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The effect of Bilingualism on Children's Cognitive Development

The Case Study: First Year Middle School Of Benslimane Hammou

.Mostaganem

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Dedication

My first thanks goes to the members of my family especially my kind mother and my suite father .I swear without the help of them I could not study and succeed and get my master Diploma .My family always make confidence at my capacities and encourage me to do all the best and do not accept failure because we learn things from our mistakes

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Abstract

One of the most crucial problems that encountered children in any given society is bilingualism. Language can represent knowledge that is responsible for its effects on cognition. This study aims to investigate the cognitive development among first year learners of Ben Slimane Hammou Middle School in Mostaganem. Therefore, the main question that is raised in this research is, to what extent does bilingualism affect children cognitive development? To answer this question, we have some hypothesis that may help us that bilingual child may differ from monolinguals in their language proficiency, another hypothesis is that perhaps bilingualism led to increasing a child's attention. Therefore, the requirement of our investigation urges us for quantitative analysis. Furthermore, this research-based on two questionnaires addressed to both teachers and learners of Ben Slimane Hammou Middle School in Mostaganem. Moreover, the data revealed that among the reasons leading to demonstrate the role of attention control that extends knowledge about the cognitive development of both bilingual and monolingual children

Keywords: bilingualism, cognition, bilinguals, monolinguals, attention, control, teacher, learner

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General Introduction

Because the Algerian society is multilingual, its sociolinguistic situation is quite complex. Many languages and language varieties are at play as Arabic and French. The impact of the French language and culture is still present. This has resulted in various sociolinguistic phenomena that occur when two or more languages are in contact such as bilingualism which is the use and acquisition of a language other than the mother tongue. Furthermore, cognitive development is the ability to acquire that knowledge that is related to the brain's skills. Moreover, psycholinguistics has risen as a field of study, which focuses on the relationship between bilingualism and cognitive development. Therefore, the aim behind this dissertation is to know about the level of language competence attained by bilingualism

The present research work discusses conflicts that exist between bilingualism and cognition. Therefore, the main objective of the present study is to explore the bilingual situation of the country and their effect on cognitive development, in an attempt to know more about the amount of both Arabic and French used by the first-year student.

To answer these questions, some hypothesis is chosen to support these questions, perhaps bilingualism led to several cognitive developments as memory. Attention metalinguistic awareness and intelligent. Perhaps bilingualism makes children smarter and active. Perhaps Cognitive development affects only monolinguals. To investigate the hypotheses provided, we will use a questionnaire that is directed to 40 students of Ben Slimane Hammou middle school in Mostaganem. The present work is divided into three chapters; each one is defined as follows:

Chapter one is a historical review about language development, through which we will define language and its aspects, human language, language processing and human brain

General Introduction

also the social effect of language progression. Then the child's competence and performance we will also explain the acquisition and learning of the second language. The study moves to the second chapter to involve readers with basic knowledge about bilingualism and cognitive development. This section will primarily have a general characterization of bilingualism, first, providing an overall understanding concerning the definition of bilingualism and its different types, as we will explain too, the theory of analysis and control which was raised by Bialystok. We will explain the different component, by providing explanations and examples.

The last chapter is concerned with the practical part. It involves the analysis of the data that are related to the topic the instrument of conduction this research is a questionnaire. It contains mainly two parts. The first one will tackle the data collection and analysis. While the second part deals with discussing, the results have been gathered from the questionnaire. This chapter also involves suggestions for further studies.

CHAPTER ONE:

LANGUAGE

DEVELOPMENT

1.1 .Introduction

Language is an expression of thought . We use spoken language every day, face- to-face, as a means of Communication, because non- humans do not communicate by using language. Humans have the Ability to acquire a huge number of words and rules. Children can acquire easily their native

A language where .they accomplish a certain level of competency The capacity to successfully use Language requires a range of tools including phonology and morphology... In general, the acquisition of Language comes in opposition to language learning. In this respect, the current chapter will deliver an Overview concerning language, its component, its development and their social effect. Then, the Psycholinguistics approach that deals with the human brain and language processing, child's competence And performance. Additionally, a review of second language acquisition and learning

1. 2 Language Definition

The origin of the word 'language' can be traced down to the Latin word 'Lingua' which implies 'Tongue.' French terms 'language', 'langue' and 'parole' also bear impressions on 'language'. These terms imply 'a specific form of speech' (Lyon, 1981).

Definitions of languages are easy to find (Lyon, 1981). All the statements come from classical works by different linguists as Chomsky (1957, P.13) defines language as "a set of (Finite or infinite) sentences, each finite in length and constructed out of a finite set of elements ". According to him, each natural language has a group of sounds, and there may be an infinite sentence which can be as a finite of these sounds. On the other hand, according to Sapir (1921, P . 7) language is a purely human and non-instinctive method of communicating

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ideas, emotions, and desires using voluntarily produced symbols " that is language is mainly concerned with only human beings and constituted a system of sounds produced by they to communicate.

Jay (2003, P.2) assumes that "Human language is a structured system for combining words that make it possible for us to communicate with others, to think about our immediate environment, or to imagine". In this regard, language can simply be defined as a means of communication which is almost taking place within some sort of social context that requires to understand and recognize the connection between a language and the people who use It to express feelings, exchanging ideas, opinion, information

1.3 Human Language:

Some animals can communicate using non-linguistic communication. However, they lack the properties that set-apart from the human language from another communication system (Yule,2010,p.11). Indeed, many researchers try to adduce some properties of language that there are six properties of languages (Jay,2003,p.2) among the points to notice here are :

The first feature is Arbitrary. Jay (2003,p.3) claimed that "language is based on arbitrary symbolic references to things, ideas, processes, and relationships" that is missing logical link between words and their referents. This was also supported by Yule (2014,p.12) when he stated, "Arbitrariness " which means that there is no relationship between linguistic signs and objects. Besides, there is no natural connection between objects in the environment or ideas and the names we give them The second feature is Structured. Jay (2003,p.2) defined

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it as " a composed of rule-governed or acceptable patterns of sounds, letters, and meaningful words" At this level, they defined language as a well-arranged system of rules or conventions because a single language convention, for example, a single word, a pause, or an alphabet letter, does not tell us much beyond its immediate meaning. Thus, we usually combine these conventions to convey larger meanings.

