal and peripheral. All these are garnered under the title of *attention to formal properties of language* which involves four cells.

As a preliminary concern, the model seeks to avert from the term *consciousness* since it is evaluated to be a pitfall on the grounds that both focal and peripheral attentions could be conscious in effect. To start with the first cell, it refers to *focal controlled processes*. These are such processes as performances belonging to learners obtained through formal rule learning. The second cell identifies focal automatic processes as performances which are implemented in a test situation whereas the third one monitors *peripheral controlled processes* that are identified with implicit or analogic learning. Usually these do not contain any type of instruction. Finally, the last one represents peripheral automatic processes similar to performances in situations of communication. Accordingly, controlled processes are categorized as temporary and being yield of limited capacity while automatic processes are comparatively constant.

The next one, implicit and explicit models depend on the distinction that consists in the true nature of these terms; implicit vs. explicit. Explicit knowledge represents the knowledge that an individual already possesses about a language which may also be

uttered as facts. In addition, these are readily articulated by the individual resting on his or her ability. Diverse from Mc Laughlin's *focal attention*, explicit linguistic knowledge has nothing to do with the process of knowledge but the potential linguistic knowledge that is present in one's mind. Implicit knowledge, on the other hand, ascribes to the knowledge type that is acquired spontaneously; very similar to those of children when they acquire phonological, syntactic, semantic and pragmatic elements of a language without any formal information concerning rules that govern their performance. That is, children use information gathered through language tasks without questioning their rules when utilizing this information. As cited in Brown (2002), several explicit and implicit knowledge models are put foward by Ellen Bialystok (1978, 1982, 1990a), Rod Ellis (1994a, 1997), and Nick Ellis (1994a).

Last but not least, Ellen Bialystok (1978) as cited in Brown (2002) provided a flow chart designating the place of implicit and explicit processes in learning:

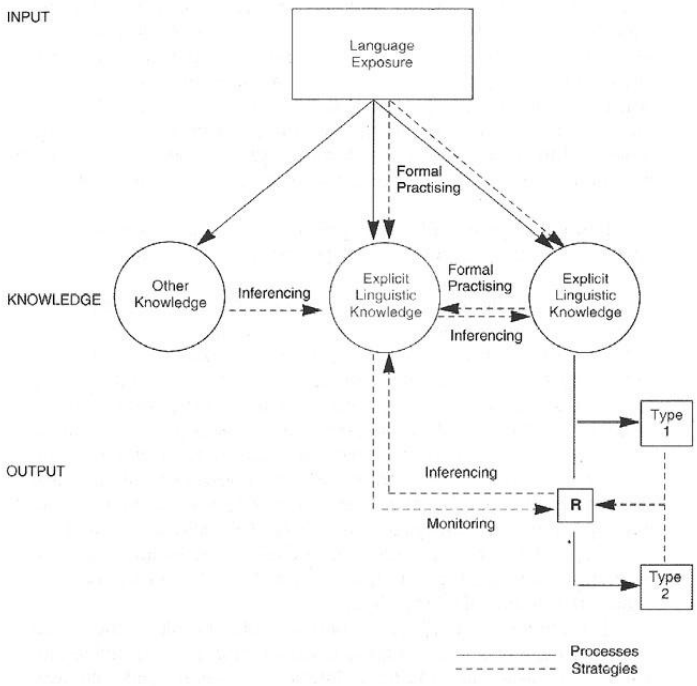


Figure 1. Model of Second Language Learning (Bialystok, 1978).

Bialostok, in the following period, substituded the terms *impliciy and explicit knowledge* with unanalyzed *and analyzed knowledge.* In her jargon, the term

unanalyzed corresponds to learners' very limited awareness or unawareness of language rules while the term *analyzed* is submitted as learners' verbal ability of rules (Brown, 2002).

Cognitive models, later on, would leave their places to social learning theory and social constructivism gradually and successively on account of their lack of individualistic aspects and affective characteristics.

2.3. CONSTRUCTIVISM

Constructivism, an epistemology but not pedagogy, is frequently identified with Jean Piage although it cannot be ascribed to solely one person as a founder father. Additional names that are again frequently uttered when constructivism is point at issue are Vigotsky, and Bruner who contributed much to the emergence of it with their telling propositions. Today, it has a booming effect in education cycles with its simple aspect of leraning how to learn (Hausfather, 2001, p.15).

Constructivism basically regards learners as the active participant of the process of learning rather than a passive receiver (Fosnot, 2005). In this sense, constructivism basically attaches importance to the learners and the learning environment instead of teachers or instructors. Thus, it turns out to be a common misconception to appreciate constructivism as a methodology that teachers apply to the subjects in the classroom atmosphere or a concept in fundamental regard to what teachers do. Since a long period of time teachers are due to attend or teaching training programs in order to learn how to create the best recipe to utilize for all students. Contrary to this predisposition constructivism do not embrace a so-called best recipe for all. Instead, as to constructivism it is a must that educators understand there can be no recipe for all since constructivism is a stream that enacted in order to defy such an erroneous perception (Canestrary & Marlowe, 2010). Accordingly, constructivism as a learning theory deals with the fabric of knowledge, or rather how to construct knowledge instead of how to receive knowledge. More overtly, knowledge is not learnt exclusively form one channel but erected in reference to the past experiences of the individuals engaged in the process

of learning and the unification of the new information attained throught the interaction of these individiuals with their environment (Cannella & Reiff, 1994). In congrous with this presumption, knowledge cannot be confined in any book or the borders of it cannot be delineated from a specific source; it is produced by each contributor when they get in the process of reading, debating or brainstorming (Richardson, 1997). Actually and more overtly, Ertmer (1993) defines constructivism as a branch of cognitivism except for the difference that constructivists do not share the belief that reality is mind independent and is only representatively stored in mind. Instead, knowledge is created by human beings in place of transferring it from external world into their memories.

When constructivism is adopted as a learning theory, then among the pioneer figures come three major cognitive psychologists; Piaget, Vigotsky and Bruner. These three psychologists each contributed to the emergence of constructivism from different dimensions. Piaget, therefore, who calls himself a genetic epistemologist, took the torch from Chomsky's hand, giving shoulder to a new cognitive revolution via drawing all the attention to the introspective aspects of human learning as a psychologist. However, Piaget's stance for constructivism differs from Vigotsky's in that Piaget, as an opposition to the principles of behaviorism, developed his cognitive view which made for the development of one side of the medal focusing on internal mechanisms (Santrock, 2007) whereas Vigotsky paid attention to the social and cultural aspect of the process of learning and was intrigued by the cultural and group interaction by means of language, constituting the other side of it (Vigotsky, 1978). Vigotsky, therefore, added a social aspect to the cognitivist current especially with his famous *zone of proximal development*, expanding the texture of constructivism to another end. In addition, unlike Piaget, Vigotsky supported the prevailing role of social interaction over children learning rather than fixed biological successive development periods that are necessary to precede learning process as favored by Piaget (Vigotsky, 1978).

Bruner, as another prominent motive for constructivism, took the issue one step further. Bruner's theory of constructivism influenced by the theoretical contributions of Piaget, and Vigotsky to the constructivist epistemology is acknowledged to be taking place in the cognitive domain. In terms of this theory, similar to Piaget's developmental stage

theory, learners construct new knowledge onto the pre-existing knowledge. Besides, this process is constructed via new senses obtained from authentic experiences. Therefore, a conglomeration of characteristics specific to constructivism such as activeness, transformation of information, meaning deduction, hypotheses building and decision making are all involved in Bruner's theory. Learners, in this sense, construct knowledge rather than give out the information previously taken. In contrast to Piaget's Genetic Epistemology, albeit admitting the existence of some stages that learners experience in terms of cognitive development, Bruner abstains from giving stages of age. Another discrepancy between Bruner's theory and Piaget's one is that Piaget' epistemology advocates learners follow a linear evolutionary stage development in succession whereas in Bruner's theory learners must realize an extrapolation taking the known as a reference point in order to move towards the unknown. As to Bruner, these stages consist of enactive, iconic and symbolic levels (Bruner, 1990). In the enactive stage, learners are not able to describe a physical task that they perform since they mostly have motor responses. The iconic stage is mostly concerned with visual images that make it more becoming to utilize diagrams when giving new information to learners. The last one symbolic stage represents a level when knowledge is utilized as in the form of arbitrary words, symbols and symbol systems. The *x* and . symbols may refer to the process of multiplication in mathematics while having the potential of conveying different meanings in other disciplines (Overbaugh, 2004).

