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**Divergent and Convergent Thinking in the Reading and Writing
Sections of the EFL Textbook New Prospects: An Evaluation**

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To my Family and all my Friends

Hayette

To my family, my father and my mother

My brothers, sisters and all my friends

Hakima

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Abstract

This research is concerned with the development of divergent and convergent thinking in the reading and writing instructions included in New Prospects (2007). It aims at finding which type of thinking is more developed in the reading and writing sections. To reach this objective we relied on the evaluation of the New Prospects textbook involving forty eight (48) reading and twenty nine (29) writing instructions, which refer to one hundred and fourteen (114) action verbs within reading instructions and fifty nine (59) within writing ones. These action verbs are classified according to Bloom's Revised Taxonomy (2001). The total of the action verbs are analyzed by adopting a Mixed Method Research. The quantitative data are used through the implementation of a descriptive statistical method to gather numerical data, whereas the qualitative data are obtained through the interpretation of the results by using the taxonomy table and content analysis. The results obtained reveal that reading instructions include more action verbs than writing ones with 65.89% reading and 34.10% writing instruction. Moreover, the findings show that reading instructions are more convergent rather than divergent. In fact, New Prospects' reading section uses 62% convergent instructions and 38% divergent ones. However, the results reveal that writing instructions involve a percentage of 78% divergent and only 22% convergent ones.

Key words: Divergent/Convergent thinking, Bloom's Revised Taxonomy, Reading/Writing skills, New Prospects

List of Abbreviations

- AS: Année Scolaire
- ABD: Attitudinal-Based Domain
- BOT: Bloom’s Original Taxonomy
- BRT: Bloom’s Revised Taxonomy
- CBA: Competency –Based Approach
- DSM: Descriptive Statistical Method
- EFL: English as a Foreign Language
- HOTS: Higher Order Thinking Skills
- HP: Hypothesis
- IO: Instructional Objectives
- ITIP: Instructional Theory Into Practice
- KBD: Knowledge-Based Domain
- NCTE: National Council of Teachers of English
- RAT: Remote Associates Tasks
- SBD: Skills-Based Domain
- SRL: Self Regulated Learning
- TT: Taxonomy Table

List of Symbols

\bar{X} : The Arithmetic Mean

Σ : The Sum of the Values

χ : The Mid Points

N : The Number of Items

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General Introduction

Statement of the problem

Previously, most educational systems tended to use and teach learners what is called “*linear thinking*”. That is to say cause-effect thinking in which learners think in a straightforward way. However, this way of thinking let learner think in the same way through taking into account only the end-point of the content (Denis. J. T, 2009). That is, the “*linear thinking*” method restricts the learners’ cognitive abilities.

Recently, most educational systems bring new insights to the method of teaching which gives more opportunities to learners to use their minds to generate new and original solutions to problems, and this is referred to as divergent thinking. The latter is defined by Guilford (1967) as the ability to generate several novel ideas or solutions to a problem. In addition to that, divergent thinking refers to creative combination of different solutions to a particular question for the purpose of solving a problem. That is to say, generating as many answers as possible to a question through the process of “brainstorming”. Brainstorming is a well-known strategy associated with divergent thinking and it is used for the sake of finding solutions to a problem. In fact, there is a second type of thinking which is called convergent thinking. The latter focuses on the deductive generation of one single correct answer to a problem. In the field of teaching and learning, divergent and convergent thinking play an important role. Divergent thinking is a kind of thinking which pushes the learner to get different solutions to a particular problem and convergent thinking leads learners to just one possible solution to a particular problem. In fact, divergent thinker is going to relate ideas for which the combinations are not obvious, it leads the person to think outside the problem and achieve to

different solutions, also to imagine impossible ones. Indeed, divergent and convergent thinking can also be found in textbooks.

Textbooks play a significant role in the success of any educational program, since they are considered as a guide for the learners' cognitive development. Our study focuses on evaluating EFL New Prospects text book in terms of convergent and divergent thinking .

In fact, there are many scholars, who have dealt about divergent and convergent thinking in the field of teaching and learning. For instance; Guilford (1967), Henk. J. Harman (2013) and Williams. Y (2003)....etc. But, no one has dealt with divergent and convergent thinking in New Prospects.

Aims and the significance of the study

The present research is an investigation to know the extent to which reading and writing instructions in the reading and writing sections develop learners' divergent and convergent thinking in New Prospects.

Research Questions and Hypotheses

Divergent and convergent thinking are important concepts in the teaching and learning process. In fact our study deals with divergent and convergent thinking in relation to reading and writing instructions in New Prospects. This investigation raises two research questions:

- 1- To what extent are divergent and convergent thinking developed through reading in New Prospects?
- 2- To what extent are divergent and convergent thinking developed through writing in New Prospects?

The issue raises four hypotheses:

Hp1- Reading develops more divergent thinking in the New Prospects textbook.

Hp2-Reading develops more convergent thinking in the New Prospects textbook.

Hp3- Writing develops more divergent thinking in the New Prospects textbook.

Hp4- Writing develops more convergent thinking in the New Prospects textbook.

Research Tools and Methodology

Data Collection Means and Data Analysis

The present study deals with social sciences. Our investigation consists on the evaluation of the reading and writing sections of the New Prospects textbook. The research follows the mixed method combining qualitative and quantitative methods. The qualitative method is used to describe the content of the textbook as well as interpret the results relying on the Bloom's Revised Taxonomy (BRT), also to do a content analysis (CA). However, the quantitative one is used to transform the results to numbers or statistics, means have statistical findings using the Descriptive Statistical Method (DSM).

The Structure of the Dissertation

The present investigation follows the Traditional-Complex method of research. It mainly consists of General Introduction, four main chapters and General Conclusion. In fact, in the introduction, we summarize the general overview about the topic, its aims, the issue and the outline of the dissertation. Then, the first chapter is called "the Review of the Literature" and it mainly consists of reviewing the previous works and research that have been investigated about divergent thinking. In addition, it explains the theoretical framework to follow. The second chapter is named the "Methodology" and, it consists of data collection tool, in which we determine our research tool (textbook evaluation) as a corpus and data analysis following the qualitative and quantitative methods. The third chapter is the "Results". It consists of the main results of the study relying on the theoretical framework to answer the

research questions. The last chapter is called “Discussion of the Results”, in which we are going to interpret and discuss the results. Finally, the conclusion is a sum of the main points in which we can also suggest some other solutions to the drawbacks.

Introduction

This chapter reviews the most important concepts included in our research. Indeed, concepts such as “reading skill”, “writing”, “thinking”, divergent” and “convergent” thinking, “brainstorming”, “bloom’s taxonomy” and “bloom’s revised taxonomy” will be defined and explained. This is to be done with reference to different authors.

1- Definition of the Reading Skill

Reading is always defined in relation to someone who reads in his own language or in foreign language, because the foreign reader has to develop techniques and procedures to manage in solving some problems (fluency, accuracy...). On the one hand, (Grabe, 1991 quoted in Hisham.S. A, 2005). He says that “reading is considered as a process of understanding [where] learners have to learn strategies, which help them to read effectively; relate ideas to context and make inferences to the text...ect (Goldman perception of reading)”.

On the other hand, Bojovic (2010) defines reading skill as when a person has a cognitive ability to use while interacting with a text, since reading can be considered as an “interactive” process which happens between a reader and a text, so the reader interacts dynamically with the text, then he focuses on the kinds of knowledge which are being used in the text. This knowledge is known as; linguistic (bottom up) and schematic (top down processing) (Hesham, Suleiman. A, 2005: 144).

1.1-Steps of Reading

The reading process does not happen randomly in the classroom, but through procedures or steps that follow: (Bojovic, 2010) lists three steps of reading.

*The pre-reading step: the learner predicts, makes association of words, discusses and makes text surveys.

*While reading: the learner creates and formulates a set of questions, skim, scan, and summarize the text, clarify things.

*Finally, the post reading: during which the learner reviews the content of the text, writes assignments, debates, does project works, role plays and answers questions.

1.2- Competency-Based Approach(CBA)

Competency-based approach is an approach, which helps learners to interact in real life situations. Its focus is the use of knowledge, capacities and skills in a given foreign language (Richards & Rodgers, 2007 cited in Chelli, 2010). This means that CBA uses instructions that, encourage learners' application of knowledge and skills. It focuses on the ability of the learner to produce sentences and text rather than to learn them only. In other words Competency-Based teaching is teaching learners how to develop their capacities and competencies.

In fact, learners have to be engaged and integrated in their learning and they have to know the aspects of acquiring knowledge and skills.

1.3- Definition of Instructional Objectives

Instructional objectives (IO) play an important role in the development of the teaching and learning process. They refer to all the things that the learner is able to do as an outcome of the instruction, that is to say, instructional objectives is a description of the extent to which the learner achieve the learning objectives (Keith. M, 2004). However, the quality of instruction is the most important thing for successful schooling. In fact, Perkins (1992) describes four factors of good instructions involving clarity, practice, feedback and motivation, means what learners have to demonstrate then, practicing what should be learned, also, teachers should provide their learners with corrective feedback (comments and advice). Finally, learners will have intrinsic and extrinsic motivation towards the instruction (ibid).

1.4- Definition of Writing

According to Brown (2007) writing is concerned with generating ideas, and organizing them to provide a coherent paragraph, this is the implementation of discourse marker to make a cohesive written text. Also, writing is a process which needs multiple drafts in order to create an effective and whole product such as; taking notes in a lesson, dictation or controlled writing. Writing process has seven stages which help learners to create ideas and express themselves in pieces of writing.

In fact, the writing skill is defined differently from one scholar to another Becky. L & Spivey. M (2006: 112) say that writing is a skill which is not taught randomly rather, it follows different steps that are applied on learners' learning experience. For instance, when learners read and hear the way words are pronounced in a given language, they create things in their own writing.

1.5- Stages of Writing

1.5.1- Prewriting: in this stage learners decide which type of writing to follow (tables, charts, or stories). So, learners generate, create ideas about the topic and show the aim of their writing.

1.5.2- Rough Draft: in this step learners write just their ideas on paper, without paying attention to grammar, lexical...mistakes. Then, they reformulate these pieces of information in the next stage.

1.5.3- Peer Editing: in fact, all the learners don't have the same way of thinking and generating ideas, so they are going to exchange their drafts and suggest different words for making progress.

1.5.4- Revising: after the learners exchange their writings, and edit them. Everyone has to revise it through the use of the suggestions proposed by the peers.

1.5.5- Editing: the teacher, learners, peers correct all the grammar and spelling errors.

1.5.6- Final Draft: at this stage the corrections are made, so learners produce a whole writing and discuss it in classroom with the teacher.

1.5.7- Publishing: finally, learners publish their piece by using a word processor; they can also exchange it with their classmates and send it to local newspapers (Becky. L& Spivey. M, 2006).