The third feature is Productivity. Yule (2014,p.13) states that" Humans are continually creating new expressions and novel utterances by manipulating their linguistic resources to describe new objects and situations". That is, human language can never be limited, it is described as creativity or open-mindedness which means that people can use the limited set of sounds to create an unlimited set of meaning words or sentences. Thus, all human languages have the capacity to express ideas and thoughts about everyday life in other languages. Unlike, animals lack this property; their language is limited and finite. They are not able to create new words

The fourth feature is Multiyear Jay (2003,p.4) points out that any utterance can be analysed at the level of sounds, words, or sentences. Also, the sentence can be analysed within paragraphs.

The fifth feature is Evolutionary which is defined by Jay (2003, p.5) "languages are organic "that is, languages grow new words that are functional and no longer Useful for everyday life. Besides, language also changes through contact with other Languages. (Flexner,1976) provides an example of " Modern English that has developed from Middle English, which evolved from Old English", and by borrowing words from others' Contact, so the English language is developed (as cited in Jay 2003,p.5)

the sixth feature is communicative, which is defined by Jay (2003,p. 3) as " the function of language". language is connected with the ability to interact, to understand, and to communicate appropriately in different situations. Contexts on way the language is used and the effect of language is used on society. It can help us to understand how we talk differently

1.4 Aspects of language

Linguists divide language into the following components: phonology, morphology syntax and discourse.

Phonology is viewed as the study of sound structure and refers to the system of the language that uses speech sound to signal differences in meaning (Hulme & Snowling, 2009). On the other hand, Yule (2014) assumes that phonology is abstract or mental process of sounds in a language that distinguishes meaning to the actual physical sounds that we pronounce and listen, and each one of these meaning is defined as phoneme (Yule,2014). According to Meyer (2009,p.7) phoneme is " the smallest unit of structure in language".

That is to say, we produce different speech sounds by changing the way air goes through our Vocal tract. Morphology is defined by Saville -Troike (2006,p .141) as " morphology or word structure can be very important for vocabulary development as well as for achieving grammatical accuracy " According to him, grammar is thought to be a system of rules that governs how units are put together to form larger units, for example combining un- with happy to get the new word unhappy. Moreover, Yule (2014) claims that "morphology is the study of forms", and morpheme is "a minimal unit of meaning or grammatical function.", in the sense that units of grammatical role contain forms which are used to mention past tense or plural, for example. At this point, (Meyer, 2009,p.7) views morpheme as the smallest unit that carries linguistic meaning The syntax is the other component of language that Jay (2003, p.10) defines it as" the way language permits users to assemble words to form phrases and

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sentences". That is how words, phrases, clauses, and sentences are structured, as stated by Cruse (2002) combining words into coherent discourse that refers to "the highest level of language analysis" Jay(2003, p.11), which means that the study of language units beyond the sentence boundaries. Furthermore, it is used for telling stories, engaging in conversations, etc.

All of these aspects tend to develop at different rates within each individual and the Different rates of development can vary greatly between individuals making the study of language development a bit tricky

1.5. Language development

All humans are born with a natural ability to learn the language (Saville-Troike, 2006).

According to Gass (2003), there are two main approaches to language acquisition: the Nature approach and the nurture approach. The natural approach is in line with the idea that all children are born with innate knowledge about language. This idea is based on Chomsky's theory of Universal Grammar (UG) (Chomsky, 1965). UG is the belief that there are a set of innate rules that all children are born with and within this UG we find the concept of the generative grammar defined by Chomsky as "simply a system of rules that in some explicit and well-defined way assigns structural description to sentences" (Chomsky, 1965). These grammar rules are not necessarily something we are aware of, or even can be aware of; they are simply instinctive rules which help us determine the way of our native language. The nurture, or cognitive, approach, on the other hand assumes that the ability to acquire language is based on general mechanisms and cognitive processes. In other words, people with this belief do not believe that children are born with prior knowledge of the language, but rather that they learn through the environment they live in and the input they receive from others; a

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more external approach to language learning. Despite the differences in beliefs, all children somehow seem to learn their native language without too much effort. In fact, all typically developing children exposed to their native language before the age of 6 or 7 learn it at a native level (Gleitman & Newport, 1995). The process of language acquisition starts even before the child is born. In the last months in the womb, the fetus can recognize the melody and the rhythm of its native language (Karmiloff & Karmiloff-Smith, 2001). The months following the child's birth, language develops at a rapid speed. Between 12 and 20 months the infant starts communicating using single words, and from there, goes on to combine words into two-word utterances, before combining words into small sentences, a milestone often seen between 18 and 24 months (Hulme & Snowling, 2009). This language acquisition process is universal and despite varying environmental circumstances and cultures, all normal children learn their native language to a high degree of proficiency within a short period (Gleitman & Newport, 1995). However, if a child is not exposed to the native language before the age stated above, chances are the child will never learn a language at a native level.

1.6 Language Processing and Human Brain

The general structure of the brain is important for comprehending and producing language. The normal human brain is composed of two hemispheres which are linked by the corpus callosum that allows the two hemispheres to communicate with each other through numerous sets of nerve fibres (Lyon, 1981). Moreover, the right hemisphere controls the left body side movement and vice versa (Steinberg, Nagata & Aline, 2014). The pathologist Broca (1824-1880) discovered the function of Broca's area while examining the brains of patients with language difficulties. This area is a region in the left frontal lobe which is responsible for speech production. Then, Broca finds that an injury to the left side of the brain was much

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more likely to result in language loss than was an injury to the right side. (Jay, 2003). On the other hand, The German Neurologist Wernicke (1848 -1905) discovered Wernicke's area which controls speech comprehension as Steinberg et al (2014, p. 321) assumes that "on hearing a word, the sound of the word goes from the ear to the auditory area and then to Wernicke's Area" So, Wernicke's area creates plans for meaningful speech while Boca's area is responsible for taking those plans and determining the movements of the articulator of speech including the tongue, lips, jaw, soft palate, vocal cord ...etc. (Steinberg et al, p.2013).