All the same, Spivey (1989) amazingly reports that American social scientists of 70s began to give place to the citations referring to a British researcher, Sir Frederic Bartlett who had realized investigations on discourse comprehension and proposed constructivism as an explanation for his findings. His studies had been mainly on transformations that enact in the course of recalling process which were inscribed in his book *Remembering: A Study in Experimental and Social Psychology*. More dramatically, the research submitted in his book was an account of 20 years of investigations when published in 1932.

After all, the debate that has to do with the roots of constructivism put aside, it is possible to duplicate various types of constructivism depending on the choice of

knowledge construction. This situation drives constructivism to a vague plane in determining its precise place especially in education. There are myriads of written articles and another myriad of new coming ones that seek to project and re-determine the characteristics of constructivism via new theories, methods, et cetera.

At this juncture, Karagiorgi & Symeou (2005) referring to Ernest (1995, p.459) stress that there are many types of constructivism such as social, radical, evolutionary, post modern, information processing, etc., in proportion to the variety of researchers. All in all, they assert two major types of constructivism; radical and social. While radical constructivists opt for a reality unique the individual, social constructivist support that knowledge when shared outgrows its constraints.

2.4. TOP – DOWN AND BUTTOM – UP APPROACHES

In general terms, the phrases top-down and bottom-up correspond to analysis and synthesis which represent the positions: combining systems together in order to create a new system that will cover the former ones as subsystems vs. disintegrating a whole system in order to analyze its components. Similarly, in reading, top-down processes amount to decoding of information in line with the prior knowledge and expectations of the reader whereas buttom-up processes take only superficial processes into consideration focusing on reading letters and sounds in order to reconstruct the message (Richards et. al., 1992).

2.4.1. Top-Down (Concept Driven) Approach

Reading formerly was regarded as a decoding process of how to reconstruct the meaning embedded in the text by means of first the recognition of the letters, and words and second, the more complex patterns such as phrases and clauses. Then, the conception, with the successive studies, turned its direction to higher order processes in order to bring an explanation to the traits of reading process. In this new perception, the reading process was much more than deriving meaning from print. Instead, the process,

in this new stand point, acknowledged to initiate with introspective occurances taking part in human mind. Hence, cognitive processes were regarded as more important than outer stimuli and, thus, readers began to be considered making use of higher order processes instead of serial ones to make sense of what is written on a text (Goodman, 1967, Smith, 1971, 1972).

Top-down approach acknowledges the processing of a text to begin in the mind of reader with a meaning driven base considering readers as the active participants of the process instead of passive decoders. Thus, in order to decode the message, comprehension should be understood as a foundation but not a result. Readers, in terms of this model, bring another aspect to the preexisting message located in the text with their prior experiences. Accordingly, readers are to benefit from cues in order to make predictions about the message decoded. These cues may be listed as graphaphonic, semantic, syntactic and pragmatic ones. The insights for this approach could be asserted as a) the necessity of seeing language in its both social and human context. b) the necessity of seperating competence from performance. c) the necessity of studying language as a process proceeding from whole to part (Goodman, 1967).

2.4.2. Buttom-Up (Serial) Approach

Bottom-up approach, also called text- based, is the product of a view that considers reading as a single direction, part to whole process. Accoridng to this process, readers decode the message of a text through the principle of taking stimuli from the external world. Here, the message is reduced to the text itself and reading process is identified with producing sounds in compliance with the symbols on a text. In other words, the approach adopts the process of reading starting with the stimuli inscribed on a piece of sheet and working towards sequential higher stages (Gough 1972).

The bottom-up model of processing bears diverse sub-skills of cognition in a comprehensive codification comprising recognition, spelling and phonological processing, morphosyntactic parsing (Eskey, 2005).

Automaticity is the key concern of all bottom-up processes since the main aim of reading should be to create a non-stop reading process unlike the novice second language learners' reading that osiciliates during the reading process on account of vocabulary deficiency (LaBerge & Samuels 1974). This, of course, makes extensive reading both an inevitable and an indispensible stipulation of this approach. In extensive reading there are two major factors in terms of this approach; grammar and vocabulary. Since the lack of sufficient grammatical and vocabulary knowledge leads to the frustration of reading, then the practical upshot of this situation is that readers should be trained via intense grammar and vocabulary programs (Baudoin et al, 1977; Clark & Silberstein, 1977). While the grammar programs should focus on cohesive devises in order to enhance the logical transmission of the words and sentences, vocabulary programs should dwell on the issue how to enhance the lexicon that can enable rapid reading and therefore, rate building.

2.5. COMPREHENSION MODELS

When the increasing opposition to the simplistic learning models of 1950s opened a way for the advent of cognitivism and cognitivist evaluations of learning theories began to take hold in both psychological and educational cycle, it became a common task to come up with new models that theorize introspective approaches concerning learning. This was, to some extent, a dismissal of an entire period that reigned until 70s which occurred with an impetus quicker than a greased lightning. As an inevitable outcome of this new era, new cognitive evaluations were sought in new horizons such as developing new systems for how individuals understand and produce language. This cognitive revolution as a prognostic of a new innovation constructivism and its former roots, the emergence of text comprehension models are defined in a versatile way by Spivey (1989):

Certainly in the forefront of the cognitive revolution is research focused on discourse comprehension and thus focused also on the mental representations constructed by readers as they interact with written texts. This new attempt to understand the process of reading has been an interdisciplinary effort, undertaken by researchers from various

disciplines, including psychology, linguistics, artificial intelligence, and education – all of whose contributions are being made within the broad framework of the constructivist tradition. This tradition is both a way of thinking about reading and a way of studying the process of reading.

The most prevalent of the outcome of these studies in those years were the two models by the names of process model and interactive model, which will be explained in the following sections of this study.

2.5.1. The Process Model (Model of Comprehension):

In 1978 in Walter Kintsch working cooperatively with the Dutch linguist Teun van Dijk designed the first psychological discourse process theory (Kintsch, 1993) which would be promulgated as a constraint –satisfaction process later in 1988. More recently, the theory, generally adopted as process model in academic cycle, is regarded as an early component of the nascent stream constructivism evaluating comprehension as a process simultaneously concentrating on the skills that are targeted to be improved, which is foreshadowed by Knitsch's own words overtly in those years:

> "…no longer concerned with merely analyzing language, we proposed to model how subjects understand and produce that language. That is, we shifted the level of discourse from descriptive systems to process models. This proved to be a major step, leading up to the current scene which is characterized by rich experimental and theoretical work on discourse processing from a large group of researchers in psychology, education, linguistics, and artificial intelligence (1993, p.1.).

Kintsch and van Dijk put forward that three mental representations of a text read is erected by the reader; a through representation of the text, a meaning conveying semantic representation, and a situational representation that covers the situation referred to by the text. The initial stage covers a list of propositions that are secured from the text to form a propositional representation. Following the reading process of a complete sentence, the list of propositions is converted into a network pertaining to propositions. On condition that the text is coherent, all constituents of the network are linked to each other ("Model of Text Comprehension," 2011).