1.6- Divergent Thinking

Divergent thinking is a concept proposed by the American psycho-linguist Joy Paul Guilford in 1967. He cited that “divergent thinking refers to the generation of the different ideas or solutions to a given problem” (in Williams, 2003). That is to say, using the human brain to generate a variety of answers. E. Bekker. Janssens (2015: 4) states that divergent thinking is very related to creative thinking , it’s evaluated by divergent exams, and convergent tasks emphasizes on the quality production. It goes to creative achievements (learners will be creative and active)

Hudson quoted in J. Charles. Fanning (1977: 41) he says that:

what ever the logical connection between convergence or divergence and Originality, psychologists are prone to view the topic as one and the same. Many psychologists particularly American ones , see the diverged as potentially creative and the convergent as potentially uncreative

That is to say, divergent thinking means looking at a problem and trying to get as much answers as possible, since it has not a clear one solution. In addition to that, divergent thinking is a process of generating and producing new ideas by finding possible solutions to a question randomly in a limited period of time. Gomez (2007) defines divergent thinking as a process which is characterized by the production of a variety of new and original ideas to a given problem.

In the field of teaching and learning, divergent thinking plays a significant role, since it enriches the learners’ abilities to generate vocabulary through thinking and creating a variety

of combinations. In addition to that, divergent thinker will be able to make use of unfamiliar words in different contexts (Haarman, 2012: 2). Many definitions have been provided by other scholars such as Runco&Akar (2012) who define divergent thinking as the learners' abilities to view an issue from different points of view, which leads them to create new alternative ideas. However, Justin. W (2010: 11) states that divergent thinking is a type of thinking where the learner is going to solve a given problem and produce as many solutions as possible. This happens through the process of brainstorming.

1.7- Brainstorming

The process of "brainstorming" is used within divergent thinking as a procedure for generating as much answers or ideas as possible (Karla. M, Ana. C. B. Luiz. V. N. G, 2012).

That is to say "brainstorming" is a procedure used to generate and produce a number of possible solutions to a given question. Learners are going to use their brain to solve problems. This process develops the learners' thoughts and ideas. Osborn, 1987 quoted in Karla. M, Ana. C. B, Louiz. N. G (2012) he says:

Brainstorming is the ideation-part of the process that requires to imagining all Possible ideas, as solutions or directives or other ideas, which in turn can lead to the Solution...the more design ideas conjecturally we design by means of alternate possibilities most likely is to hit one or more that solves a problem

This means that brainstorming is the use of brain to find a solution creatively to a given problem. For some others like Brown (2010: 75) the process of brainstorming is producing possible ideas, solutions in order to solve a particular problem. It is a very important technique in the case of looking for a large number of ideas about a given topic. In addition, brainstorming is a well known problem solving strategy associated with divergent thinking and Robinson (2014) defines it as "*tending to be different or develop in different directions*" a method in which learners will use their mind to generate a large number of possible and different answers to solve a question. This is known as "*thinking outside the box*" (ibid)

1.8- Divergent Thinking as Creative Thinking

Many scholars tend to relate divergent thinking to creative thinking. Since, divergent thinking is used to measure creativity, and also creative thinking is used to generate new or different ideas, possibilities and patterns. Divergent thinking is an important aspect of creativity. In addition, Stenberg (2001) says that in order to be creative, learners have to practice divergent thinking and this is done through risk taking and makes combinations between ideas. Creative thinking is a process in which the learner has the opportunity to imagine, produce, generate new ideas and solve problems. So, the creative thinker has to be self confident and able to provide/propose with solutions. (Torrance, 2005 quoted in Sharp. C, 2004: 4-7) he says:

Creativity is one which involves absorbed listening, fighting of criticism and ridicule, stirring the unresponsive and deepening the superficial, one which requires each honest effort to learn be met with enough reward to ensure continued effort: the focus is on the potential rather than norm

Creativity is very important in our daily life, also in the teaching and the learning process. Williams(2003) states that divergent thinking is used to create and produce new ideas and different solutions, also it comes generally in open ended questions, in which creativity is an essential part . In this process, learners are going to look for new options and try to solve a problem in different ways or options (Behmez. H, Ali. G. M, Lotfollah. K, 2014).

In addition to that Guilford (1967) says that divergent thinking is a “synthetic thinking” in which the learner will be able to produce ideas concerning different disciplines to achieve a general understanding of an issue. In fact, Guilford (1967) combines divergent thinking and creativity with many criteria:

1. Fluency: “refers to the ability to produce great number of ideas or problem solutions in a short period of time”

2. Flexibility: “is the ability to simultaneously propose a variety of approaches to a specific problem”.
3. Originality: “means the ability to produce new and original ideas, how much the answer is original or not”.
4. Elaboration: “refers to the learner’s ability to organize his ideas in his head and carry it out” cited in (H. j. Haarman,2013: 1.2)

1.9- Convergent Thinking as Critical Thinking

Convergent thinking has been defined by different scholars among them J. P. Guilford (1967) who propose that the concept of convergent thinking as opposite to divergent thinking. That is to say convergent thinking is a kind of thinking that concentrates on finding out one single best answer to questions and instructions that are oriented towards giving one single solution, means convergent thinking deals with determining the link between different ideas, so tasks of convergent have just one solution (RAT) Remote Associates Tasks (Henk J. Harrman, 2013:1, 2). In addition, (Behnaz. H, et al, 2014 cited in William, 2013) that convergent thinking is a type of thinking skill that focuses on finding out one single correct answer to a problem. In other words, convergent thinking is a way which includes a limited number of answers to an issue, using the existing materials. That is convergent thinking is very related to critical thinking as B. K. Beyer (1987: 519) says that “*Whereas creative thinking is divergent, critical thinking is convergent*”. Critical thinking is a way of solving problems and addressing questions, also it is a process of thinking that is used to evaluate or judge the value of a given material (Matt. B et al, 2001: 175). Therefore, convergent thinking does not bring something new rather it focuses on the existing knowledge and limits creativity, since it does not push learners to create, produce and imagine.

1.10- Divergent and Convergent Questions

1. 10.1- Divergent Questions

According to Justin. W (2010: 13-16) divergent questions are all that call for opinions, evaluation, this type of questions develops divergent thinking and the learner generates and produces new ideas. In fact, students are going to produce several possible answers to a given question. However, divergent questions (learning) are similar to discovery learning. The latter is defined as the fact that, the learner is provided with information to answer a problem or a question and how to manage to use this information (ibid). In other words, learners are asked to generalize what they have been already studied or the previous knowledge and use it in different ways.

In addition to that, divergent questions have objectives, which are different from one learner to another. This type of learning is learner-centered based, since learners are engaged to produce knowledge for themselves relying on previous one and solving problems (Justin. W, 2010: 13) In fact, divergent questions are those which permit for divergent responses and they are difficult to answer (open-ended). But, convergent questions are those that allow for just one or few answers, it deals with the existing knowledge or facts (close-ended).

1.10.2- Convergent questions

Convergent questions are considered as the type of questions that requires just one single correct answer to a problem. For instance; Yes or no, true or false questions. Moreover, this type of questions demand all learners think in the same way as well as the same goal as an outcome (ibid). Convergent learning is teacher-centered based, since the teacher transmits directly the message to students, they have not the opportunity to give opinions or produce new ideas, because the answers are obvious (J. Waine, 2010:17). This type of learning is very linked to (ITIP) Madeline Hunter's Instructional Theory into Practice model established in the

nineties. This model is based on teacher's learning-centered (Wessman, n. d. Cited in Justin. W, 2010: 17).

1.11- Bloom's Original Taxonomy (BOT)

The original taxonomy is called Taxonomy of Educational Objectives. Handbook1: Cognitive domain, by the famous Benjamin Bloom in (1956) with the collaboration of his colleagues. He establishes this taxonomy in order to develop and exchange ideas between people in the educational domain such as teachers, researchers, students.... (A. GOUALI & L. MOUCER, 2015: 17). It is known as one dimension taxonomy or the cognitive dimension. In addition to that Krathwohl (2002: 213) says that the original taxonomy helps to "*clarify curriculum objectives and test items in order to show the breadth, on lack of breadth, of the objectives and items across the spectrum of categories*". I. e, it is used to categorize the objectives and to classify what students are expected to know. The original taxonomy was seen as a tool for facilitating the use of language among people, means selecting the learning objectives, activities tasks.... (ibid).

However, the word "taxonomy" is very similar to the word "classification", since it is a way of classifying thinking relying on the six categories which are the following: knowledge, comprehension, application, analysis, synthesis and evaluation. For instance; knowledge, comprehension and application are classified in the lower order thinking (LOT) skills and analysis, synthesis and evaluation are classified in the higher order thinking skills (HOT)(M. Foreland, 2012). But, this taxonomy has several weaknesses so that, Anderson and Krathwohl made a revision to the Bloom's taxonomy. In fact, the revised taxonomy emphasises on what is called "objectives", means the combination of subject content with nouns and the verbs with the cognitive processes (Ali. Amer, 2006: 218). In addition to that, the bloom's taxonomy has been translated into 22 languages, it has been mostly applied and cited, also, it is established as a procedure of classifying the thinking process (M. Foreland, 2012). In fact,

the bloom's taxonomy has been divided into three domain: the cognitive (knowledge based domain)(KBD), effective (attitudinal based domain) (ABD), psychomotor(skills based domain) (SBD).

1.12-Bloom's Revised Taxonomy (BRT) (2001) by Anderson and Krathwohl

The bloom's revised taxonomy published in (2001) by Lorin Anderson & Krathwohl, they attempt to adopt the following theories (constructivism, meta-cognitivism, SRL (self regulated learning). For instance; constructivism lead learners to construct their own knowledge, and self regulated learning refers to self evaluation, how learners monitor their own performance and develop their knowledge. It is seen as similar to meta-cognition (Aly. Amer, 2006:216).

These theories help learners to assume their way of thinking and cognition (ibid). In fact, the teaching and learning process occur through the use of action verbs in dealing with the bloom's revised taxonomy which are recognized by the six cognitive processes. Also, nouns are used to consider the knowledge dimension (krathwohl, et al., 2002: 214). In, fact bloom's revised taxonomy emphasises on what is called "objectives" as we have said above, means the combination the *subject content* with *nouns* and the *verbs* with the *cognitive processes* (Aly. Amer, 2006: 218).