Broadly speaking, Both Wernicke's and Boca's areas belong to the left hemisphere which is concerned with the logical, analytical operation and high mathematics. However, the right hemisphere's function is to recognize emotions, faces, and perceiving the structure of things without analysis.

1.7 The social effect and language progression

Language is closely related to the cultural norms, each language reflects the social requirements of the society that uses it. Despite, the capacity for first language acquisition of every individual, no one can develop that potential without interaction with others in the society he or she grows up in (Saville-Troike, 2006).

Human beings use language as a communication tool and learning through communication is made possible by social interaction (Kuhl, 2007). Furthermore, children acquire language by Close interaction with old children. Moreover, they learn language by hearing others use it, while television or radio is inactive for the young learner (Kuhl, Tsao, & Liu, 2003), and that language learning depends on frequent one-on-one contact with an adult. Besides, Eve Clark notes that “conversation provides a forum for using language”(2009,p.6), that is the conversation is more important in children's language development. Equally important, children can imitate and expand on language which adults provide by

asking questions, comments and speech to be listened to. Additionally, children do benefit from direct interaction, rather than overheard. Furthermore, Child-Directed Speech(CDS) contains repetitions of words, phrases and intonation patterns. The patterns of CDS match well with infants 'abilities to discriminate between different speech sounds, as well as parents or caregivers have a direct impact on the child by communication, accentuating relevant words, repeating them, and pronouncing them slowly. Thereafter, what is important to realize, is the fact that CDS plays a major role in the social interactionism for language development (Jay, 2003). To conclude, Hoff (2006) asserts that social context factors influencing language development. These include cultural influences, socioeconomic status, ethnicity, childcare experience, schools and parents.

1.8 child competence and performance

These two notions were introduced by the linguist Noam Chomsky in 1960. Competence and performance are two different opposition terms in linguistics. While competence refers to the underlying knowledge of the system of language, its grammatical and vocabulary rules, and all the constituents of a language, and how they fit together. However, performance is described as the observable and concrete manifestation or realization of competence. In other words, how speakers take ideas and put them into speech sound, as speaking and writing; or the comprehension of linguistic events including listening and reading. The distinction between these terms is behind what Chomsky (1965) says: "Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as Memory limitations, distractions, shifts of attention and interest, and errors (random or characteristics) in applying his knowledge of the language in actual performance". (Chomsky, 1965, p.3) It has been noticed that though Chomsky's

theory is based on two notions of language: competence which, as to him, refers to ‘the speaker’s knowledge of his language’ and ‘actual performance’, which is affected by both Physiological and external social factors. Similarly, the child’s competence is developed through the brain maturation, the readiness to evolve sounds significance, object's naming and rule-based constructions Furthermore, the main distinction between the child’s competence and performance is the occurrence of speech errors in the real situation.Willem J. M. Levelt (1993)

The corpus study of the performance data of the child’s language cannot measure what the child knows about the language. His spoken language takes place in a non- stable setting and affected by the various circumstances in, the awareness of rules, the lack of practice or being tired. The child’s competence is the internal knowledge that he developed about his mother tongue.

1.9 Acquisition and learning of the second language

Ellis (1997) views Second language acquisition as the process of learning another language after the acquisition of the mother tongue. Besides, Gass (2013, p.6) defines the term "second" as generally used to refer to any language other than the first language. Also, second language acquisition refers to the learning of a third or even a fourth language. Broadly speaking, second language learning can occur in the classroom through instruction or naturally by living in another country Additionally, Gass (2013,p.6) claims that " second language is learning of a non-native language after the learning of the native language ".Moreover, Ellis (1997) argues that the second language is not only the language learned or succeeding one’s mother tongue but the third or fourth language which is part of the second language acquisition. In the case of second language acquisition, the language plays a social and an institutional role in the community. It functions as a recognized means of

communication which leads members to speak other languages as same as their first language, for instance, French as a second language is learnt in Algeria (Ellis, 1997,p. 3)

Broadly speaking, there are differences between acquisition and learning. Krashen (1982) makes a simple distinction between learning and acquisition. for him, language acquisition is an unconscious process through which children become skilled in their native language. In other word, children subconsciously have the knowledge, the rules of language, and the ability to communicate with the language.

In short, Gass identifies acquisition in non-technical word, as "picking –up" a language However, language learning is conscious. Knowledge, giving the child direction and instruction to generate accurate sentences. Generally, unlike acquisition, learning focuses on language form more than language as a tool of communication. Thus, learning is not productive when giving children language rule, on the other side, this is not sufficient to make children Communicate competently and effectively. To conclude, most linguists agreed upon Characteristics and differences between learning and acquisition

1.10 Conclusion

The present chapter has reviewed the main issues related to language concepts, its aspects and how it is developed. It has been introduced the relation between human brain and language. It is agreed that child can learn a second language which makes him bilingual. The second chapter will explain and discuss in more details bilingualism and its relation to cognition.

CHAPTER TWO: BILINGUALISM AND COGNITIVE DEVELOPMENT

2.1 Introduction:

The concept of bilingualism has been used in various ways by scholars. It has been viewed as an individual level, a mental concept, a characteristic of individuals who possess or who use two linguistic systems. This later affects cognitive development which is based on the level of conception, perception, and information. Bilingualism and cognitive development are the most important issues that are dealt with within the field of linguistics. Therefore, this chapter is an attempt to discuss several issues related to the concept of bilingualism, and its different types in the first section. Besides, the second section is about Bialystok's theory of analysis and control

2.2 Definitions of bilingualism

Bilingualism is one of the most important processes of language contact. It is the standard term for the use of two languages by an individual speaker or a group of people. It is defined as the ability to use two languages in everyday life the terms bilingual and bilingualism cover various definitions that have been proposed. A few will be provided to have a clearer idea.

Butler and Hakuta (2004, p115) define bilinguals as:

Individuals or groups of people who obtain communicative skills, with various degrees of proficiency, in oral and/or written forms, to interact with speakers of one or more languages in a given society. Bilingualism can be defined as psychological and social states of individuals or groups of people that result from interactions via language in which two or more linguistic codes (including dialects) are used for communication.

Bilingualism is a concept that implies that the ability to use two languages in everyday life. Bloomfield (1993) defines bilingualism simply as having “a native-like control of two

languages" (p.56) which means that a speaker who can speak two languages fluently as if he was a native speaker.