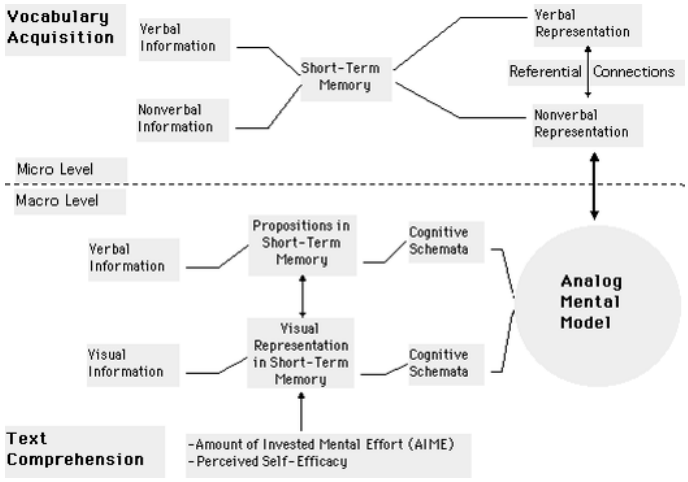


Figure 2. Conceptual Model of Text Comprehension (Chun, 1997).

Later on, in the following period Kintsch changed his model of text comprehension entireley with a more complicated up to date one taking part in his book *Comprehension*.

Also, as Güneş (2009) reports, the model of comprehension was later altered and improved by Giasson (1990, 1995) and Fayol (1992, 1999) into a new model. This new improved model is concerned with the proceeding of information that is acknowledged to be interwoven with the process of comprehension. *Selection*, *hierarchy building*, and *arranging* are the three steps whereby these two proceedings enact. *Selection* is the deliberate disregard of some information taking part in the text by the reader in the course of the reading process. Hence, this information is not implicated in the process as a part of the meaningful message while classification of the information selected in terms of its importance determined by the reader is designated as *hierarchy building*. As for the *arranging*, it is the arrangement of the information that is exposed to ordering beforehand, depending on multifarious processes such as classification, questioning, relating, evaluation and interconnecting in the wake of which is consolidated with the pre-existing information of the reader. Thus, the reader creates new senses. This ultimate phase reached at the end of three step processes is pronounced as *comprehension method*.

2.5.2. The Interactive Model

This model, in compliance with social constructivism, considers comprehension as a three-corporate process consisting of text, reader and environment (Rumelhart, 1980). The model later improved by Mc Callen & Rumelhart (1981) and Lesgold and Perfetti (1981) embodies the interaction between the elements of a three-corporate process carried out in mind of the reader before, during and after the reading process, thereby determining the very fabric of the comprehension that enacts during but not at the end of reading process. The previously existent knowledge in mind of the reader that has a continuous interplay with the outer stimuli such as the text message is either consolidated or compromised (Carrell & Eisterhold 1988). Although one may think that the activation of schema is realized by the very first message of a text, this kind of a position could be a misconception since the process is acknowledged to begin with the earlier expectations embedded in mind of human beings (Swales, 1990). This model entitles the reader to possess autonomous characteristics in constructing the knowledge in comformity with the backbone of constructivism.

In the course of the comprehension process readers execute some processes that could be compiled under the titles of pre-reading, while-reading and post-reading processes. These also may refer to some educational and methodological implications such as brain storming and quessing activities (pre-reading), controlled reading, jig-saw reading activities (while-reading) and evaluation, discussion, role playing activities (post-reading). The following diagram of Rumelhart, (2004) best epitomizes the interactive model of comprehension.

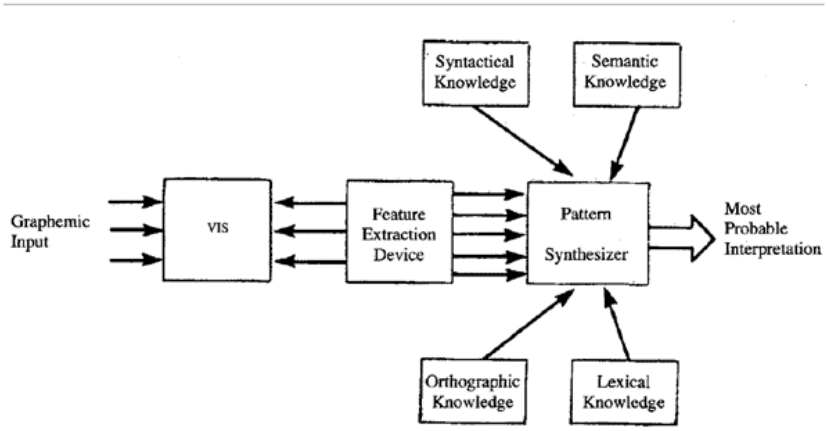


Figure 3: The Interactive Model of Comprehension (Rumelhart, 2004).

Interactive model stresses the necessity of utilizing both top-down and bottom-up approaches through its proposition that reading enacts depending on the intervowen relation of text, the reader, and the environment (Stanovich, 1980).

The practical outcome of such a situation is that interactive model resembles a synthesis that attaches importance to all kinds of text centered approaches and reader centered approaches consolidating both towards building a more reasonable and versatile comprehension model that involves the two major models of reading; top-down and bottom-up.

Correspondingly, Stanovich (1980), with his Interactive-Compensatory Model, favors that contextual information is used by mediocre readers to tackle the problems induced by weak word recognition skills. This model has two grounds; one concerns the contextual facilitation of word recognition, and the other concerns facilitation of the process of comprehension. Skillful readers do not derive benefit from contextual facilitation of word perception since they do not spend time with such concerns as understanding unknown word. Here, what enables them to do this is their borad knowledge of vocabulary, namely, a large lexion. On the other hand, good readers perceive words through top-down approaches, which gives them the opportunity for a more rapid comprehension monitoring.

The last but not the least, it can be concluded that;

> "interactive process gives importance to previous knowledge and prediction as well as accurate processing of the actual words of the text. According to this process, clues are taken from the page by the eye and transmitted to the brain. Then, the brain tries to match existing knowledge to the data to facilitate the further processing of new information. On the basis of this previous experience, predictions are made about the content of the text (Celce-Murcia, 1991, p.197 cited in Yiğiter, Sarıçoban, & Gürses, 2005, pp.125-126).

Reading Activities through a Three Phase Approach

In this part activities and goals in three stages of reading will be examined (Yiğiter, Sarıçoban, & Gürses, 2005, pp.125-126, and Sarıçoban, 2002, pp.3-5).

Pre-reading Stage

1. to activate the students' knowledge of the subject,
2. to provide any language preparation that might be needed for coping with the passage,
3. to motivate the learners to want to read the text,
4. to help the students feel confident that they have prior knowledge about the text (Frager, 1993, p.616),
5. to promote student's engagement and interest by providing them with means to preview and anticipate the text,
6. to comment on the visuals,
7. to draw student's attention on the new vocabulary (Sarıçoban 2001, p.77),
8. to set the scene,
9. to talk about the title,

During-reading Stage

1. set ways for students to interact with text by providing directions and questions (Kang, 1994, p.649),
2. to help understand the writer's purpose and intention,
3. to help understand the text structure and the logical organization in a reading passage,
4. to clarify and comprehend the text content,
5. to help students use inferencing and judging,
6. to help students discover cross-cultural differences in reading,
7. to survey the general information,
8. to look for specific information,
9. to find the answers of questions given at the beginning of the text (pre-reading questions),

Post-reading Stage

1. to make connections,
2. to extend the reading experience,
3. to review the first two stages,

4. to lead students to a deeper analysis of the text, Sarıçoban (2001, p.78) lists the goals of post-reading as in the following:
5. to outline,
6. to use classroom games,
7. to use the focus words or structures in a controlled writing situation (summarizing),
8. to answer some of the comprehension questions and the critical questions,
9. to be able to use what has already been learnt,

CHAPTER 3

METHODOLOGY

The present study explored the role of the process and the interactive models in developing reading skills in English language teaching (ELT) with special reference to constructivism. To do so, a questionnaire investigating the role of these models was given to the first year students of ELT at Gazi University and Hacettepe University. Their achievement scores in reading skills were correlated with the questionnaire scores that represent students' opinions. At the end of the study, the results were discussed with special reference to the theory of constructivism. Accordingly, the present study sought to account for the following research questions:

1. Is there a statistically significant correlation between the students' attitudes towards the process and interactive models and the participants' achievement scores in reading in general?