1.12.1- The Cognitive Processes of Bloom's Revised Taxonomy

As we have said previously the original taxonomy has six processes, but they are transformed from nouns to verbs (Schultz, 2005 quoted in Mary Foreland, 2012):

The graphic representation of the new verbiage associated with the Familiar Bloom's Taxonomy. Note the change from nouns to verbs [e. g., application to applying] to describe the different levels of the Taxonomy. Note that the top two levels are essentially exchanged From old to the new version

a. Remember

Refers to the action verbs that have been used to recall what has been already taught. This category is the first one in Bloom's revised taxonomy, and happens if the first objective is to retrieve the previous knowledge and use it in the following instructions (Krathwohl, et al 2002: 228). Remember means "to retrieve knowledge from a long-term memory" (Anderson's, et al., 2001: 67). In fact, this category consists of two cognitive processes: *recognizing* and *recalling*.

b. Understand

Refers to constructing meaning from different types of functions (written or spoken passages) what the learner has understood from the instruction, and he has to be able to combine the previous and new knowledge. The understanding category is divided into seven sub-categories, which are: *interpreting*, *exemplifying*, *classifying*, *summarizing*, *inferring*, *comparing* and *explaining* (Krathwohl, et al., 2002: 228).

c. Apply

Refers to the act of implementing, *executing* and *carrying out* (Aly. Amer, 2006: 221). In fact, the learners carry out following a model or a presentation.

d. Analyze

Breaking messages (written or spoken) into sequences, and explain the way in which the constituents are related to each other to form a meaningful whole (ibid). It consists of three sub categories: *differentiating*, *organizing*, and *attributing* (Krathwohl, 2002: 230).

e. Evaluate

According to Krathwohl (2002) *evaluating* refers to making judgment following different criteria, which are respectively; quality, efficiency, effectiveness, consistency,

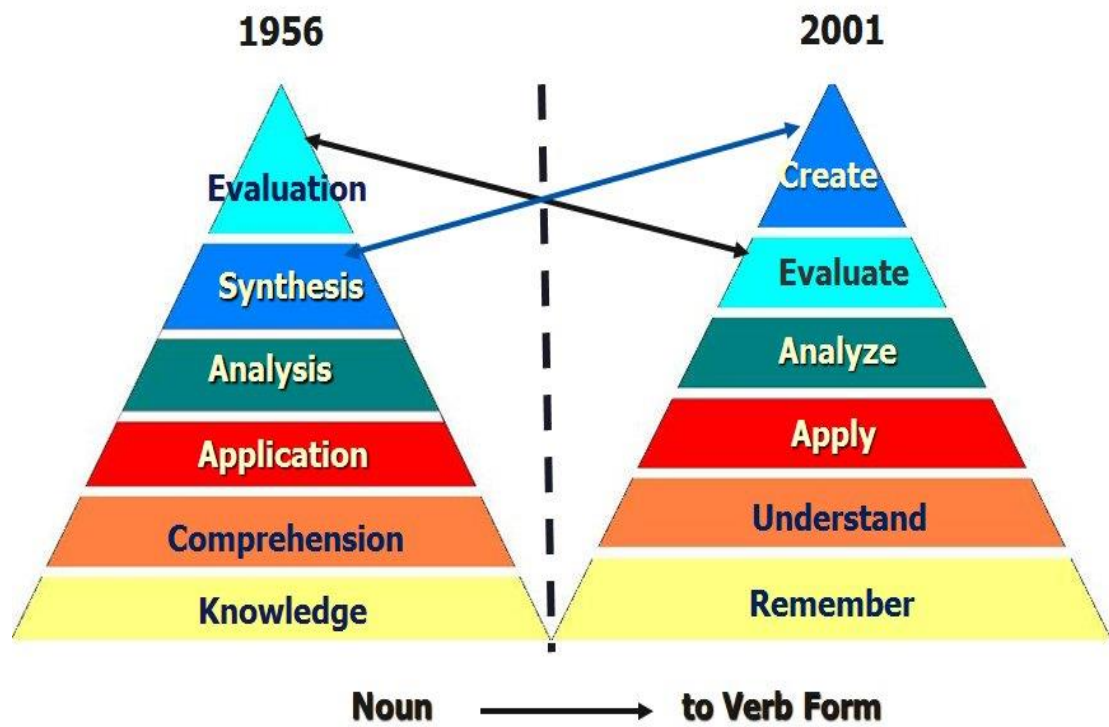
qualitative or quantitative, and we can demonstrate it through *checking* (monitoring) and *critiquing* (judging) (ibid). It is an important part in the taxonomy, before creating.

f. Create

To create, means, combining elements together to form a functional whole. Here the student is asked to produce something, this is done through; *generating*, *planning*, and *producing*. However, this part is very important in the learning process (Krathwohl, 2002: 230).

The revised taxonomy consists first; of the “Reproduction” called Lower Order Thinking Skills (LOTS) which includes the following action verbs: *remember*, *understand*, *apply*. Second, the “production” named Higher Order Thinking Skills (HOTS) involving; *analyze*, *evaluate* and *create*. In fact the bloom’s revised taxonomy (2001) was published by Lorin Anderson and Krathwohl. These changes have been at the level of terminology, structure and emphasis.

- 1- At the level of terminology: the original taxonomy consists of six categories(nouns) which are changed to verbs, also the cognitive process called “*knowledge*”, became “*remember*”, “*comprehension*”, and “*synthesis*” became “*understanding*” and “*creating*” (Anderson, krathwohl, 2001)
- 2- At the level of structure: the original taxonomy of bloom consists of just one dimension learned.
- 3- At the level of emphasis: bloom’s revised taxonomy has been considered as a taxonomy that calls for larger audience, more authentic instruction and assessment (ibid).



Wilson, Leslie O. (2001)

1.12.2- The Knowledge Dimension

The Structure of the Knowledge Dimension:

The knowledge dimension of the revised bloom's taxonomy is composed of four types of knowledge.

- A. The Factual knowledge: is the basic information, that learners should remember, and know within a discipline to solve a problem including:

A.a. The Terminology of a Given Discipline.

A.b. The Background of Specific Details, for instance; specialists should know the discrete facts about their discipline.

- B. The Conceptual Knowledge: refers to the combinations between sequences within a larger structure, that form a meaningful whole (Krathwohl, 2002:214). It includes:

B.a. Knowledge of Classification and Categories.

B. b. Knowledge of Principles and Generalizations.

B. c. Knowledge of Theories, Models, and Structures (ibid).

- C. The Procedural Knowledge: refers to the techniques, procedures, and methods, which are used for teaching skills including:

C.a. Knowledge of Subject-Specific Skills and Algorithms.

C.b. Knowledge of Subject-Specific Techniques and Methods.

C. c. Knowledge of Criteria for Determining, when to use appropriate procedure means, students explain phenomena in their own way, and use information in other situations (ibid).

- D. The Meta-Cognitive Knowledge: this type of knowledge refers to the awareness of one's own learning, thinking and cognition.

D. a. **Strategic Knowledge**, which is the type of knowledge, that let learners to use strategies and procedures in different situations.

D. b. **Knowledge of Cognitive Tasks** including appropriate contextual and conditional knowledge.

D. c. **Self Knowledge** (Krathwohl, 2012: 213).

1.13- The Division of Bloom's Revised Taxonomy relying on Convergent and Divergent Thinking

Bloom's revised taxonomy has six cognitive categories, that are used to develop the thinking skills and abilities, which are as follows: *remember*, *understand*, *apply*, *analyze*, *evaluate* and *create*. In fact, our investigation deals with convergent and divergent thinking in New Prospects by implementing bloom's revised taxonomy. Therefore, we have opted for the division of the taxonomy according to convergent and divergent thinking or to the type of instructions used in the reading and writing rubrics, this means that instructions that require recalling and comprehension (*Remember*, *Understand* and *Apply*) are to be considered as convergent (Lower Order Thinking), since they have a limited number of answers and deal with existing facts. Whereas, there are other instructions, that focus on (Higher Order Thinking skills) which are divergent, that is to say learners are mostly asked to *Analyze*, *Evaluate* and *Create* (Krathwohl, 2002).

Conclusion

This chapter reviewed the concepts related to divergent and convergent thinking, reading and writing skills. Divergent thinking is defined as a creative thinking, whereas convergent thinking is defined in relation to critical thinking. The last part is concerned with the presentation of the theoretical framework that will be used in this work, which is bloom's revised taxonomy (2001).

Introduction

This chapter deals with the research methodology. In order to answer the questions raised in the General Introduction. We have opted for two types of procedures namely procedures of data collection and procedures of data analysis. The first one provides us with the description of the corpus. That is to say the description of the New Prospects text book, whereas the second section explains the mixed method approach that includes both quantitative and qualitative methods.

2.1- Definition of EFL Textbook

Thotapally. A (2014) says that; EFL textbook helps teachers in the learning process, methodology, and lesson planning through following the syllabus and what to be taught. In addition to that Laurika et al(2012: 2) define a textbook as: *“A written medium in the classroom, especially for the teaching/ learning process. It is an organized physical manual for instruction conveying a variety of topics in a specific subject area, in this case, English”*. Following this definition, textbooks are used to enhance the learning process during instruction. Grainger, 2001 cited in Thotapally. A, 2014) “a textbook is an important material, since it provides teachers good lesson planning, and a way of gaining time. Also, a textbook is a written material which provides appropriate activities to learners”.

2.2- Textbook Analysis and Textbook Evaluation

The analysis of a textbook is done through selecting a set of criteria as MC Garth (2002) quoted in Thotapally. A (2014) *“Analysis is a process which led to an objective, verifiable description whereas; evaluation involves the making of judgments”*. I. e, a textbook analysis is a kind of description following particular criteria (it can be a book, journal article, images or a novel) and textbook evaluation means evaluate a material to know its efficiency.

In fact, Littlejohn (1998) lists three levels of analysis, which are as follows:

1. Starting with the emphasis on the physical material itself, as a book, article or a novel.

2. The second level of analysis is to determine the learner's role (language and meaning are emphasized). In addition, it focuses on the types of activities, its contents and objectives.
3. The third level examines the judgment of the materials' objectives, it determines the learner's, teacher's and material's role (Thatopally, 2014). In fact, our dissertation opts for textbook analysis (New Prospects)

2.3- The Description of the New Prospects Textbook

The present book is designed by the National Ministry of Education, taking into account the main criteria of the official curriculum (Yassine, 2012: 113), this is designed for teaching English as a Foreign language in Algeria. New Prospects is the last of a series of three course books designed for the teaching of English to secondary school students. Also, it aims at the implementation of Competency-Based Approach (CBA) approach, which is the approach of the English language teaching in Algeria. Its main principles rest on communicative language teaching, which engages learners in real and meaningful communication. According to B. Riche et al (2006: 4) New Prospects textbook consists of six units and six main topics, then each unit in New Prospects includes the presentation and practice of grammar, vocabulary and pronunciation/spelling with the four skills. This practice is related to the theme discussed in the unit. The six units are followed by an evaluation to know the learners' progress. However, in the first part of each unit there is a language outcome: listen and consider, read and consider and take a break. The second part is named skills and strategies outcomes, containing: research and report, listening and speaking, reading and writing and project outcome. New Prospects includes the following themes:

- A. Ancient civilizations
- B. Ethics in business
- C. Education in the world: comparing educational systems
- D. Advertising, consumers and safety

E. Astronomy and the solar system

F. Feelings and emotions (ibid.)

2.3.1-The Description of the Reading and Writing Sections

The reading section is divided into: - Before reading. - As reading. - After reading.