In contrast, Weinreich (1953, p. 1), one of the founder fathers of bilingual studies, provides the following definition of bilingualism as "the practice of the using alternately two languages." Hence, individual bilingualism refers to the daily practice of two languages, and to alternate between them.

According to Haugen (1953,p.7), bilingualism starts when "the speaker of one language can produce complete meaningful utterances in the second language". The importance is, here, given to the sense that to say someone is a bilingual speaker when he/she can make and use a meaningful sentence in the second language.

Besides, Mackey (1962, p.52) views bilingualism as "The ability to use more than one language". Here, one could understand these definitions differ from the one of Bloomfield's perfect use of another language with the native tongue to Mackey's and Weinreich's and Haugen's lack of competence or simply the practice of two languages.

On the other hand, Hoffmann (1991) claimed that bilingualism as a continuum without a clear cut-off point; that is to say, generally speaking, the earlier definitions which tend to restrict bilingualism to the equal native-like mastery of two languages and narrowly speaking, the later definitions that allow for different competences of a bilingual person.

On contrast, Macnamara (1967) focuses the need to discuss the competence of Bilingualism is not as a social unity but a single degree of a person that has a minimum level of competence in listening, speaking, reading and writing. In this regard, Competence is viewed as a continuum at the individual level, the bilingual who undertakes different degrees of competence in each of the four skills. This definition reflects the Algerian population who tend to use French (one skill at least).

Others have also defined bilingualism such as Paradis, Mohanty, Grosjean and Ludi. Concerning Paradis, he assumes that bilingualism is a “multidimensional continuum”, and at the same time, is an issue of “linguistic structure and language skill”. As for Mohanty, bilingualism is related to a social-communicative sphere. He notably claims that “bilingual persons or communities are those with an ability to meet the communicative demands of the self and the society in their normal functioning in two or more languages in their interaction with the other speakers of any or all of these languages”. In his turn, Grosjean, goes beyond the definition of a bilingual mastering two languages, to say that he can form a "unique language behaviour". Moreover, Ludi refers to the same idea, by associating bilingualism to an "extreme form of polysexuality. (as cited in Josiane F. Hamers, Michel H.A. Blanc, 2000; p.7).

2.3 Types of bilingualism :

There are different kinds of bilingualism, and thus, a brief explanation of each kind is provided below.

2. 3.1 Additive vs. Subtractive Bilingualism

According to Lambert (1962), The term additive bilingualism means the situation Where a person who has already acquired the two languages in a balanced manner. It is a Strong bilingualism. Subtractive bilingualism implies when learning a second language Interferes with learning the first language. It occurs in the case when the second language Replaces the first language as in the case of immigrants. In this regard, the first language Decreases, while mastery of the other language (usually the dominant language) increases

These expressions and their associated concepts were created by Lambert, the Canadian researcher who has been given the title of “the father of bilingualism research”.

According to Romaine (1995:3), there are six patterns of home language bilingualism. Type one is one person one language the parents have different mother tongues and one is the

language of the community. In this type, each parent speaks his or her mother tongue to the child from birth. Type two is one language one environment or non-dominant home a language which is the same as type one but both parents speak the non-dominant language to the child. Type three is non-dominant home language and without community support, which parents have the same native language that is not the dominant language in the community. In this type, parents speak their native language to their child. Type four is double non-dominant/support of home language, which parents have different native languages and neither of the languages is the dominant language of the community. Type five is non-native parents, which the parents have the same native language that is the dominant language of the society, and finally type six, mixed languages which parents are bilinguals and some sectors of their the community may be bilingual. (cited in Biyalistok 2001:3).

2.3. 2 Balanced vs. Unbalanced Bilingualism

Baker (2011, pp8,10) classifies bilingualism as balanced bilinguals who are more or less equally competent in both languages. The term " balanced bilingual" was first used by Lambert et al (1956) in Canada; but this case is very rare. Other terms have been used for this type, on linguists: 'Am bilingual', 'Equilingual', or 'Dominant' bilinguals. Whereas, or (dominant) bilinguals, are those whose proficiency in one language is higher than their proficiency in the other language(s). (Pearl and Lambert, 1962)

2. 3.3 Coordinate vs. Compound Bilingualism

Weinreich (1953) distinguishes between Coordinate and compound bilingual. Coordinate bilingual has two semantic systems and two linguistic codes. This type of bilingualism usually refers to someone whose two languages are learnt in separate contexts. On the other hand, a compound bilingual has one semantic system but two linguistic codes. It usually refers to someone whose two languages are learned in the same context

2. 3.4 Early bilingualism vs. late bilingualism

Hamers and Blanc (1989) state that early bilingual is someone who has acquired two languages early in childhood. In other words, early bilinguals acquire both languages in a common family context. This type of bilingualism is split into two other categories. The first category is simultaneous early bilingualism which means learning two languages at the same time. While in the second category is Consecutive or successive early bilingualism means learning one language after another at an early age, whereas, late bilinguals acquire the first language in their family context and a second language in school. Late bilingualism is consecutive bilingualism which occurs after the acquisition of the first language that is after the childhood language development period. This is what also distinguishes it from early bilingualism.

2.3. 5 Passive vs. Active Bilingualism

The description of a bilingual person as passive or active can be made on the two basic skills (Listening and speaking). The term passive bilingualism refers to being able to understand a second language without being able to speak it, whereas an active bilingual is the one who communicates effectively in the other language and possess receptive skills even if he/she does not read or write. With the first language already acquired, a late bilingual uses his/her experience to learn a second language.

2.3. 6 Equilingual VS Subordinate bilinguals

The perfect or Equilingual bilingual, if ever he/she exists, masters the two languages equally well, and is similar to a native speaker of each. This case is considered as the narrowest type of bilingualism. On the other hand, subordinate bilinguals refer to those people who have learned a second language and cannot understand it without the help of their first language. Such people will translate the words coming from the second language into their native tongue and then they should be able to understand them.