2. Is there a statistically significant correlation between the students' attitudes towards the process and interactive models and gender?

3. Is there a statistically significant correlation between the students' attitudes towards the process and interactive models and age?

4. Which items of the process modal are mostly preferred by the learners?

5. Which items of the interactive model are mostly preferred by the learners?

3.1. SUBJECTS OF THE STUDY

This study was implemented at the English Language Teaching Departments of Gazi and Hacettepe Universities in Ankara, Turkey. The students that participated in the present study were 140 individuals from Gazi University and another 120 individuals from Hacettepe University. On the grounds that the majority of the ELT department usually comprises female pupils, most of the participants were females.

Since the undergraduates were admitted to the department in the wake of a placement test that vindicates them to be proficient in English, the participants were acknowledged to be proficient users of English albeit their label of non-native speakers. In addition, following their acceptance to the department the pupils were to succeed a preparatory class exemption exam consisting of reading, writing, listening and speaking parts, which consolidates their position as proficient users of English that is necessary for the goal of our study. Therefore, the entire participants of the current study were thought to be almost at the same proficiency level although they consisted of undergraduate students of different universities.

3.2. DATA COLLECTION

In this study quantitative data were secured via likert-type scale in order to measure the attitudes of the participants from a large universe. The participants of the study were distributed a questionnaire so as to determine the use of the process and the interactive models in developing reading skills. The questionnaire was structured by the researcher upon the opinions of experts in the same field.

As a second step, the results attained from the questionnaires were correlated with the achievement level of the students. To identify the comprehension models employed by the participants at each university, descriptive statistics were processed via the Statistical Package for Social Sciences (SPSS) 17.0. The items of the questionnaire

were compared to each other through the analysis of the t-test, and variance analysis of SPSS.

3.2.1. The Questionnaire

The questionnaire was divided into two parts. Part A included 12 questions with a five-point Likert scale seeking to determine the participants' positions concerning process model. Subjects responded to these questions as 1) strongly agree 2) agree 3) not decided 4) disagree 5) strongly disagree in terms of their stance towards process model.

Part B of the questionnaire had 17 questions, that were responded to by the participants so as to evaluate interactive model again in terms of a five point Likert scale as 1) strongly agree 2) agree 3) not decided 4) disagree 5) strongly disagree. All question items of the scales were inspired by Güneş (2009).

The interval reliability of the items was measured by Cronbach's Alpha Analysis and the result was 79 % reliable as seen as follows;

3.3. PROCEDURE

Following the permission procedure, to both universities, in the fall Spring term of 2010-2011, the academic staff of the English Language Teaching Departments of both Gazi and Hacettepe universities were asked to distribute 217 copies of a two-page questionnaire, 97 allocated to Gazi and 120 allocated to Hacettepe. The entire questionnaires returned back to the researcher without any loss thanks to the attention paid to the study by the academic staff of either department.

3.2. DATA ANALYSES

Data analyses of the present sudy were carried out using Statistical Package for Social Sciences (SPSS) 17.0. The questionnaire applied in this study falls into two parts; Part A and Part B. In Part A are the items concerning the process model, while Part B consists of the items regarding the interactive model. In order to determine whether there is a difference between the attitudes of the students and their achievement scores, as the first step, the internal consistency of the study was evaluated through Cronbah's Alpa that measures the reliabitiy of a statistical study. As the second step, the most widely used type of statistical testing, an independent t-test was applied to the data gathered from the subjects to determine whether there is a significant correlation between the attitude scales and the achievements scores of the pupils in terms of age and gender. Since the independent t-test rests on the assumption that there is an equal variability between the two gorups, as the third step, the Levene's Test for Equality of Variances (2- tailed) was applied to demistify whether there was a difference of variance between the variables of the two groups. The results showing the correspondance between the responses given to the 29 questionnaire items, 12 representing the process model and 17 representing the interactive model, and the the achivement scores are submitted via listing the tables monitoring; number of the participants (n), mean (Mean), standard deviation (sd), standard error (SE), significance (p) value of levence test (Sig.), degrees of freedom (df), the two-tailed p value associated with the test (Sig. (2-tailed)). In light of the results secured by the Levene's Test for Equality, all seventeen items that belong to the interactive model of reading copmrehension represented under three subgroups of BA, BB and BC appear to have significant correlation with demographic items such as Question 5 (gender) and Question 6 (age). Significiantly correlated items were shown before the related tables that follow an explanation.

CHAPTER 4

RESULTS

This chapter covers the discussion in regard to the results of the questionnaire.

4.1. THE RESULTS OF THE QUESTIONNAIRE

The findings of the study are not presented item by item following their authentic sequence of appearance in the hard copies. Instead, the interval reliability test Cronbach's Alpha and the entire descriptive statistics of all items of the study are given at first step in order to monitor the overall destination of the study consistent with the findings. Also, the groups representing the significant items, splitted into two parts, are scrutinized under two main parts: Part *A Process Model* and Part B *The Interactive Model*. The tables of the t-test and the Levene's test for equality of variances (2- tailed) have been run where necessary. Moreover, the interval reliability test Cronbach's Alpha (r=.792) indicated the reliability of the study as follows:

Table 1. Reliability Statistics

Cronbach's Alpha	N of Items
0,792	29

The Cronbach's Alpha Statistical Analysis of Reliability showed a statistical interval reliability of 79%, which entitles the study to be reliable.

The descriptive statistics for all items of the study are given below:

4.1.1. The Correlation between Comprehension Models and Achievement.

Table 2. The Desriptive Statistics for Achievement and Comprehension Models.

	Achievement	N	Mean	Std. Deviation	Std. Error Mean
General	Unsuccessful	48	3,8533	0,29914	0,04318
	Successful	169	3,8442	0,32396	0,02492
A	Unsuccessful	48	3,7208	0,32972	0,04759
	Successful	169	3,7118	0,37061	0,02851
B	Unsuccessful	48	3,9471	0,37774	0,05452
	Successful	169	3,9377	0,40329	0,03102
AA	Unsuccessful	48	3,7865	0,39272	0,05668
	Successful	169	3,7115	0,44987	0,03461
AB	Unsuccessful	48	3,4512	0,61735	0,08911
	Successful	169	3,4556	0,62531	0,04810
AC	Unsuccessful	48	3,8292	0,44433	0,06413
	Successful	169	3,8663	0,50034	0,03849
BA	Unsuccessful	48	3,9323	0,57598	0,08314
	Successful	169	3,8284	0,54499	0,04192
BB	Unsuccessful	48	3,9531	0,43017	0,06209
	Successful	169	3,9714	0,47567	0,03659
BC	Unsuccessful	48	3,9542	0,50232	0,07250
	Successful	169	3,9751	0,51603	0,03969

A: Process Model; B: Interactive Model; AA: Selection; AB: Hierarchy Building; AC: Arranging; BA: Pre-reading; BB: While-reading; BC: Post-reading.

As is indicated in Table 2, it is hard to say that achievement and reading models have strong correlations (m= 3.85 for unsuccessful learners; m=3.84 for successful learners). Besides, this negative case preciously has been observed for process model (m=3.72 for unsuccessful learners and m=3.71 for successful learners).