- 1- Before reading: designers provide learners with pictures, questions related to the text that follows to give them a general idea.
- 2- As you read: the learners skim and scan the text and determine the aim of the text.
- 3- After reading: in this section there is what is called coping, there are tips which help learners to do the following activities.

The writing section is called the writing development.

2.4- Procedures of Data Collection

The present study consists in the evaluation of New Prospects , precisely 48 Reading and 29 Writing instructions. This textbook which is designed for the learners who are in the third year secondary school (3eme AS), serves as a corpus for our study to respond to the research questions which deal with divergent and convergent thinking- reading and writing activities.

The present research includes reading and writing instructions containing several action verbs for classification, as a corpus for data collection in New Prospects. In fact the reading skill is receptive and the writing one is productive.

2.5- Procedure of Data Analysis

As we have said above, this investigation deals with the analysis of 48 reading and 29 writing instructions in the reading and writing sections. These instructions are composed of different action verbs. Therefore, we are going to analyze this corpus relying on qualitative and quantitative (Mixed Method Research) approach, which uses the qualitative method for interpretation of the findings and the quantitative one for the analysis and to transform them to numbers or statistics. When linking the reading and the writing instructions to divergent and convergent thinking, we are going to rely on the (BRT) Bloom's Revised Taxonomy. In fact, (Hatch, 2002: 148) states:

Data analysis is a systematic search for meaning. It is a way to process qualitative data, so that what has been learned can be communicated to others. Analysis means organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanations, make interpretations, mount critiques or generate theories. It often involves synthesis, evaluation, interpretation, categorization, hypothesizing, comparison and pattern finding. It always involves what H. F Walcott calls "wind-works" ...researchers always engage their intellectual capacities to make sense of qualitative data

This means that, analysis helps readers to understand the material and its importance through explanation and interpretation...

2.6-The Qualitative and Quantitative Methods

The mixed method combines between the two types of research: Qualitative and Quantitative research. The former, involves data collection procedures, which result in interpretations, sentences, expressions, non numerical data and analyzed by a non statistical method. However, the implementation of the qualitative approach necessitate what we call human participation, or the research can be influenced by individuals. In fact, the Qualitative section in this investigation deals with the analysis and interpretation of the findings relying

on (BRT) Bloom's Revised Taxonomy and the quantitative one is used to transfer them to number.

Quantitative method deals with numerical data, which are, then analyzed by a statistical method. In fact, the researcher has to be objective in the analysis, since there is no human participation; this section uses the descriptive statistical method. (Dornyei, quoted in Yassine, 2012: 111):

Quantitative research has seen to offer a structured and highly regulated way of achieving a macro-perceived to represent a flexible and highly context-sensitive micro perspective of the everyday realities of the world.

That is to say, quantitative method brings flexible and credible results, and leads to discover realities in the world.

2.7- Descriptive Statistical Method

The results of the research concerning the distribution of the action verbs following the six categories will be transformed to percentages through the Descriptive Statistical Method, which are represented in tables or pies, in order to make them clearer to the future readers. So, Bell (1988) cited in Yassine (2012: 139) that the means of histograms are used to convert the results to percentages. In the present study, we are going to use arithmetic means, as follows:

The arithmetic mean= $\frac{\text{Sum of values}}{\text{Number of subject}}$

$$\bar{x} = \frac{\sum x}{N}$$

\bar{X} : the mean, Σ : the total of the values, N : the items' numbers, x refers to the mid points. It's calculated by the division of the values by the items number.

2.8- Bloom's Revised Taxonomy

Educators suggests the learner's needs to develop their thinking, so Lorin Anderson who is a former student of B. Bloom with David Krathwohl worked together on Bloom's famous taxonomy which is known as Revised Bloom's Taxonomy. The noun concepts are changed to verbs. Krathwohl (2001) states that the Revised Bloom's Taxonomy has two dimensions:

2.8.1- The Cognitive Process Dimension:

It involves five concepts, which are; *remembering, understanding, applying, analyzing, evaluating*, and *creating*. That is to say, the noun form change to verbs, analysis: analyzing, synthesis and evaluation levels are completely renamed.

a- Remember: it includes; *recognizing* and *recalling*.

b- Understand: it refers to the meaning of the different instructions (oral, written), it brings with several concepts including; *interpreting, exemplifying, summarizing, inferring, comparing* and *explaining*.

c- Apply: including; *executing* and *implementing*.

d- Analyze: it determines the different parts of a material which is broken into sequences, and how the later are combined together to create a whole. It has three elements: *differentiating, organizing, attributing*.

e- Evaluate: refers to making judgment following different criteria. It includes *critiquing* and *checking*.

f- Create: is to enable the learner to produce an original material. This is done through *generating, planning, producing*.

2.8.2- The knowledge dimension:

It has four types of knowledge which are the following: the factual, conceptual, procedural, and meta-cognitive knowledge.

A- The factual knowledge: it focuses the knowledge of terms and knowledge of specific terms.

B- The conceptual knowledge: it consists on how the main elements are interrelated and function together within a whole. Conceptual knowledge deals with that of classifying and categories, principles and generalization, and the knowledge of theories and principles.

C- The procedural knowledge: it consists on the different methods and procedures to follow in order to use the different skills.

D- The meta-cognitive knowledge: it refers to knowledge of the learner's cognition, such as strategic knowledge, knowledge about cognitive tasks and self knowledge (Aly. Amer, 2006: 218).

2.9- Content Analysis (CA)

According to C.R. Kothari (1990: 110) content analysis is a way of analyzing specific material such as; a book, magazine...the materials can be written or oral. In 1940's, content analysis of materials that follow different criteria were quantitative in general, but from 1950's content analysis became qualitative dealing with the message of a given material. Thus, the analysis of a material should follow specific characteristics, which are going to be identified or counted. For example; activities, images, paragraphs, or reading and writing sections of a book...) (ibid). However, smith (1975: 218) accounts for the qualitative and quantitative data, that content analysis is concerned with. He says in (Anissa. G& Liza. M, 2015:28) "*because qualitative analysis deals with the form and antecedent. Consequent patterns of form, while quantitative analysis deals with duration and frequency of form*".

Moreover, Holsti (1968:608) states that content analysis is “*any technique for making inferences by systematically and objectively identifying special characteristics of messages*” that is to say content analysis is a technique, which serves for analyzing any message.

In the present study, we are concerned with the qualitative content analysis, since we are dealing with a textbook evaluation, which is New Prospects. It includes different types of instructions, in fact, we are concerned with the reading and writing ones, that consist of different action verbs that are classified according (BRT) bloom’s revised taxonomy.

Conclusion

This chapter is concerned with the research design of our dissertation. It deals with the description of the methods and materials that are used to accomplish this work. That is to say, the description of the New Prospects textbook. In addition, it explains the data analysis procedures using descriptive statistical method to obtain numerical data. Bloom’s revised taxonomy and content analysis are also used for the sake of interpretation and explanation of the data.

Introduction

This chapter is concerned with the practical side of this research. It deals with the results gathered from the textbook New Prospects relying on Bloom's revised taxonomy (2001). Descriptive statistical method is used as a procedure for calculating the results. In fact, this chapter shows the number of instructions, which have been analysed (48 reading) and (29) writing instructions, the amount of the action verbs, the classification of the action verbs in the reading and writing sections according to the six cognitive categories and the classification of the action verbs into divergent and convergent thinking. The results obtained will be presented in a form of tables, diagrams and pie charts.

3.1- Presentation of the Findings

Our analysis is concerned with the "Action Verbs" involved in the instructions of the reading and writing sections. The case of NewProspects. Infact, the action verbs are classified according to the "six cognitives processes" of the Bloom's Revised Taxonomy (BRT). However, this is done to show the use of divergent and convergent thinking in the reading and writing instructions of NewProspects. The findings of the present research are presented in the form of tables, pie charts and histograms.

3.1.1- The Amount of Instructions of New Prospects' Reading and Writing Sections

Units	N° of the Instructions			
	Reading instructions		Writing instructions	
1.Exploring the past	10Instructions	20.83%	6	20.68%
2.Gotten Gain Never Prosper	8Instructions	16.66%	5	17.24%
3.Schools:Different and alike	7Instructios	14.58%	6	20.68%
4.Safety first	6Instructions	12.5%	1	3.48%
5.It's Giant leap for Mankind	12Instructions	25%	5	17.24%
6.We are family	5Instructions	10.41%	6	20.68%
Total	48Instructions	100%	29	100%

Table1: Distribution of Amount of the Reading and Writing Instructions per Unit

Table1 shows the results obtained through our study on the distribution of the different reading and writing instructions within the six units in the textbook. So, as it is mentioned in the table 1, all the units involve almost the same number of instructions. Concerning the reading section the first unit consists of ten instructions which corresponds to 20.83%. Then, the fifth unit has twelve instructions which refers to 25% of the total of the number of the reading instructions, whereas the three other units have different number of instructions from one to two instructions. However, the writing section the first, third and the sixth units consist of six instructions per unit which corresponds to 20.68% for each one. But, the three other units use less instruction which corresponds to 17.24% and 3.48%.

3.1.2- The Amount of the Action Verbs of New Prospects' Reading and Writing Sections

N° of action verbs		%	
Reading	Writing	Reading	Writing
114Action Verbs	59Action Verbs	65.89%	34.10%

Table2: Distribution of the Action Verbs in the Reading and Writing sections

Table2 represents the number of the action verbs used in the reading and writing sections of NewProspects. The reading instructions include the majority of action verbs with one hundred and fourteen which corresponds to 65.89%, while the writing instructions include only fifty nine of the total of the number of the action verbs corresponding to 34.10%.

3.1.3- The Classification of the Action Verbs of the Reading Instructions in the Reading and Writing Sections according to Cognitive Categories.