2.4. Bialystok's theory of analysis and control

analysis and control are two of the processing components of cognition which are responsible for the structure of and access to mental representations. Both processes lead to increase competence in cognition. Knowledge appears to become more explicit and processing more fluent as analysis and control continue to modify the mental representations (as cited in Bialystok, 1994, p161) Bialystok (1991) further argues that the term “metalinguistic” is best defined with regard to the two cognitive components- analysis of linguistic knowledge and control of attention- necessary to solve a set of tasks. She claims that any task that places high demands on one or both of these two components are metalinguistic. That is to say, it is possible to predict which tasks will require either analysis of linguistic knowledge or control of attention.

Bialystok (1994) proposes the theory of analysis and control. This theory is focused on changes in the mental representation of linguistic information which lead to an increasingly metalinguistic and literate use of language by children. These representational changes are attributed to the development of two processing components. Analysis of knowledge and control of processing that is based on the level of performance and how children will perform on a given task of metalinguistic tasks

Bialystok's theory of analysis and control is divided into two cognitive processing components: analysis of linguistic knowledge and control of attention. (Bialystok, 1994)

2.4.1. Analysis of knowledge

Bialystok (2001b, p.131) defines analysis of linguistic knowledge as the learner's “ability to represent increasingly explicit and abstract structures.” She views analysis of linguistic knowledge as to how mental representations, based on more unanalyzed (implicit)

knowledge and knowledge of the world, become reorganized into analyzed (explicit) knowledge of which a learner is aware. Besides, the process of organizing and structuring mental representations is continuous, there are three distinct stages, or identifiable levels. In increasing order of sophistication, they are *conceptual*, *formal*, and symbolic representations.

2.4.1.1 Conceptual representations are based on the meanings that comprise ordinary thought and communication. As the structure of these meanings becomes more articulated, the representations become grouped into formal categories. For a knowledge of objects and events

2.4.1.2 Symbolic representations differ from both of these because they are organized around the systems of categories for referring to these meanings (either conceptually or formally organized) and are frequently notational. To some extent each symbol system also has its own set of meanings that it is capable of representing.

2.4.1.3 formal representations and that the same conceptual representation can be used as the basis for constructing different symbolic representations. Knowledge concepts that begin as conceptual knowledge

These representations describe how the learner's knowledge of the language is stored, how explicit it is, and how it is connected to other knowledge. In other words, these representations satisfies the criteria set out by definitions of metalinguistic knowledge and metalinguistic ability. Bialystok (1988b) claims that bilingual children who have balance proficiency in both languages are more advanced than monolingual children or partially bilingual children in their level of analysis of linguistic knowledge.

2.4.2 Control of Processing

Bialystok defines it is as “the ability to selectively attend to specific aspects of a representation, particularly in misleading situations” (2001b, p.131). Besides, selective

attention is one of the primary cognitive benefits of bilingualism (Bialystok, 2001), She illustrate that selective attention develops faster in the bilingual mind. Moreover, when there is conflict or ambiguity, several mental representations may be activated.

Bialystok (1988b) views that “fully bilingual group always scored the highest and the monolingual group, the lowest” (p.563), which means that bilingual children are more advanced than monolingual at the level of controlling linguistic processing. For her, The reason for this phenomenon is that the more practised children become in their languages, the better their meta-linguistic abilities get developed over time.

On the other side, she asserts that bilingual children’s experience with two linguistic systems have the same conceptual system which led them to observe the arbitrary connection between forms and meanings. Bialystok (1988b)

In one of her studies (2001), Bialystok did find that “bilingual advantages occur reliably on tasks that make high demands on control, but are not evident in tasks that make high demands on ” (p. 169). Although, according to her, a majority of studies done on the topic of meta-linguistic ability in bilingual children supports the presence of a bilingual advantage. Bialystok's studies show to a considerable degree, an advantage for bilingual children due to their learning about the the sound structure of spoken language, given that the writing scripts for these languages are similar.

According to Bialystok and Ryan (1985) state that, there are two experiences that develop control of linguistic processing. The first is schooling where children may benefit from the types of instruction given to them to reorganize their knowledge of the language. Moreover, success at schools has an important role that examines problems and selects attention to relevant information. The second experience is bilingualism that is The acquisition of two languages simultaneously enhances the children’s readiness to cope with the a complex system of language meanings. Also, bilingual children's representation of language and conceptual information as separate structures makes tasks involving attention to

linguistic features less problematic. Furthermore, Bialystok (1988b) claims that bilingual children can attend to formal linguistic features that may change even though the meaning is constant. In summary, analysis and control are two of the processing components of cognition. They are responsible for the structure of and access to mental representations. Both processes develop with maturity and experience and lead to increased competence in cognition. Knowledge appears to become more explicit and processing more fluent as analysis and control continue to modify the mental representations

2.5. Conclusion

To conclude, one can say that even though scholars agree on the definition that bilingualism must include L1 and L2 for its realization, they differ on the degree of the mastery of these languages, and therefore they disagree on one and uniform definition of bilingualism. Scholars also refer to the fact that Bilingualism has types which lead to a distinction between monolinguals and bilinguals Related to cognitive development. this chapter has covered the definitions of the main concepts related to bilingualism and its types. Moreover, the theory of analysis and control that contributed to cognitive development. Finally, the next chapter will discuss the difference between bilinguals and monolinguals in their level of control of attention

CHAPTER THREE:

THE FIELD WORK

3.1.Introduction

this part is going to analyse findings of the questionnaire while it is given to several students to know their answers and their point of view regarding certain points to reach the results .the questionnaire was chosen to use as data collection for the participants. The participants were combination of male and female from the same level and the same school.

3.2.The methodology

It refers to the way I used to conduct my research .it consists of three categories the instrument, the setting and the participants.

3.2-1 the instrument

There are many data collection and that one we selected is the questionnaire which is set of 10 open-ended questions which are organized and connected because it discusses the same topic which is the effect of bilingualism on cognitive development. Those questions were addressed to several students to find answers to the specific issue it also help me to know the different skills the students use to develop their Cognition to notice if they use the same skills and strategies.

3.2-2-the setting:

Each dissertation requires a place for the discovery of the answers to the questionnaire. we used the middle school as a setting for conducting my research exactly the school of Ben Slimane Hammou which is situated in Mostaganem.

3.2-3 the participants

The students that were selected for conducting this research were the first-year middle school students of Ben Slimane Hammou School. They were 40 students who were a combination of 10 bilingual children who spoke French at home from childhood and 30 monolingual children.