Table 3. T-test Table for Two Independent Samples regarding Correlation between Comprehension Models and Achievements

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t_{hesap}	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
General	Equal varianes assumed	0,628	0,429	0,175	215	**0,861**	0,00913	0,05212
	Equal variances not assumed			0,183	81,014	0,855	0,00913	0,04985
A	Equal variances assumed	0,232	0,631	0,153	215	**0,879**	0,00906	0,05922
	Equal variances not assumed			0,163	83,765	0,871	0,00906	0,05548
B	Equal variances assumed	1,187	0,277	0,144	215	**0,885**	0,00939	0,06507
	Equal variances not assumed			0,150	80,013	0,881	0,00939	0,06273
AA	Equal variances assumed	0,421	0,517	1,046	215	**0,297**	0,07492	0,07164
	Equal variances not assumed			1,128	85,250	0,262	0,07492	0,06641
AB	Equal variances assumed	0,003	0,957	-0,042	215	**0,966**	-0,00431	0,10199
	Equal variances not assumed			-0,043	76,563	0,966	-0,00431	0,10126
AC	Equal variances assumed	1,140	0,287	-0,464	215	**0,643**	-0,03711	0,07992
	Equal variances not assumed			-0,496	83,905	0,621	-0,03711	0,07480
BA	Equal variances assumed	0,093	0,760	1,151	215	**0,251**	0,10389	0,09027
	Equal variances not assumed			1,116	72,628	0,268	0,10389	,09311
BB	Equal variances assumed	0,945	0,332	-0,239	215	**0,811**	-0,01824	0,07623
	Equal variances not assumed			-0,253	82,529	0,801	-0,01824	0,07207
BC	Equal variances assumed	0,046	0,830	-0,250	215	**0,803**	-0,02098	0,08391
	Equal variances not assumed			-0,254	77,451	0,800	-0,02098	0,08266

When The Ho –null hypothesis- that assumses no difference between successful and unsuccessful students is tested, the significance 2- tailed value (.86) of the test table denotes there is no lower value than the p value = 0,05 in general. This indicates there is no significant correlation between the two comprehension models and the achievement scores of the learners. Furthermore, the table also denotes that no statistically significant correlation between the process model and the achievement scores has been observed (2-tailed significance value=.879>.05). Another striking point is that there is also no statistically significant correlation between the interactive model and the achievement

scores of the learners (2-tailed significance value=.885>.05). Relying on these findings it is easy for us to speculate that utilizing either comprehension model does not significantly play a role in learners' achievement in improving comprehension.

4.1.2. The Correlation between Comprehension Models and Gender

Table 4. The Descriptive Statistics for Gender with Special Reference to Comprehension Models

	Gender	N	Mean	Std. Deviation	Std. Error Mean
General	Male	48	**3,7515**	0,33439	0,04827
	Female	169	**3,8731**	0,30891	0,02376
A	Male	48	3,6929	0,37840	0,05462
	Female	169	3,7197	0,35717	0,02747
B	Male	48	**3,7929**	0,39490	0,05700
	Female	169	**3,9815**	0,38864	0,02990
AA	Male	48	3,7448	0,36280	0,05237
	Female	169	3,7234	0,45810	0,03524
AB	Male	48	3,4371	0,70522	0,10179
	Female	169	3,4596	0,59866	0,04605
AC	Male	48	3,8042	0,50947	0,07354
	Female	169	3,8734	0,48187	0,03707
BA	Male	48	**3,7135**	0,57193	0,08255
	Female	169	**3,8905**	0,54199	0,04169
BB	Male	48	**3,8146**	0,42671	0,06159
	Female	169	**4,0107**	0,46755	0,03597
BC	Male	48	**3,8250**	0,52451	0,07571
	Female	169	**4,0118**	0,50224	0,03863

A: Process Model; B: Interactive Model; AA: Selection; AB: Hierarchy Building; AC: Arranging; BA: Pre-reading; BB: While-reading; BC: Post-reading.

A careful analysis of Table 4 reveals that a correlation exists between comprehension models and gender (sig. 2-tailed= .019<.05). More specifically, this correlation is clearly observed between the interactive models and gender (sig. 2-tailed= .003<.05). More importantly, the correlation between the interactive model and gender is significant for the items BA: Pre-reading (sig. 2-tailed= .05=.05), BB: While-reading (sig. 2-tailed= .01<.05), and BC: Post-reading (sig. 2-tailed= .025<.05). Generally, females seem to have overperformed males in these three stages of reading

(Females:m=4.01 in while- and post-reading, m=3.89 in pre-reading as opposed to males:m=3.81, m=3,82, and m=3,71 respectively).

Table 5. T-test Table for Two Independent Samples in terms of Age

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t_{hesap}	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
General	Equal variances assumed	0,326	0,568	-2,364	215	0,019	-0,12168	0,05146
	Equal variances not assumed			-2,262	71,373	0,027	-0,12168	0,05380
A	Equal variances assumed	0,037	0,848	-0,453	215	0,651	-0,02679	0,05919
	Equal variances not assumed			-0,438	72,497	0,663	-0,02679	0,06114
B	Equal variances assumed	0,055	0,816	-2,956	215	0,003	-0,18856	0,06379
	Equal variances not assumed			-2,930	74,830	0,004	-0,18856	0,06436
AA	Equal variances assumed	3,080	0,081	0,298	215	0,766	0,02142	0,07181
	Equal variances not assumed			0,339	93,822	0,735	0,02142	0,06312
AB	Equal variances assumed	1,370	0,243	-0,221	215	0,826	-0,02250	0,10198
	Equal variances not assumed			-0,201	67,418	0,841	-0,02250	0,11172
AC	Equal variances assumed	0,015	0,903	-0,867	215	0,387	-0,06921	0,07982
	Equal variances not assumed			-0,840	72,608	0,403	-0,06921	0,08235
BA	Equal variances assumed	0,002	0,963	-1,972	215	0,050	-0,17699	0,08974
	Equal variances not assumed			-1,914	72,710	0,060	-0,17699	0,09248
BB	Equal variances assumed	0,597	0,440	-2,613	215	**0,010**	-0,19613	0,07506
	Equal variances not assumed			-2,750	81,856	0,007	-0,19613	0,07132
BC	Equal variances assumed	0,217	0,642	-2,252	215	**0,025**	-0,18683	0,08295
	Equal variances not assumed			-2,198	73,276	0,031	-0,18683	0,08499

When The Ho –null hypothesis- that assumses the difference between the female and male students is not important is tested, the significance 2- tailed value of the test table denotes that the values of the items B, BA, BB, and BC are lower than the p value = 0,05 as is indicated above. This indicates a significant difference between female and male students at a level of 95% reliability in terms of the all items of the interactive model. This signifies that gender can be a predictive factor in employing the reading stages; pre-, while-, and post-.

4.1.3. The Correlation between Comprehension Models and Age

Table 6. The Descriptive Statistics for Age with Special Reference to Comprehension Models

	Age	N	Mean	Std. Deviation	Std. Error Mean
General	18-20	197	3,8393	0,31295	0,02230
	21+	20	3,9140	0,36591	0,08182
A	18-20	197	3,6982	0,35681	0,02542
	21+	20	3,8670	0,37822	0,08457
B	18-20	197	3,9390	0,38956	0,02776
	21+	20	3,9470	0,47504	0,10622
AA	18-20	197	3,7195	0,45001	0,03206
	21+	20	3,8125	0,29104	0,06508
AB	18-20	197	3,4245	0,61223	0,04362
	21+	20	3,7510	0,65704	0,14692
AC	18-20	197	3,8457	0,48963	0,03488
	21+	20	3,9800	0,46294	0,10352
BA	18-20	197	3,8541	0,55036	0,03921
	21+	20	3,8250	0,58546	0,13091
BB	18-20	197	3,9625	0,46171	0,03290
	21+	20	4,0150	0,50729	0,11343
BC	18-20	197	3,9736	0,50114	0,03570
	21+	20	3,9400	0,62273	0,13925

A: Process Model; B: Interactive Model; AA: Selection; AB: Hierarchy Building; AC: Arranging; BA: Pre-reading; BB: While-reading; BC: Post-reading.

In terms of the gorup statistics, the first group comprises 197 students. The mean value of the group is very low (3.83) and the standard deviation is low (0.31) too. The low standard deviation indicates a homogeneous group, which in terms of achievement

scores amounts to a typical distribution. The second goup comprises 20 students. The mean value of the group is very low (3.91) and the stadard deviation is low (0.36) too. The low standard deviation indicates a homogeneous group, which in terms of achiement scores amounts to a typical distribution. Therefore, the two groups appear to be sharing almost the same attitudes. However, it may be asserted that there is a statistically significant difference in the utilization of the process model (m=3.69 for 18-20 age group; m=3.86 for 21+ age group). This is clearly observed in AB: Hierarchy Building (m=3.42 for 18-20 age group; m=3.75 for 21+ age group).