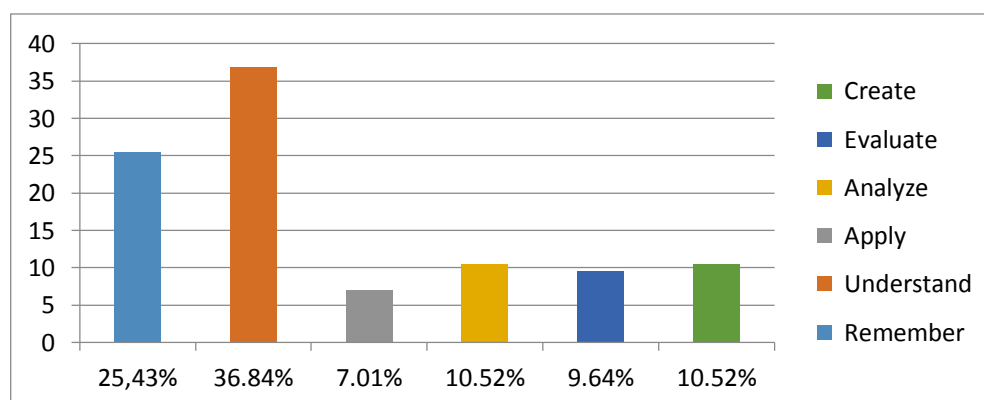


Diagram1: Distribution of the use of the Action Verbs in the Reading Instructions for Cognitive Categories.

Diagram one highlights the second category “*Understand*”, which presents 36.84% of the total of the action verbs used in the reading instructions in the reading and writing rubrics. After that, there is “*Remember*” that is presented in 25.43%. Moreover, “*Analyze*” and

“Create” involve 10.52%. However, “Evaluate” and “Apply” have respectively 9.64%, 10%, and 7.01%.

3.1.4- The Classification of the use of the Action Verbs of the Reading Instructions in the Reading and Writing sections for Cognitive Categories developing Convergent Thinking.

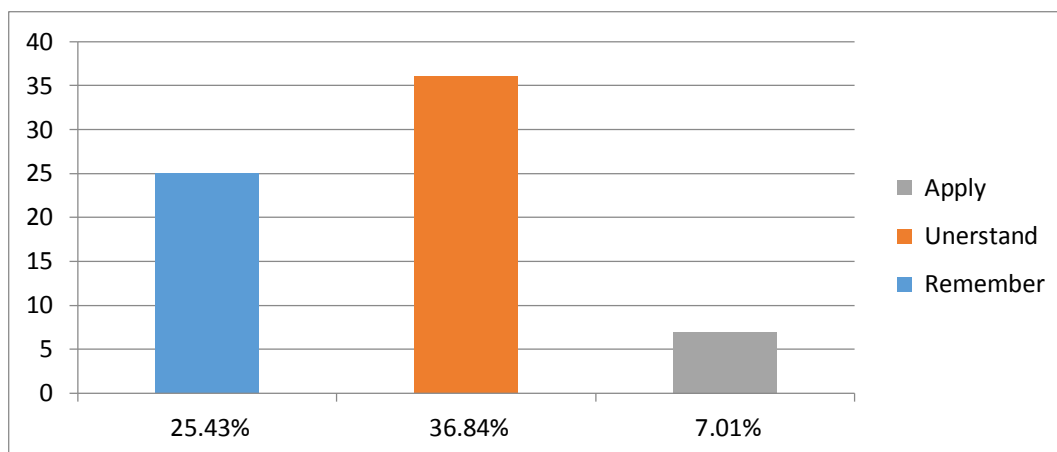


Diagram2: Distribution of the use of the Action Verbs in the Reading Instructions developing Convergent Thinking.

Diagram two presents the results of the number of the action verbs in the reading instructions which develop convergent thinking. The category “Understand” involves 36.84%. Then, and “Remember” involves twenty nine action verbs which corresponds to 25.43%. But, “Apply” expresses only eight action verbs that corresponds to 7.01%.

3.1.5- The Classification of the use of the Action Verbs of the Reading Instructions in the Reading and Writing sections for Cognitive Categories developing Divergent Thinking

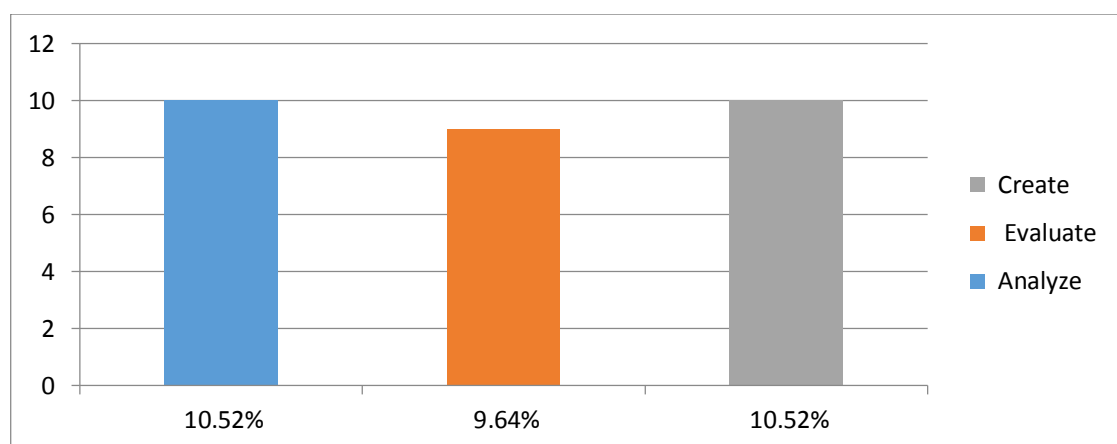


Diagram3: Distribution of the use of the Action Verbs in the Reading Instructions developing Divergent Thinking

As it is highlighted in diagram3, divergent reading instructions' consists of "*Analyze*" and "*Create*" with 10.52%, "*Evaluate*" represents only 9.64%

3.1.6- The Classification of the use of the Action Verbs of the Writing Instructions in the Reading and Writing sections according to Cognitive Categories

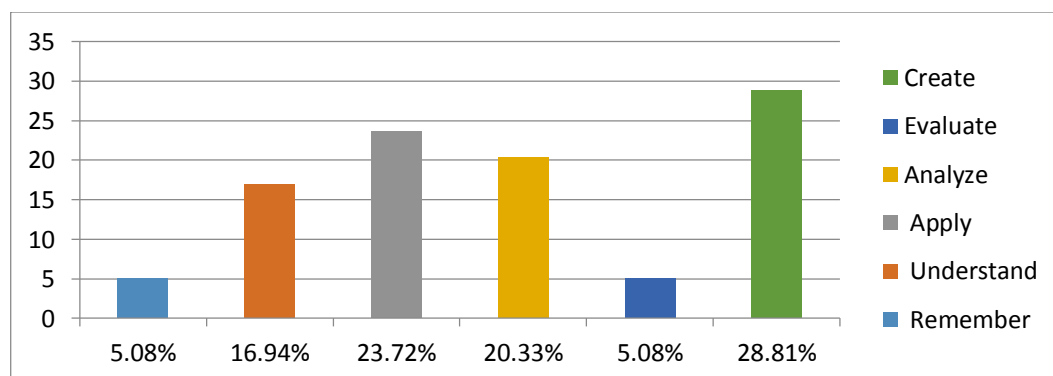


Diagram4: Distribution of the use of the Action Verbs in the Writing Instructions for Cognitive Categories

Diagram four shows that most of the action verbs are classified in the sixth category "*Create*" with 28.81%. Then, there is "*Apply*" which involves 23.72% of the total of the action verbs included in the writing instructions. After that the category "*Analyze*" comes with

20.33%. However, “*Understand*”, “*Evaluate*”, and “*Remember*” includes respectively 16.94%, 5.08%, 5.08%.

3.1.7- The Classification of the use of the Action Verbs of the Writing Instructions in the Reading and Writing Sections for Cognitive Categories developing Convergent Thinking

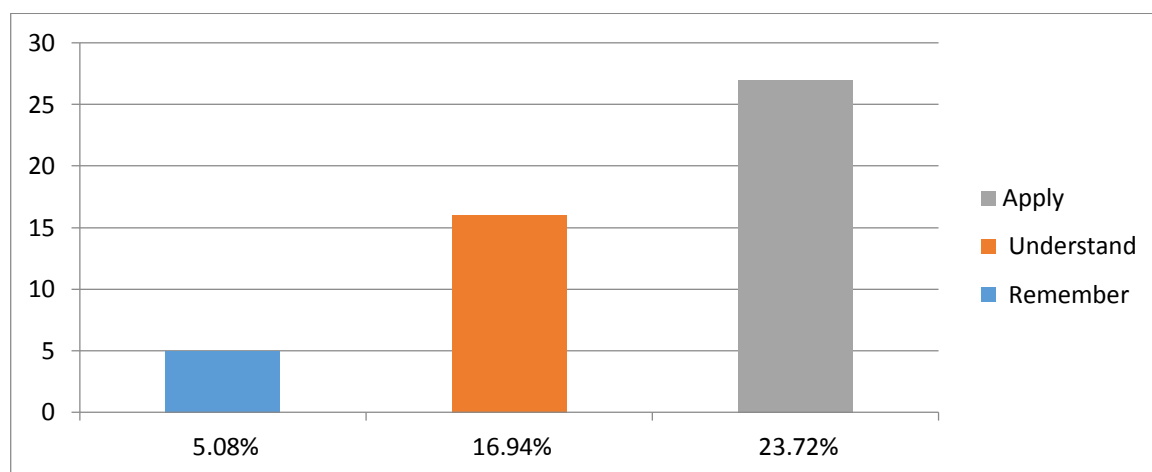


Diagram5: Distribution of the use of the Action Verbs in the Writing Instructions developing Convergent Thinking

Diagram five reveals that convergent instructions in the writing section were expressed with 23.72% of the total of the action verbs in the “*Apply*” category. Then, “*Understand*” with 16.94%. Whereas, “*Remember*” corresponds only to 5.08%

3.1.8- The Classification of the use of the Action Verbs of the Writing Instructions in the Reading and Writing Sections for Cognitive Categories developing Divergent Thinking

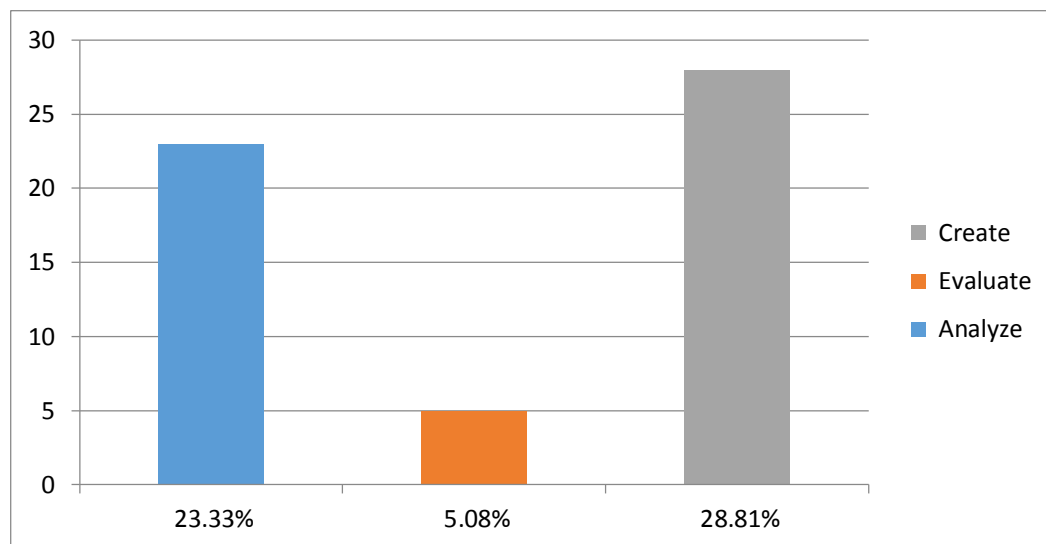


Diagram6: Distribution of the use of the Action Verbs in the Writing Instructions developing Divergent Thinking

The current study found that 28.81% of the total of the action verbs are classified in the category of “*Create*”. Then, “*Analyze*” includes 23.33% of the total of the action verbs. But, “*Evaluate*” involves only 5.08%.