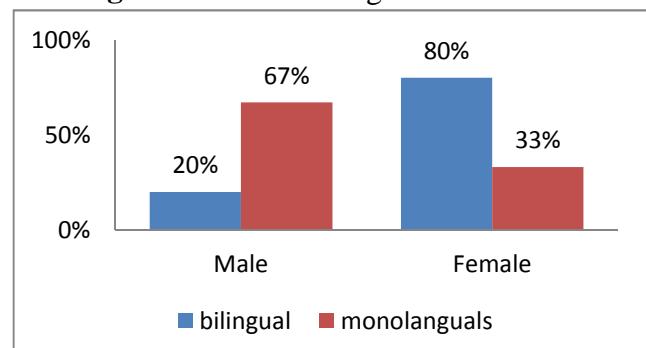
3.3. the analyses of the questionnaire:

Answer 01: learner's gender:

Table2-1-the gender of the participants

	Bilingual	monolinguals
Male	20%	67%
Female	80%	33%

Figure02-1- learner's gender



:

Table and figure 01 : - learner's gender:

According to the result showed in the table above, it is remarkable that bilingual female 80% outnumber monolingual females 20%, whereas monolingual male 67% outnumber bilingual male 33%. Girls are expected to be more interested in learning second language more than boys.

Answer 02: it was about age

Table 2-2-the age of the participants

	bilingual	monolinguals
age 10	8	24
age 12	2	6

Figure2-2-the age of the participants:

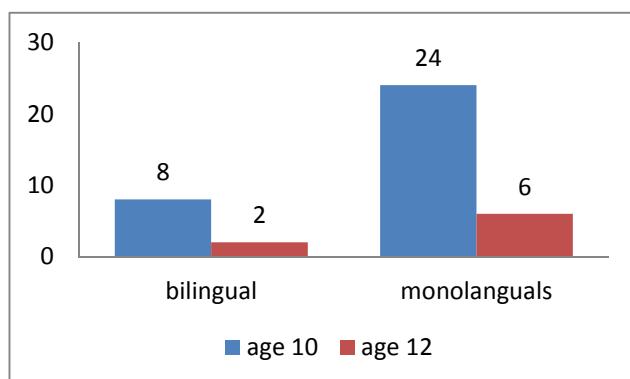


Table and figure 02: the age of the participants:

We saw that the age of the participants were between 10 and 12 years old. We notice that great number of both bilinguals and monolinguals have age 10 years but few number of them have age 12 years old.

Answer 03: it was about the academic level

Table 2-3-the academic level

Firstyear middleschool	
bilingual	25 %
monolinguals	75 %

Figure2-3-the academic level:

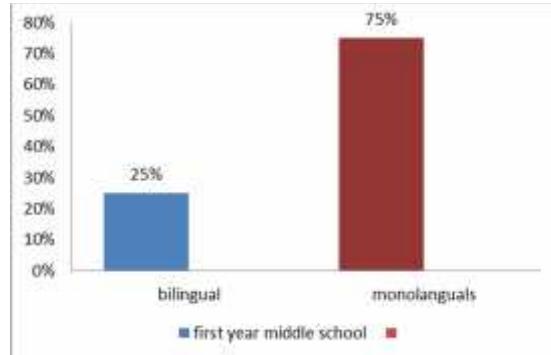


Table and figure 03: The academic level:

The table above indicates that the participants all belong to the same academic level which is the first year middle school and belong also to the same school which is named Ben Slimane Hammou middle school

Answer 04: socio economic status

economic status

: Table 2-4-socio economic of the participants

	Bilinguals	monolinguals
Urban	70%	12,5%
Rural	30%	87,5%

Figure2-4- the participants' socio

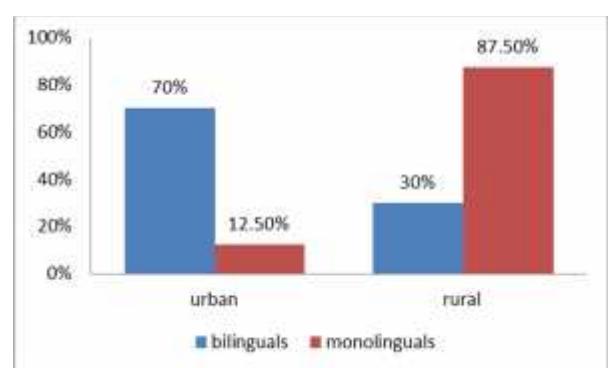


Table and figure 04:

The result of this question showed that the majority of the bilinguals 70% are from urban. Whereas, monolinguals 12, 5% are from urban. Unlike the rural monolingual (87, 5%) are more than rural. this refers to that urban districts belong to high class

Answer 05: level of French.

Table 2-5:-French level of the participants:

	bilinguals	monolinguals
Excellent	80%	10%
poor	20%	90%

Figure2-5 :-french level of the participants:

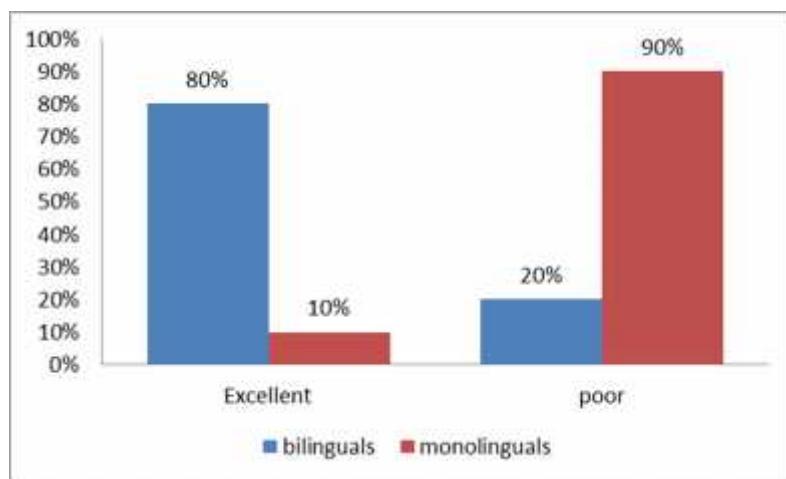


Table and figure 05: French level of the participants:

We notice that the majority of bilinguals' French level 80% are excellent than monolinguals' French level (10%). Monolinguals find French difficult and their level is poor 10%

Answer06: to show their knowledge.