Table 7. T-test Table for Two Independent Samples in terms of Age

		Levene's Test for Equality of Variances		t-test for Equaliy of Means				
		F	Sig.	t_{hesap}	Df	Sig. (2-tailed)	MeanDifference	Std. Error Difference
General	Equal variances assumed	0,660	0,417	-1,000	215	0,318	-0,07466	0,07462
	Equal variances not assumed			-,880	21,915	0,388	-0,07466	0,08480
A	Equal variances assumed	0,165	0,685	-2,005	215	0,046	-0,16878	0,08419
	Equal variances not assumed			-1,911	22,571	0,069	-0,16878	0,08831
B	Equal variances assumed	0,194	0,660	-0,085	215	0,932	-0,00796	0,09337
	Equal variances not assumed			-0,073	21,673	0,943	-0,00796	0,10979
AA	Equal variances assumed	3,534	0,061	-0,904	215	0,367	-0,09296	0,10286
	Equal variances not assumed			-1,281	29,176	0,210	-0,09296	0,07255
AB	Equal variances assumed	0,364	0,547	-2,257	215	0,025	-0,32648	0,14464
	Equal variances not assumed			-2,130	22,480	0,044	-0,32648	0,15326
AC	Equal variances assumed	0,569	0,451	-1,174	215	0,242	-0,13431	0,11437
	Equal variances not assumed			-1,230	23,531	0,231	-0,13431	0,10924
BA	Equal variances assumed	0,203	0,652	0,224	215	0,823	0,02906	0,12991
	Equal variances not assumed			0,213	22,544	0,834	0,02906	0,13666
BB	Equal variances assumed	0,124	0,725	-0,480	215	0,632	-0,05251	0,10934
	Equal variances not assumed			-0,445	22,315	0,661	-0,05251	0,11811
BC	Equal variances assumed	0,552	0,458	0,279	215	0,780	0,03360	0,12040
	Equal variances not assumed			0,234	21,571	0,817	0,03360	0,14375

The results indicated the existence of a significant difference of age for the students between the intervals of 18-21 and 21 and over with a reliablity level of 95% concerning the first seven items of the process model. When The H_o –null hypothesis- that assumses the difference between the demographic items of age, 18-20 and 21 and over, is not important is tested, the significance 2- tailed value of the test table denotes that the values of the items A and AB are lower than the p value = 0,05. This indicates a significant difference between all of the students at a level of 95% reliability. Therefore, it can be said the age seems to be a predictive factor in Hierarchy Building in the sense that 21+ age group tries to put the information they read in a text in an order of importance, decides the order of the information themselves, and they consider the information they do not use as not important.

4.1.4. The Comprehension Models that the Learners Prefer Most

As to the analysis of the comprehension models the learners employ in developing reading skills, the followings should be taken into consideration:

Table 8. The Descriptive Statistics for Comprehension Models

	N	Minimum	Maximum	Mean	Std. Deviation
General	217	2,83	4,66	3,8462	0,31798
A	217	2,50	4,75	3,7138	0,36125
B	217	2,71	4,94	3,9398	0,39694

A: Process Model; B: Interactive Model

Table 8 signifies no correlation between the utilization of the process model and the interactive model by the learners. However, a careful analysis of Table 9 and Table 10 below reveals some significant results.

4.1.4.1. The Process Model

Table 9. The Descriptive Statistics for the Process Model

	N	Minimum	Maximum	Mean	Std. Deviation
AA1	217	1,00	5,00	*3,1106*	0,93627
AA2	217	1,00	5,00	*4,1290*	0,66801
AA3	217	1,00	5,00	*3,6359*	0,83953
AA4	217	1,00	5,00	*4,0369*	0,79845
AB1	217	1,00	5,00	*3,8479*	0,88710
AB2	217	1,00	5,00	*3,6406*	0,85517
AB3	217	1,00	5,00	*2,8756*	1,10897
AC1	217	2,00	5,00	*3,7788*	0,71809
AC2	217	1,00	5,00	*3,8249*	0,89066
AC3	217	1,00	5,00	*3,9355*	0,73628
AC4	217	1,00	5,00	*4,0415*	0,74108
AC5	217	1,00	5,00	*3,7097*	0,68957

AA1: I use the information I read in a text exactly without any change; AA2: I select the information I read in a text when I consider it as necessary; AA3: I disregard some of the information I read in a text; AA4: I use/utilize my prior knowledge a lot when I read a text; AB1: I put the information I read in a text in an order of importance; AB2: I decide the order of the information myself; AB3: The information that I do not use is not important; AC1: I classify the information that I put in an order; AC2: Later on, I question the correctness of the information again; AC3: I relate the new information to each other; AC4: I relate the new information to my prior data, AC5: I reconceptualize the new information.

As is seen in Table 9 above the process model covers 12 items which were asked to be responded by the participants through a five-point Likert scale prepared relevant to their thoughts regarding the process model of comprehension. The item direction was designed at random so as not to give place to any fixed responses and monotony. Of the 12 items regarding the process model, the learners mostly prefer selecting the information they read in a text when they consider it as necessary (m=4.12). As a second preference they relate the new information to their prior data (m=4.04). Finally, they prefer using/utilizing their prior knowledge a lot when they read a text (m=4.03).

In the analysis of the findings in this study the mean avarages between 4 and 5 has been positively interpreted since the mean avarage 4 indicates that the learners often favor the reading comprehension models and the mean avarage 5 implies that they always favor them. The mean avarage between 3 and 3.5 has been disregarded in the interpretation of the findings sincethis range value indicates that they sometimes prefer these models.

However, the mean avarage 3.6 and over (close to 4) has also been regarded as a preference for the learners. Therefore, this case is also valid for the interpretaions for the other section, too. Relying on this fact, it can be asserted that the participants of this study almost often;

a. Selection

1. disregard some of the information they read in a text.

b. Hierarchy Building

1. put the information they read in a text in an order of importance and
2. decide the order of the information myself.

c. Arrangement

1. classify the information that they put in an order,
2. question the correctness of the information again,
3. relate the new information to each other, and
4. reconceptualize the new information.

4.1.4.2. Part B. The Interactive Model

Table 10. The Descriptive Statistics for the Interactive Model

	N	Minimum	Maximum	Mean	Std. Deviation
BA1	217	1,00	5,00	*3,9816*	0,79328
BA2	217	1,00	5,00	*3,8848*	0,85016
BA3	217	1,00	5,00	*3,8525*	0,90083
BA4	217	1,00	5,00	*3,6866*	0,86787
BB1	217	2,00	5,00	*4,0968*	0,68370
BB2	217	1,00	5,00	*3,9171*	0,86738
BB3	217	2,00	5,00	*4,1567*	0,71580
BB4	217	1,00	5,00	*3,9585*	0,82951
BB5	217	2,00	5,00	*3,9355*	0,86895
BB6	217	1,00	5,00	*3,9816*	0,87646
BB7	217	1,00	5,00	*3,8111*	0,86937
BB8	217	1,00	5,00	*3,8618*	0,95222
BC1	217	1,00	5,00	*3,7373*	0,83895
BC2	217	1,00	5,00	*4,0968*	0,81356
BC3	217	2,00	5,00	*3,9539*	0,75012
BC4	217	1,00	5,00	*4,0691*	0,73271
BC5	217	1,00	5,00	*3,9954*	0,87928

BA1: I find it useful to do scanning exercises; BA2: I find it useful to do predicting exercises such as quessing the topic; BA3: I find it useful to discuss the title and the pictures of a text beforehand; BA4: I always refer to my personal prior knowledge to well appreciate a text; BB1:I find it useful to do quessing the meaning from context exercises; BB2 I find it useful to do skimming exercises; BB3: I find it useful to do finding the main idea exercises; BB4: I find it useful to do finding the supporting ideas exercises; BB5: I find it useful to do brainstorming exercises before I read a text; BB6: I find it useful to do finding the topic sentece exercises; BB7: I find it useful to dorestatement exercises; BB8: I find it useful to do dictionary study exercises; BC1: I find it useful to do reflective writing exercises; BC2: I relate the text to my own knowledge , interest or view and to my real life experiences; BC3: I find it useful when my instructor wants me to use the new information; BC4: I find it useful to apply the new information to similar texts; BC5: I find it useful to make oral reviews (summary).