3.1.9- The Classification of the six Categories into Divergent and Convergent

A. The Reading Instructions

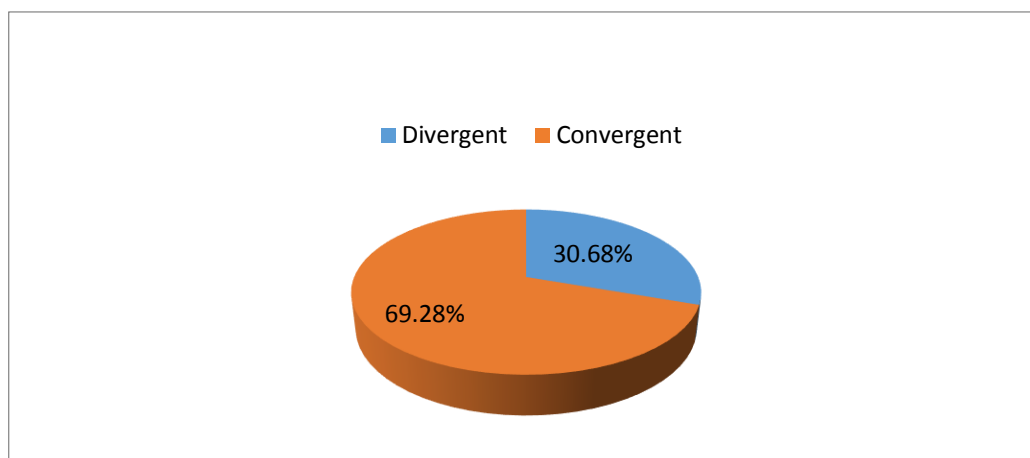


Diagram7: Distribution of the use of the Action Verbs of the Reading Instructions into Divergent and Convergent.

The total of seventy one (79) action verbs which corresponds to 70% are devoted to Convergent instructions. However, divergent instructions reveal only forty three (35) which refers to 30% of the total of the action verbs.

B. The Writing Instructions

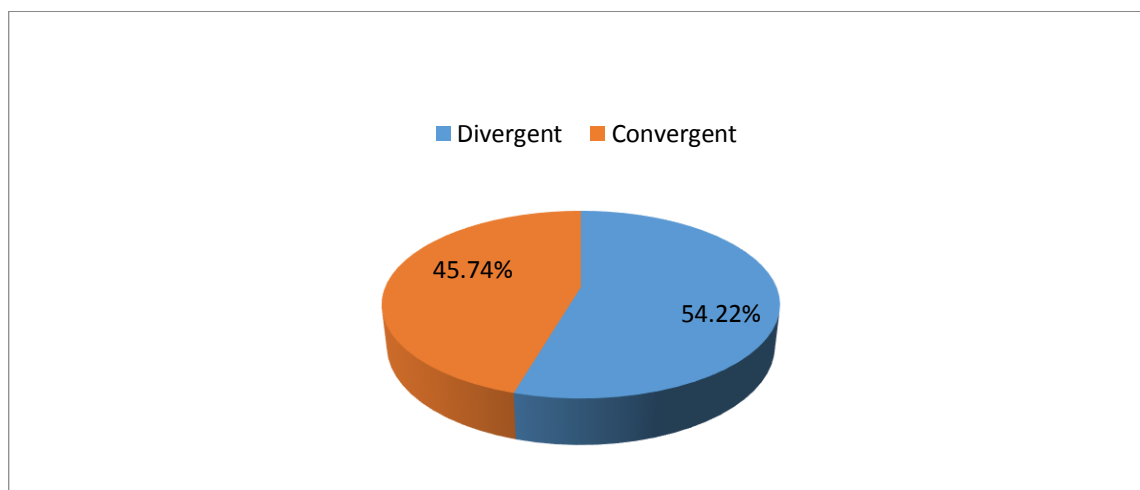


Diagram8: Distribution of the use of the Action Verbs of the Writing Instructions into Divergent and Convergent.

The findings of the research show that the writing section involves the percentage of 54.22% divergent instructions and only 45.74% convergent ones.

Conclusion

Our study is concerned with the action verbs included in the reading and writing instructions of the New Prospects text book. This chapter deals with the presentation of the findings of our research on divergent and convergent thinking in New Prospects' reading and writing sections.

Introduction

This chapter is concerned with the discussion of the results obtained from our research about divergent and convergent thinking in New Prospects' reading and writing sections. To carry out our study we have adopted the Bloom's Revised Taxonomy (2001) and content analysis for the interpretation of the findings. This chapter is divided into three main points. The first deals with the presentation of the number of the reading and writing instructions. The second is concerned with the use of the action verbs to reach instructional objectives. The third part is devoted to the classification of the action verbs into divergent and convergent thinking relying on the six cognitive categories.

4.1-Instructions in New Prospects

The research for efficient and effective delivery of instruction to students has always been major concern of science educators, also in Algeria. Instructional materials have a significant role to play in teaching and learning process. They could be explained as devices through which knowledge, skills, attitude, ideas, beliefs and values are transmitted to the learners by the teacher.

The quality teaching relies on the ability to structure and design classroom activities that are engaging and supporting student's learning. The range of activities that are used should accommodate all learning styles and encourage students to assume responsibility for their learning. Creating a dynamic and flexible learning environment that accommodates individual learning needs using interactive activities. Such activities should provide students with opportunities to share ideas and test their thinking and examine different perspectives and issues.

New Prospects is an Algerian Secondary School textbook, which is designed for secondary learners. It is one among the textbooks that implement instructions on the syllabus designed for the learners. Instructions facilitate the learning process for both learners and

teachers to achieve specific objectives, but the syllabus designers should take into consideration the effectiveness of the instruction in a given textbook. An instruction helps to achieve the learning objectives that the learners need to acquire at the end. In addition to that, it tends to improve their capacities in the four skills inside and outside the classroom. Instruction means the link between the two words teaching and learning, it also refers to the different activities that are intended to make learning progress (Black. P, William. D,2009: 10)

Our investigation is concerned with the evaluation of the reading and writing instructions in New Prospects. After the analysis we found that the reading and writing sections include seventy seven (77) instructions, forty eight (48) reading and twenty nine (29) writing instructions. This number is distributed on the six units in the New Prospects textbook and each one of them has in some a way the same number of instructions.

4.2- The Implementation of the Action Verbs for the Achievement of the Instructional Objectives

Bloom's Taxonomy is the Taxonomy of Educational Objectives (1956) designed for the sake of classifying what we expect students to learn after a particular instruction (Krathwohl, 2002). The learning objectives resulted from any instruction are described in terms of Verbs and Nouns. In fact, the cognitive dimension is based on action verbs and the latter can be more effective to reach the instructional objectives if they push the learners to do what they are intended to do.

The present study reveals that the "Reading and Writing" sections in New Prospects involve the amount of one hundred and seventy three (173) action verbs, this number reflects one hundred and seventy three objectives. That is to say, these objectives refer to the aim of the use of these action verbs in the instruction.

In New Prospects the six units consist of different numbers of action verbs. In general, reading instructions include one hundred and fourteen (114) action verbs which correspond to 65.89% and writing instructions involve only fifty nine action verbs (59) which refers to 34.10%. However, learners can find different action verbs in the same instruction. For example, in the reading section (After Reading part) we notice that six action verbs are used and they are as followed: **Have, do, link, compare, explain** and **re-order**. The action verbs **compare** and **explain** are classified in the cognitive category *Understand*, then, **link** is related to the cognitive process *Analyze*. So, the first action verbs aim to develop the learners' abilities to grasp meaning, while the latter is to improve their capacities to analyze.

In moving from one instruction to another we found that the same instruction can express several cognitive categories which are organized as: *Remember, Understand, Apply, Analyze, Evaluate* and *Create*. From the previous example we notice that learners develop distinctive cognitive objectives.

- **Have a look at the coping box below. Then do the tasks that follow.**
- 1. **Link the words in bold type in the text with the items they refer to.**
- 2. **Compare your answers to task 1 above with your partner. Then explain in what ways the reference words have helped you to better understand the text.**
- 3. **Sentences A-F below are not in order. Re-order them to get a coherent text. Pay attention to the reference words. One of the sentences is irrelevant**

(New Prospects p. 68)

In the writing instructions, we have found five action verbs included in the "Writing Development" part which are as followed: **Write, use, study, flesh out and write**. See the example:

- **Write a twenty-line draft newspaper article refuting the statement below. Use either deductive, reasoning. Help yourself with the guidelines that follow.**
- Statement**

Some people think that the budget devoted to space exploration is wasted money.

- 1. **Study the notes in the outline below. Flesh it out by adding details of your own. Then write a first draft.**

(New Prospects p: 160)

The action verbs **write** and **flesh out** are related to the cognitive category *Create*, this cognitive process gives the opportunity to learners to develop their creative abilities, while, the action verb **study** is classified in the category *Analyze* and **use** is for *Apply*.

4.3- The classification of the Action Verbs into the six Cognitive Categories

Our research is mainly based on the classification of the action verbs included in the reading and writing instructions in New Prospects into the six cognitive categories. These action verbs have a significant role, since they imply specific instructional objectives that the learners need to acquire at the end of the learning process.