Table 2-6 :-improving participant knowledge:

	Bilinguals		monolinguals	
	number	Percentage	number	percentage
Rich vocabulary	9	90%	3	75%
Poor vocabulary	1	10%	37	92.5%

Figure2-6 :—improving participant knowledge:

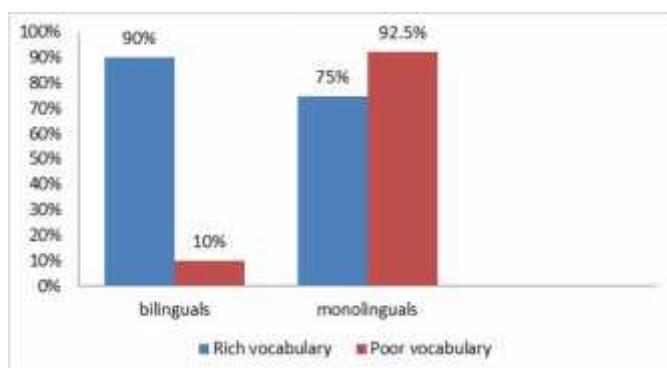


Table and figure06: improving participant knowledge

We notice that the majority of bilingual children have rich vocabulary, whereas bilingual children have poor vocabulary. This is due to their socio economic status

Answer 07: Grammatical judgments. Do you find errors?

Table 2-7 :- Grammatical judgments:

	bilinguals	monolinguals
more	85 %	20 %
less	15 %	80 %

Figure2-7 :-Grammatical judgments

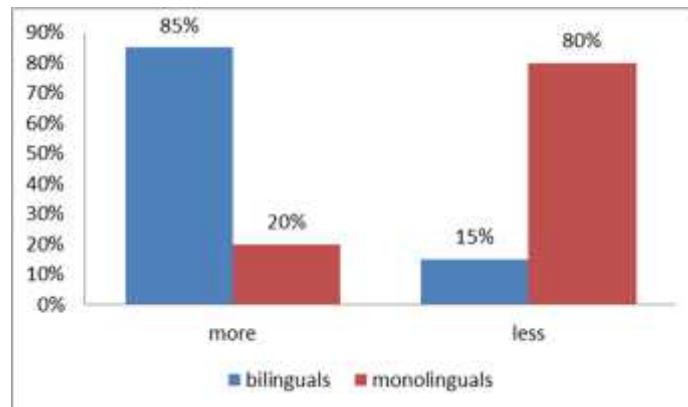


Table and figure07: Grammatical judgments

According to the result showed in the table above, it is remarkable that great number of bilinguals 85% find grammatical errors unlike monolinguals who find difficulty

Answer 08: in performing tasks. Their reaction time is:

Table 2-8-participant reaction time:

	bilinguals	Monolinguals
faster	80 %	30 %
slower	20 %	70 %

Figure2-8-participant reaction time:

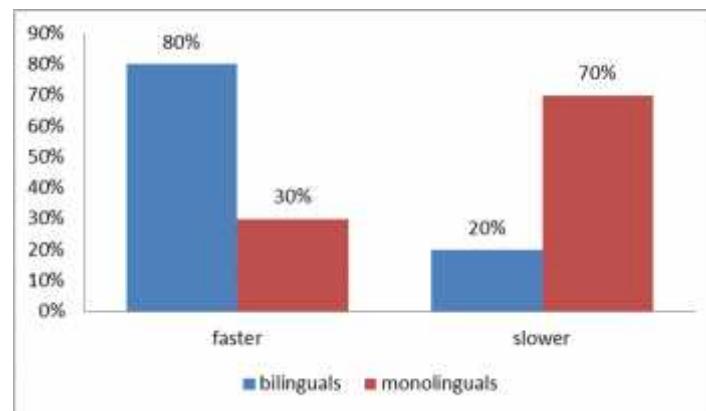


Table and figure 8: participant reaction time.

The result show that the majority of bilinguals 80% are faster in performing tasks than monolinguals. Which means that bilinguals have higher competence?

Answer 09: they solves problems of Sudoku game:

Table 2-9 :-solve problems:

	bilinguals	monolinguals
Always	80 %	70 %
Sometimes	20 %	30 %

:

Figure2-9 :-reaction for receiving particular input

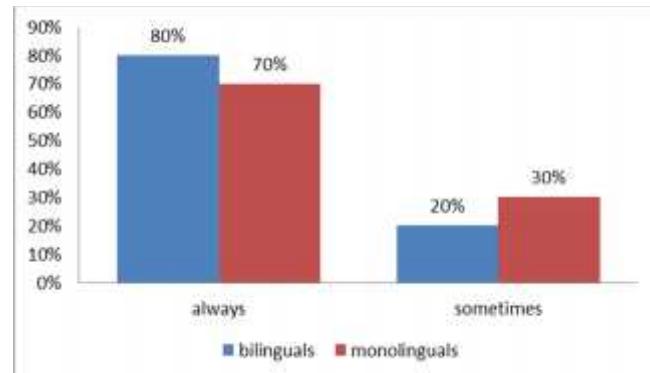


Table and figure09: solving problem

The result revealed that both of the bilinguals 80% and monolinguals 70% solve problem of Sudoku game during the session of tutorial. Monolinguals always succeed in finding the solution of Sudoku, whereas bilinguals sometimes does it?

Answer 10: for the auditory tasks do they discriminate between voices?