This part covers 17 items which were asked to be responded by the participants through a five-point Likert scale relevant to their thoughts regarding the interactive model of comprehension. The item direction was designed at random again so as not to give place to any fixed responses and monotony.

When Table 10 is carefully examined, it is observed that the learners prefer finding the main idea exercises (m=4.15), quessing the meaning from context (m=4.09), relating the

text to their own knowledge, interest or view and to their real life experiences (m=4.09), and prefer applying the new information to similar texts (m=4.06).

Another significant finding observed in this study resting upon the above interpretation, is that the mean avarages between 4 and 5 has been positively interpreted since the mean avarage 4 indicates that the learners often favor the reading comprehension models and the mean avarage 5 implies that they always favor them. The mean avarage between 3 and 3.5 has been disregarded in the interpretation of the findings since this range value indicates that they sometimes prefer these models. However, the mean avarage 3.6 and over (close to 4) has also been regarded as a preference for the learners.

A careful analysis of the findings may lead us to the final interpretation that the participants of this study almost often find it;

a. Pre-reading Stage

1. useful to do scanning exercises,
2. useful to do predicting exercises such as quessing the topic,
3. useful to discuss the title and the pictures of a text beforehand, and
4. refer to my personal prior knowledge to well appreciate a text.

b. While-reading Stage

They find it useful to do

1. skimming exercises,
2. finding the supporting ideas exercises,
3. brainstorming exercises before I read a text,
4. finding the topic sentece exercises,
5. restatement exercises, and
6. dictionary study exercises.

c. Post-reading Stage

1. reflective writing exercises,
2. use the new information, and
3. make oral reviews (summary).

CHAPTER 5

CONCLUSION AND DISCUSSIONS

The aim of this study was to explore the role of two specific comprehension models, process model and interactive model, on the development of reading skills in English Language Teaching (ELT). To do so, a questionnaire investigating the role of these models was given to undergraduates at the ELT departments of Gazi and Hacettepe Universities, Ankara. In this chapter, a summary of the findings will be presented in reference to the research questions. Later on, the conclusions secured from these findings will be discussed with special reference to the theory of constructivism. In this chapter, the researcher will also monitor the suggestions for implementation, the limitations of the study, and suggestions for further study.

5.1. THE SUMMARY OF THE STUDY

This study was set up for against a desideratum for a wanting demystification as to the role of the process and the interactive models in developing reading skills in English language teaching in reference to constructivism. In order to realize such a task it was inevitable to review three fundamental theories of knowledge, that is, behaviorism, cognitivism and constructivism whereby the theoretical background of the two models were presumed to be elucidated. Following the literature review of the study, as a second step a qualitative investigation was obligatory for the researcher to determine the empirical validity of the theoretical speculations for the process and interactive models in real life learning environment. Therefore, a questionnaire was distributed to the two departments of two discrete universities in Ankara. The results attained from the questionnaire were evaluated qualitatively.

5.2. DISCUSSION OF THE FINDINGS

5.2.1. Research Question 1

The first research question which was about whether there had been any correlation between the students' attitudes towards the process and the interactive models and their achievement scores in reading was tested. The results showed that there was not any significant correlation between the students' attitudes towards the process and interactive models and their achievement scores in reading.

In processing information comprehending a text is more related to overall understanding of the message since learners prefer focusing on the key words, meaning of words, cohesive elements, logical organizations, and the like. In this present study, it has been noticed that learners select the information, utilize their prior knowledge a lot when they read a text, and relate the new information to their prior data.

The interactive perspective is, however, something different in the sense that it is more related to studying the text via moving from the surface structure of the text to its deep structure, that is, the meaning. Learners try to relate it to their own real life experiences. To support that view, it has been observed in this study that learners prefer utilizing the interactive models, too. For this reason, it can be concluded that both the process model and the interactive model trigger the development of comprehension since there exists no difference between the two models and no correlation between these two models and achievement in reading skills.

5.2.2. Research Question 2

The second research question was about whether there had been any correlation between the students' attitudes towards the process and the interactive models and gender. The results showed that there was a significant difference between the female and male groups' attitudes towards the process and interactive models.

Overall females overperformed males in these three stages of reading (Females: m=4.01 in while- and post-reading, m=3.89 in pre-reading as opposed to males: m=3.81, m=3, 82, and m=3,71 respectively).

5.2.3. Research Question 3

The third question was about whether there had been any correlation between the attitudes of the learners towards the process and interactive models and age. The results showed that there was a significant difference between the age categories of 18-21 and 21+ regarding the process model.

The 21+ age group prefer employing the process model slightly more than the 18-20 age group (m=3,86 for 21+ age group;m=3,69 for 21+age group, sig.(2-tailed)=.046<.05). The 21+ age group outperform the other group in putting the information they read in a text in an order of importance and deciding the order of the information. They believe that the information they do not use is not important.

5.2.4. Research Question 4

The fourth question was about the most preferred items of the process model by the leraners. As is stated beforehand the process model regards comprehension as a multi-stage developmental process. This model not only focuses on the process of comprehension but also the construction of knowledge. This process consists of three stages;

5.2.4.1. Selection

In the course of the reading process readers do select the information they attain from the text instead of adopting them precisely, which enacts consistent with the pre-existing knowledge (schema) and the mental situation of the reader, in addition to their interests and needs (Güneş, 1999). This is clearly observed in this study in a way that they prefer selecting the information they read in a text when they consider it as necessary and using their prior knowledge. To be precise, they try to disregard some of the information they read in a text.

5.2.4.2. Hierarchy Building

The information selected in the first place is catagorized in terms of the needs and interests of the reader. This process of catogarization is generally acknowledged as hieracrchy building. In this study it has been concluded that the participants prefer both putting the information they read in a text in an order of importance and ordering the information given in the text.

5.2.4.3. Arrangement

As the next step following the process of hierarchy building, the information categorized is classified in terms of questioning, relating, evaluating, making inferences and et cetera. These are then reconstructed in congrous with the reader's prior knowlege. Thus, the reader attains new senses. This study concludes that the readers, as a second preference relating the new information to their prior data, relate the new information to each other, question the correctness of the information, classify the information that they put in an order, and reconceptualize the new information. Besides, the participants do not use the information they think unncessary. That is, in comprehending a text they only make use of their prior knowledge which is relevant to the text itself. Thus, it can be concluded that the top-down process in reading has a significant role in decoding the message given in the text.

5.2.5. Research Question 5

The fifth research question scrutinizes the mostly preferred interactive model items. The construction process of knowledge, in terms of constructivism, falls into three categories of interaction between reader, text and social environment. Then, the process of comprehension consists of mental activities that are implemented again in three phases such as pre-reading, while-reading and post-reading. These include respectively; making use of prior knowledge, guessing, questioning, controlling the process of comprehension, and evaluation. Furthermore, the reader seeks to relate his or her own real life experiences to the text. In addition, this process also leads the reader to realize other inter-textual processes during which the environment has relatively substantial impact on the comprehension process in terms of physical, sociological and psychological aspects consistent with the assertion of Vigotsky (1978). For a better comprehension process, therefore, these three variables should share a continuous and consistent interaction with each other. To do so, the three instructional stages of reading entitle readers to implicate these three variables in pre-, while-, and post- reading activities.

5.2.5.1. Pre-reading Stage

Relying on the findings of the study it is found that the participants of the study prefer scanning, predicting and discussing about the topic, the title and the pictures of a text beforehand, doing brainstorming exercises before they read a text and refering to their personal prior knowledge to well appreciate a text.