In fact, the bloom's revised taxonomy has two dimensional objectives, which allow the learner to associate a verb with its cognitive process and then targeting the type of knowledge learners need to acquire (Krathwohl, 2002). For instance the action verb **link** is related to the cognitive category *Analyze* and classified in the factual knowledge dimension, as it is illustrated in the following taxonomy table:

The Knowledge Dimension	1 Remember	2 Understand	3 Apply	4 Analyze	5 Evaluate	6 Create
A.Factual Knowledge				Objective1		
B.Conceptual Knowledge						
C.Procedural Knowledge						
D.Meta-cognitive Knowledge						

Table3: Taxonomy Table

(Krathwohl: 2002)

This means that, the learning process sometimes requires that instruction need just a presentation of *Factual Knowledge* and this instruction asks learners to analyze this knowledge (Mayer, 2002 cited in Aly Amer, 2006: 225)

According to the Bloom's Revised Taxonomy (2001) the action verbs can be categorized into six cognitive categories as followed: *Remember*, *Understand*, *Apply*, *Analyze*, *Evaluate* and *Create*. However, in our investigation we have divided the taxonomy into two parts, the first part includes *Remember*, *Understand* and *Apply* (Convergent Instructions) (CI). The second part involves *Analyze*, *Evaluate* and *Create* (Divergent Instructions) (DI).

4.4- Convergent and Divergent Instructions in the Reading Section

4.4.1- Convergent Instructions in the Reading Section

As concerns our investigation, convergent instructions are analyzed according three cognitive categories of the revised taxonomy which are: *Remember*, *Understand* and *Apply*.

1. Remember:

From the results we notice that this cognitive category is developed with a percentage of 25.43% in the reading instructions. It uses enough action verbs such as, **answer, find, have, look, fill in** and **name**. These action verbs help learners to identify concepts and memorize information.

- ***Look at pictures 1-3, then answer the following questions***

(New Prospects p. 36)

2. Understand

By analyzing the findings, it is shown that this category has a high percentage in comparison to the other category and it develops convergent thinking in the reading section. This means that at the end of the learning process third year learners will be able to construct meaning from different messages included in these instructions. In addition, the action verbs included in this category are highly used (36.84%) to motivate learners to summarize texts and interpret, explain, and illustrate. These action verbs are: **Compare, Explain, Skim, Discuss** and **Scan**.

- ***Compare your answers to task 1 above with those of your partner. Then explain in what ways the reference words have helped you to better understand the text.***

(New Prospects p. 68)

3. Apply

This cognitive category includes eight action verbs which corresponds to 7.01%. We notice that learners will not gain enough abilities to deal with problems, since they are not

given the chance to develop this skill in the reading instructions. So, this category is far from developing divergent thinking. It uses action verbs such as: **Add, include, participate**, and **use**.

● Use the key words you have picked out in task 1 (page 37) to give a title to the text.

(New Prospects p. 39)

4.4.2- Divergent instructions in the Reading Section

It includes three cognitive categories of the Bloom's Revised Taxonomy, which are: *Analyze, Evaluate* and *Create*. However, the two cognitive categories *Analyze* and *Create* are the more developed in the reading section, as they contain a higher number of action verbs, while *Evaluate* consist of a lower number of verbs.

1. Analyze

The results obtained show that this cognitive category is mostly used to develop divergent thinking in the reading instructions in comparison to other cognitive category (*Evaluate*) with 10.52% which refers to twelve action verbs. The results have been found by taking into consideration these action verbs: **Circle, choose, divide, link, re-order** and **study**. That is to say the third year learners who are using this text book have the habit to analyze and break materials into units, also make the difference between things.

● Link the words in bold type in the text with the items they refer to.

● Sentences A-F below are not in order. Re-order them to get a coherent text. Pay attention to the reference words. One of the sentences is irrelevant.

(New Prospects p. 68)

2. Evaluate

The data shows that this category has not given a significant place in the reading instructions as it has in the Blooms' Revised Taxonomy. It uses the amount of eleven action verbs, which refers to 9.64% they are, **check, decide** and **read**. In other words, learners do not develop the skill of critiquing and judging situations. In fact the number of action verbs used in this category is not sufficient to ask learners to criticize products.

As “*Evaluate*” category is ignored in New Prospects, it does not develop divergent thinking in comparison to *Analyze* and *Create*.

● ***Have a quick look at the coping box below. Then, decide which type of discourse the text you have studied belongs to.***

(New Prospects P. 40)

3.Create

Concerning this category most of the action verbs are devoted to *Create*. It uses also twelve action verbs which correspond to 10.52%. So, learners who use the New Prospects text book have a large area to produce and generate new original products during the learning process. From the finding, we can mention that the action verbs such as **do, draw, say** and **write** are highly used. This means that the reading instructions in New Prospects give in a some way the opportunity to third year English learners to increase their ability in developing this skill.

4.5- Convergent and Divergent Instructions in the Writing Section

4.5.1- Convergent Instructions in the Writing Section

As it is mentioned before, convergent instructions consist of three cognitive categories: *Remember, Understand* and *Apply*.

1.Remember

It refers to *recognizing* or *recalling* ideas from memory. The analysis of the data reveals that cognitive category *Remember* includes only three action verbs in the writing section, the which refers to 5.08%. Among these verbs there are **think, go** and **see**, and from this number we note that there are not many action verbs which can push the learner to have the habit of memorizing and storing information, also they are no longer asked to identify concepts by using the stored information in their mind.

● ***Go to the next page and study the ideas written down in the network tree. Then jot down details of your own. Feel free to cross ideas in the network and replace them by your own ideas; or reshuffle the ideas.***

2. Understand

Understand means “*determining the meaning of instructional messages including oral, written, and graphic communication*” (Krathwohl, 2002: 215). The analysis shows that the cognitive category *Understand* includes more action verbs than *Remember* with the number of ten (10) verbs which corresponds to 16.94% involving **explain, illustrate, cross, present, correct, re-write** and **give**. Moreover, learners will acquire how to grasp meaning from the instruction and the analysis shows that learners are more motivated in constructing meaning rather than memorizing and storing information in their mind.

3. Apply

The results show that the category “*Apply*” is the well developed category with 23.72% which corresponds to fourteen action verbs including **follow, start, hand, try** and **add**. In this category learners of secondary classes, who use the New Prospects textbook are given enough opportunities to study situations through *executing* and *implementing*. That is to say, those learners will learn and master different techniques to use in order to solve problems in any situation.

- ***Revise your draft paying attention to the structure of your sentences, the organization of your paragraph, coherence, spelling and grammar. Then hand a copy of your article to your teacher.***

(New Prospects p. 101)

4.5.2- Divergent Instructions in the Writing Section

In dealing with divergent instructions in the writing section we have taken into consideration the three cognitive categories as mentioned in the reading section. *Analyze*, *Evaluate*, and *Create*

1. Analyze

This category is not really used in the writing instructions. *Analyze* process category represents 23.33 % which refers to twelve of the total of the action verbs included in the writing section. After counting these action verbs such as **reorder**, **select**, and **exchange** we understand that, learners are more or less asked to analyze materials and they have not sufficient opportunities to break materials into different parts within a whole structure. Analyze means “*breaking materials into constituent parts and determine how the parts relate to one another and to an overall structure*” (ibid)

● ***Select three to four ideas and develop them. Write your draft article. Each time you mention an effect try to support it with evidence, illustrations and examples.***

(New Prospects .101)

2. Evaluate

By examining the results, the *Evaluate* cognitive process expresses only 5.08% which is a low number comparing with the other categories. This cognitive process is not enough developed in the writing instructions, since learners are not allowed to think in critical way in solving problems. Moreover, this is shown through the use of action verbs, for instance **check**, **review** and **read**. However, this skill has an important role in the taxonomy and the New Prospects textbook does not give it such importance so, learners at the end of the learning process will not have the ability to critique or judge the value of a product.

● ***Check whether your ideas are developed coherently. Then review your narrative for grammar and spelling mistakes.***

(New Prospects p. 40)

3.Create

The findings reveal that this cognitive category presents most of the total of the action verbs with a percentage of 28.81% that refers to seventeen verbs. From this, we notice that there is more occurrence of this skill in the writing instructions in New Prospects in comparison with the other categories. There are many action verbs, which encourage learners to generate and develop new products among them **jot-down, write, flesh out** and **tell**. Thus, this amount reflects the development of divergent thinking in the writing instructions.

Moreover, Krathwohl (2002: 115) states that “*create is putting elements together to form a novel coherent whole or make an original product*”

● **Write supporting statements in the diagram. Then jot down reasons to explain/illustrate your statements.**

(New Prospects p. 70)

As concerns our research the six cognitive categories of the Bloom's Revised Taxonomy can be divided into two types. The first type involves *Remember, Understand* and *Apply* it is called convergent. Whereas, the second type consists of *Apply, Analyze, Evaluate* and *Create*, it is called divergent. In fact, our study deals with reading and writing rubrics, more precisely the instructions included in New Prospects in relation to divergent and convergent thinking.

The results obtained in diagram seven show that most of the action verbs used in reading instructions are classified into convergent ones with 69.28% of the total of the action verbs. However, the rest of the action verbs are devoted to the second type, which is divergent with only 30.68% verbs. This means that convergent instructions are well developed in reading instructions in New Prospects rather than divergent ones. By contrast, the writing instructions, the diagram8 reveals that a large number of action verbs are devoted to divergent instructions, since it represents 54.22% action verbs, but only 45.74% verbs are classified into

convergent. That is to say these instructions develop more divergent rather than convergent thinking.

Conclusion

This research deals with the reading and writing sections in terms of divergent and convergent thinking. This shows that the reading instructions include one hundred and fourteen (114) action verbs and the writing instructions involve only fifty nine (59) action verbs. These action verbs are categorized according to the six cognitive categories in terms of divergent and convergent thinking.

General Conclusion

The present study tends to investigate the issue of divergent and convergent thinking in the Algerian EFL textbook New Prospects. It focuses on the evaluation of the reading and writing instructions and the extent to which divergent and convergent instructions are used. To reach our objective we have raised two main hypotheses, which are as followed. The first one says that convergent thinking is more developed in reading instructions. The second one says that divergent thinking is more developed in the writing instructions. Therefore, Bloom's Revised Taxonomy has been used as a theoretical framework for the practical aspect of our research.

This research is based on Bloom's revised taxonomy. This taxonomy includes six cognitive categories, which are organized from lower order thinking to higher order thinking and they are as follow: *remember*, *understand*, *apply*, *analyze*, *evaluate* and *create*. For the completion of our dissertation we have opted to divide this taxonomy into *remember*, *understand* and *apply* as convergent. *Analyze*, *evaluate* and *create* as divergent. The former three cognitive categories are considered as convergent, since learners do not need to create and generate new ideas. However, the latter are counted as divergent, because this type of thinking pushes learners to use their minds and come up with new ideas. In fact, this dissertation aims at investigating the extent to which divergent and convergent instructions are implemented in the reading and writing sections in New Prospects.