5.2.5.2. While-reading Stage

During the while-reading stage, this study concludes that the learners prefer finding the main idea, quessing the meaning from context, doing topic sentece exercises, supporting idea exercises, skimming exercises, dictionary study exercises, and restatement exercises.

5.2.5.3. Post-reading Stage

As to the last stage of reading instruction, it is again concluded that the students mostly prefer relating the text to their own knowledge, interest or view and to their real life experiences, applying the new information to similar texts, making a summary, using the new information, and doing reflective writing exercises.

5.3. IMPLICATIONS OF THE STUDY

The implications in light of the findings of the present study may be listed as follows:

1. It is necessary that the process of reading be defined as the process of constructing meaning in confirmity with Anderson's (1977) schema theory. This view considers reading as a process during which readers contribute to the construction of the meaning as active participants instead of passive receivers, which partakes at the heart of two processes, examined one more time via the present study; the process model and the interactive model. The entailments of the schema theory are necessary both for the process and the interactive models. Therefore, readers should be considered the very sources of the meaning in addition to the outer stimuli. In this sense, as a requirement of the schema theory both top-down and bottom-up approaches are to be utilized as the precise and indispensible constituents of an understanding that leads to a successful learning provided by the process of reading. This drives us to the result that the same situation is valid for ELT. The members of ELT classroom should be directed to reach a deeper level of understanding in regard to the texts via encouragement of the students in terms of constructivism.

2. As is stated in the 5.2.1. Part of the study no significant correlation between the students' attitudes towards the process and interactive models and their achievement scores in reading was found in this study. This may be due to the high proficiency levels of the students that are still undergraduates at the ELT departments of Gazi and Hacettepe Universities. Therefore, when the students' attitudes are taken into

consideration item by item and investigated in terms of the two models, the process and the interactive, it is clearly observable that the students pay attention to their prior real life experiences in executing their cognitive processes to reach comprehension. An implication of this situation is that teachers are to provide more space to such inclinations in order to support the creativity and the social aspect of the cognitive skills in parallel with constructivism.

3. The findings of the study also indicated that age factor is very effective in the development of selection. Selection as a process takes place in both the process model directly as a constituent and the interactive model indirectly as to negotiating between the new information and the prior one. Therefore, an important function of constructivism, selection in this account seemingly being subject to age factor, should become more obvious with elder students consistent with the findings of the present study. It is, therefore, obvious that the application of both the process and the interactive models in reading are more likely to be successful with elder students in light of the present study.

4. Another implication that comes on mind is that the reading strategies should be attentively selected among those that are consistent with constructivisn by the ELT instructor. At this juncture, it sticks out from the findings of the study that special attention would be used to the three phases of the reading process; pre-, while-, post-. Brainstorming, prediction or discussion activities should attentively be selected in order to enable the students to consolidate their prior knowledge with the information garnered form the the text more swiftly. This would provide an additional advantage for the forthcoming natural processes that are present in the reading process in terms of schema theory. Also, for the while-reading phase, skimming, scanning, sensitizing, inferring, judging, connection finding, recognizing clues practices could be implemented beforehand to make the students be accustomed to effective reading lest there should be low levels of drawbacks that may hinder the students to reach the meaning of the text. Moreover, post-reading exercises such as finding the main idea, finding the intended meaning of the author, summarizing the text, drawing conclusions and reflective writing could also be applied as the very class activities of

post reading. The most important element of such exercises as regards constructivism is to let students apply their prior information to their learning process, which indicates to be more flexible with the students' own conclusions that are necessary for the construction of knowledge.

5. The researcher also thinks that constructivist pedagogy not only attract students to the process of learning and makes the students more fervent and enthusiastic about the class but also prevents them from illiberal kind of learning by rote. Hence, the process and the interactive models of comprehension, in this sense, provide the students with the opportunity to develop other kinds of survival skills in education in addition to reading. This is because that reading is a facilitator for language development as well as an instrument to reach scientific knowledge. Accordingly, ELT instructors may use the process and the interactive moels of reading for communicative and writing purposes besides reading.

5.4. LIMITATIONS OF THE STUDY

The current study was conducted at the departments of English Language Teaching of Hacettepe and Gazi Universities. Accordingly, the participants of the study were generally accepted to be non-native speakers of English though they were proficient in English. Moreover, inasmuch as the aforementioned departments most often comprise female students, the majority of the participants of the study at an exact number of 169 consisted of female pupils whereas the remaining 48 participants were male. Therefore, this situation brought about non-homogeneous experiment and control groups in terms of gender distribution.

5.5. IMPLICATIONS FOR FURTHER STUDY

The present study investigated the role of the process and the interactive models in developing reading skills in ELT with special reference to constructivism. The study could also be realized focusing on each comprehension model separately with the

intention of attaining more accuret results. Besides, all students could be interviewed in order to impart a qualitative aspect to the study. Also, in addition to the students, instructors' attitudes toward the use of each model could be investigated in order to reach a compelementary view in terms of the findings.

Additional investigations in the field of ELT are urgently needed in order the test the most frequent models applied in the field. The present study could also be executed in other educational institutions to make comparison between the current one and the further implementations in terms of contextual differences.

Furthermore, following questions seem to have appeared from the present study all of which are in need of further scientific examination:

1. What are the attitudes of the ELT teachers towards the process and interactive models of comprehension?

2. Is there a correlation between the attitudes of the ELT students and teachers in terms of the application of the process and the interactive models of comprehension?

3. Is there a correlation between the attitudes of the ELT teachers and the achievement scores of the students in terms of the application of the process and the interactive models of comprehension?

4. Is there a correlation between the process and the interactive models of comprehension and the discrete difficulty levels of text comprehension? If so, what are the implications of such a correlation for ELT?

5. Is there a correlation between attitudes of the students toward the process and the interactive models of comprehension in terms of their demographic traits other than age and gender?

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APPENDIX

QUESTIONNAIRE

Age: **Gender : Female ◯ / Male ◯**

Please rate how strongly you agree or disagree with each of the following statements by placing a check mark in the appropriate box.
Thank you for your kind cooperation in advance.

Bahadır Cahit TOSUN
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A. PROCESS MODEL	Strongly Agree	Agree	Not Decided	Disagree	Strongly Disagree
a.1. I use the information I read in a text exactly without any change.					
a.2. I select the information I read in a text when I consider it as necessary.					
a.3. I disregard some of the information I read in a text.					
a.4. I use/utilize my prior knowledge a lot when I read a text.					
b.1. I put the information I read in a text in an order of importance.					
b.2. I decide the order of the information myself.					
b.3. The information that I do not use is not important.					
c.1. I classify the information that I put in an order.					
c.2. Later on, I question the correctness of the information again.					
c.3. I relate the new information to each other.					
c.4. I relate the new information to my prior data.					
c.5. I reconceptualize the new information.					

B. INTERACTIVE MODEL	Strongly Agree	Agree	Not Decided	Disagree	Strongly Disagree
a.1. I find it useful to do scanning exercises.					
a.2. I find it useful to do predicting exercises such as quessing the topic .					
a.3. I find it useful to discuss the title and the pictures of a text beforehand .					
a.4. I always refer to my personal prior knowledge to well appreciate a text.					
b.1. I find it useful to do quessing the meaning from context exercises.					
b.2. I find it useful to do skimming exercisses.					
b.3. I find it useful to do finding the main idea exercises.					
b.4. I find it useful to do finding the supporting ideas exercises.					
b.5. I find it useful to do brainstorming exercises before I read a text.					
b.6. . I find it useful to do finding the topic sentece exercises.					
b.7. I find it useful to do restatement exercises.					
b.8. I find it useful to do dictionary study exercises.					
c.1. I find it useful to do reflective writing exercises.					
c.2. I relate the text to my own knowledge , interest or view and to my real life experiences.					
c.3. I find it useful when my instructor wants me to use the new information.					
c.4. I find it useful to apply the new information to similar texts.					
c.5. I find it useful to make oral reviews (summary).					