For the collection and analysis of the data obtained we adopted the mixed method, which consists of the quantitative and qualitative methods. The former is concerned with the statistical data or data collection and the latter deals with the data analysis, interpretation and explanation of the results. Concerning the quantitative side we use the descriptive statistical method to obtain statistical data, whereas the qualitative side we interpreted the results following Bloom's Revised Taxonomy and content analysis as a procedure for the

classification of the instructional objectives. Moreover, data collection involves forty eight (48) reading and twenty nine (29) writing instructions included in the reading and writing rubrics in New Prospects, which refers to one hundred and fourteen (114) action verbs in the reading instructions, but only fifty nine (59) in writing ones.

By examining the data, which are obtained from the analysis of the reading and writing instructions through the application of bloom's revised taxonomy, we have noticed that reading instructions include more action verbs than writing ones respectively 65.89%, 34.10%. In addition to that, the use of the action verbs in the reading instructions following the six cognitive categories are mostly included in *understand* with 36.84%. However, concerning the writing instructions most of the action verbs are classified in *create* category with 28.81%. The results show that "*understand*" is a very important skill in the reading section in New Prospects. By contrast, "*create*" is more developed in the writing instructions, which means that learners are more asked to create and generate new ideas.

Our focus in this research is mainly concerned with divergent and convergent thinking in the reading and writing instructions of the New Prospects textbook. After the analysis of the results we have concluded that convergent thinking is more developed than divergent thinking in the reading instructions with the percentage of 69.28%. This means that learners are given more chances to memorize and understand the different items related to the text, rather creating and generating new and original ideas. However, in the writing instructions, divergent thinking has got a high percentage in contrast to convergent thinking with 54.22%, that is to say learners, who are using New Prospects textbook will be able to produce, create and generate new products at the end of the learning process.

Divergent and convergent thinking are two types of thinking, which have been examined in this dissertation; these two strategies of thinking are both important in the teaching and learning process. That is to say, they help learners to develop their thinking

skills, organizing their types of knowledge and build on what they have already know and learned.

●Limitations of the study

As New Prospects textbook includes so many instructions, which we can not all mention in the *Appendices*. At the end of our dissertation, we have noticed that we can not include all the instructions in the *Appendices*, so, we have inserted only those that have been used as illustrations to explain the way that are analyzed and classified.

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Appendix I: The Action Verbs included in Reading and Writing Instructions in New Prospects

Verbs for Objective

A: Reading Instructions

Remember	Understand	Apply	Analyze	Evaluate	Create
Answer	Argue	Add	Circle	Check	Do
Find	Compare	Include	Choose	Decide	Draw
Fill in	Discuss	Participate	Devide	Read	Say
Have	Explain	Use	Link		Write
Look	Give		Reorder		
Name	Infer		Study		
Think	Justify				
	Match				
	Pick out				
	Skim				
	Scan				
	Spot				
	Tick				

B. Writing Instructions

Remember	Understand	Apply	Analyze	Evaluate	Create
Go	Complete	Add	Analyze	Check	Develop
Think	Correct	Follow	Exchange	Read	Flesh out
See	Cross	Hand	Re-order	Review	Jot down
	Explain	Make	Replace		Say
	Give	Take	Revise		Tell
	Illustrate	Try	Select		Write
	Rewrite	Start	Study		
		Use			

AppendixII: The Taxonomy Table

The Knowledge Dimension	1 Remember	2 Understand	3 Apply	4 Analyze	5 Evaluate	6 Create
A.Factual Knowledge						
B.Conceptual Knowledge						
C.Procedural Knowledge						
D.Meta- cognitive Knowledge						

Appendix III: A sample of instructions from New Prospects



READING AND WRITING



Skills and strategies outcomes

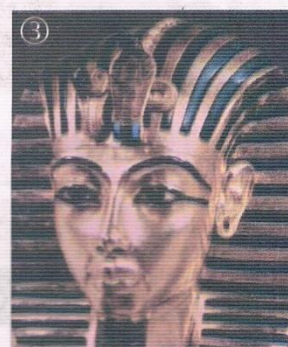
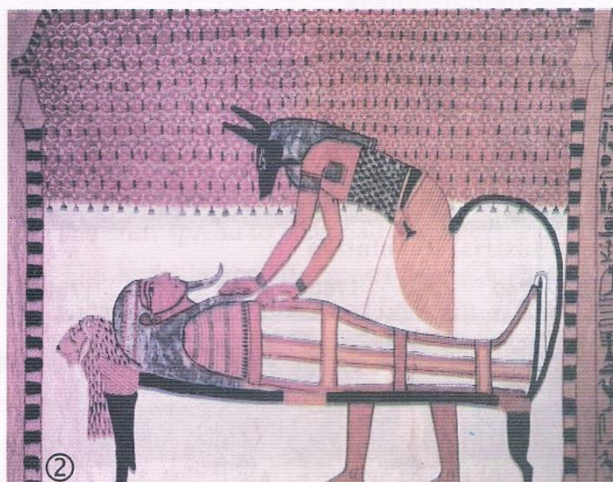
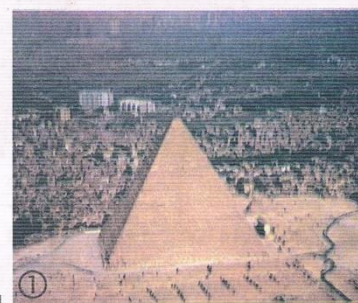
- Skimming
- Scanning
- Identifying reference words
- Recognizing types of discourse
- Summarizing
- Writing a story



ASSESSING

► Before reading

- Look at pictures 1-3, then answer the following questions.
 1. What does each of the pictures represent ?
 2. Which of them shows one of the Seven Wonders of the World ?
 3. Which Ancient Egyptian king have you heard of ? What was he famous for ?
 4. Which stories in your culture are associated with Egypt ? Say a few words about them.



► After reading

- ① Have a quick look at the coping box below. Then decide which type of discourse the text you have studied belongs to.

Coping

There are five major **types of discourse** in prose texts: descriptive, expository, narrative, argumentative and prescriptive.

- ☐ As their name indicates, **descriptive** texts do just that: they **describe** people, places, things, etc.
- ☐ **Expository** texts **explain** how things work, and why these things are what they are.
- ☐ **Narrative** texts **tell** the story of something or someone.
- ☐ **Argumentative** texts are texts which **defend** points of view.
- ☐ **Prescriptive** texts are texts which **give instructions**.

Note: There may be more than one type of discourse in the same text.

- ② Write a short summary of the text (about one-fifth of it) you have studied. Your teacher will tell you about the strategies for making a summary.

► Writing development

- Follow the guidelines below to write your own version of the Ancient Greek myth of Ulysses.

- ① The pictures on the next page are illustrations of the Ancient Greek myth of Ulysses. They are not in order. Re-order them according to chronology.
- ② Jot down ideas about each picture. Then select the most relevant ones and start writing your draft narrative. Don't pay attention to mistakes at this stage.
- ③ Check whether your ideas are developed coherently. Then review your narrative for grammar and spelling mistakes.
- ④ Exchange drafts with your partner for error checking.
- ⑤ Hand your revised narrative to your teacher.

► After reading

- Have a look at the coping box below. Then do the tasks that follow.

Coping

Writers use words such as **articles** (**a**, **the**, etc.) **possessive adjectives** (**my**, **your**, etc.) **demonstrative adjectives** (**this** book), (**those** books), **pronouns**, **synonyms**, and **antonyms** to refer back to things already mentioned or to refer forward to things that will be mentioned. These words are called **reference words**. They help writers avoid repetition and create lexical and grammatical cohesion between both sentences and paragraphs. It is important to pay attention to these reference words because they help us better understand texts.

- ① Link the words in bold type in the text with the items they refer to. E.g.

Businesses are increasingly aware of the importance of social and environmental issues for their reputation.

- ② Compare your answers to task 1 above with those of your partner. Then explain in what ways the reference words have helped you to better understand the text.
- ③ Sentences A-F below are not in order. Re-order them to get a coherent text. Pay attention to the reference words. One of the sentences is irrelevant.

- A. Algeria has recently adopted a new model of economic development.
- B. It has also set high standards of governance including social auditing and public accounts reporting.
- C. Such tasks are carried out by the National Economic and Social Council and by the Accounts Court.
- D. This model balances economic growth, social justice and the sustainable use of natural resources.
- E. Algeria regained its independence in 1962.
- F. In addition to the setting of standards of governance, it has accorded ethically responsible companies tax reductions so as to encourage them to promote sustainable development and social well-being.

② Write supporting statements in the diagram. Then jot down reasons to explain/illustrate your statements.

③ Write your first draft of the policy statement using the relevant information in your diagram.

Useful language

- Link words to illustrate : for example, for instance, such as...
- Link words to express cause and result : because, due to, since, as a result, consequently, so+adjective+that ...

④ Exchange drafts with your partner for error checking. Then write a final version and hand it to your teacher.



'It's awful the way they're trying to influence Congress. Why don't they serve cocktails and make campaign contributions to senators as we do?'



Skills and strategies outcomes

- Predicting the content of a text
- Identifying the type of text and author's purpose
- Making inferences
- Distinguishing between different types of reasoning in argumentative texts
- Writing an argumentative essay



ASSESSING

► Before reading

- The paragraph below is taken from a lengthier text. Read it very quickly and answer questions 1, 2 and 3 below.

'DEEP IMPACT'

(by David Grinspoon)

On Sunday night, NASA fired a 3-foot wide, 820-pound explosive barrel directly into the path of a 9-mile long, potato-shaped comet called Tempel 1. The two successfully collided at 23,000 mph while a spaceship photographed the collision and sent the pictures home to us. Why?



- ① What kind of source is it taken from? Tick (✓) the right answer and say why.

- A. a science-fiction book
- B. a scientific report
- C. a newspaper article
- D. a letter of complaint.

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

- ② Where do you think the paragraph fits in the text? Is it at the beginning, in the middle, or at the end? Why?

- ③ What, do you think, comes next in the text?

► Writing development

● Write a twenty-line draft newspaper article **refuting** the statement below. Use either **deductive** or **concessive** reasoning or both. Help yourself with the guidelines that follow and the useful language on the next page.

Statement

Some people think that the budget devoted to space exploration is wasted money.

① Study the notes in the outline below. Flesh it out by adding details of your own. Then write a first draft.

☐ Introduction

☐ Arguments against space exploration.

- Space exploration is a wild dream.
- Huge amounts of money are gone in smoke.
- This money is needed to relieve poverty in the Third World.
- Medical research should be encouraged instead.

☐ Arguments in favour of space exploration

- Predicting earthquakes
- Satellite communication
- Weather forecasting
- Solving environmental problems
- Blood analysis ...

Conclusion

See: ● 'The Benefits of Space Exploration', p.260 and

● 'Remote Sensing', pp.262-263 in **Resources Portfolio**.