Table 2-10 –listening script task:

	bilinguals	monolinguals
Women's voice	75 %	80 %
Men voice	25 %	20 %

Figure2-10 :-expressing certain knowledge

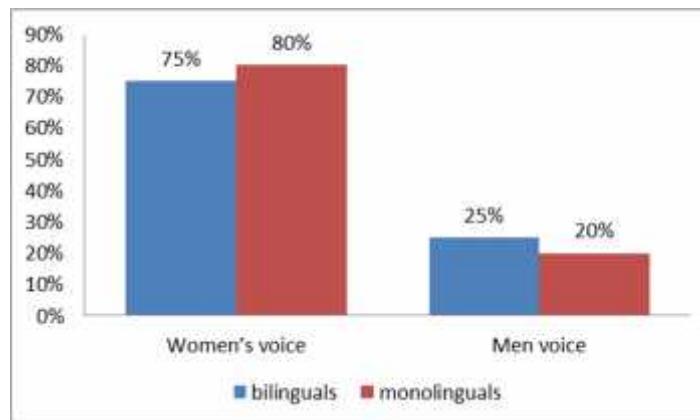


Table andfigure10: level of language competence

The result revealed that both bilinguals and monolinguals are able to discriminate between voices. Moreover, around 80 % of the monolinguals and 75% of bilinguals

3.4 Discussion of the Findings:

Based on the upshots which were obtained through the questionnaire of learners, the research comes to light with numerous evidence to prove the correctness of our hypotheses. The analysis of first-year middle school children' questionnaire reveals the principles of Cognition that influences the mental development of both bilingual and monolingual children. Bilinguals and monolinguals 'answers, in section two, demonstrated

that children are different in term of cognitive development. Thus, each one has a unique ability which distinguishes them from the others.

After analysing the questionnaire, we conclude that each bilingual and monolingual children have specific skills and strategies to learn effectively. We notice that the participants were a combination of male and female nearly participants and they have answered 10 questions which have relation to the main topic which is the effect of bilingualism on cognitive development. The instrument which is used to treat the research issue is the questionnaire which is set of organized and related questions propose directly and indirectly to find answers to the issue. We saw that the age of the participants was between 10 and 12 years old and most of the participants have age 10 years old. All the learners belong to the same school and the academic level which is the first year middle school. The most of the participants are monolinguals that have poor French level but few of them are bilinguals have excellent French level because they are from the urban district which is the city of 5th July and they growing up in a bilingual environment, and all of their parents are doctors and immigrants.

Besides, both bilinguals and monolinguals children can solve problems of Sudoku even they were more difficult. Besides, monolingual and bilingual children can make a distinction between men voice and women voice. This led to monolinguals and bilingual have higher control of attention even though monolinguals have not lexical of language competence.

Furthermore, bilinguals find all the grammatical mistakes and they can judge whether these sentences are meaningful or not, also they can substitute between words to correct their mistakes. This make them higher in cognitive process as said before by Bialystok (1988).

To conclude, Our research is quite related to the theory of analysis and control proposed by Bialystok (1988). furthermore, my findings are not as the model of Bialystok that

is not only bilinguals that have analyses of knowledge and control of attention, but also monolinguals have the control of attention even they don't know the concept of knowledge .

3.5 Conclusion

As far as this research work is concerned, the following chapter has been devoted to the methodology adopted that is the explanation of the practical part concerning our investigation. The aim behind our use of a questionnaire as a research tool was to measure students' cognitive development in French, Arabic and explore the reasons that stand behind their cognition in that languages, in addition to whether bilingualism affects cognitive development in general. The chapter has also presented an overview of the participants' profile, in addition to the results obtained from our data. Indeed the data gathered have been analysed through a method, that is, quantitative approaches.

General conclusion

General conclusion

Cognitive development is related to the improvement of certain cognitive skills and the improvement of the specific components of the thinking process. It refers to more complex thinking and moving from thinking about a concrete concept to think about an abstract concept. On the other hand, bilingualism refers to the ability to speak two languages rather than the mother tongue. The dissertation is about the effect of bilingualism on cognitive development and how these cognitive differences may influence children's competence. Its main concern was investigating whether cognitive effect both bilingual and monolingual children

Bilingual and monolingual children are different in terms of cognitive skills that result in changes at the level that mean good skills result in a good performance. Bilinguals differ a lot from monolingual children because they have more advanced level as analysis of knowledge and intentional of control.

The linguist is supposed to decipher all that has a link with cognitive development according to our research is the analysis of knowledge and control of attention

That led to making a distinction between bilingual and monolingual children in terms of these two mental components. After the questionnaire of the Mostaganam's children about the matter under discussion about our suggested hypothesis;

The result from this research doesn't confirm our hypotheses and demonstrated that not only bilingual children are attentive to solve problems but also monolingual children are smarter and more attentive. On the other side, this result confirms some of our hypothesis that bilinguals are higher than monolinguals in terms of analysis of knowledge since they were more competent. Moreover, is a positive force that enhances children's cognitive and linguistic development?

During this research, it is important to explain also the objective of the present work; with

General conclusion

Mentioning some of the problems and limitations that we have faced during the collection of data, and finally, the recommendations for the further studies consequently, the process of achieving better

Limitation:

- The linguistic distance between Arabic and French is fundamental, that is even if French is constantly present, it is not well known and spoken by all students.
- Most of the student are from rural areas don't master French and they could not find grammatical errors
- Those who master French were girls in the majority
- Monolinguals do not have more cognitive development
- Monolinguals cannot understand the questionnaire until we translated to Arabic

Recommendation:

- Try to evaluate student's degree of French mastery
- Motivate those monolinguals in this foreign language
- Encourage parent who is doctors, intellectuals, and educated to raise their children in a bilingual education
- Build up a social network in the second language of your child
- Do not give up easy tasks
- Define who speaks which language with your child

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I. الاستبيان

ستبيان هو جزء من رسالة الم الأسئلة التي اقترحتها بشأن التطور المعرفي للأطفال بطريقة جادة ومن خلال إعطاء وجهة نظرك فيما يتعلق بمفاهيم معينة.

، لذلك سأكون سعيداً جداً إذا ساعدتني من خلال الإجابة على في دراستي والحصول على شهادة الماجستير.

الشخصية للعينة تحت الدراسة :

- : 1-

: 2-

- الأكاديمي:

4- - ريف

:

5- مستوى اللغة الفرنسية هل تعتقد أنه :

6- لإظهار معرفتك. هل تستعمل:

واسعة وهادفة

ضعف

7- الأحكام النحوية: هل تجده

المزيد من الأخطاء النحوية

8- وقت رد الفعل الخاص بك هو:

سريع

9- حصة الاعمال التطبيقية هل يمكنك حل لعبة سودوكو؟

أحياناً

10 هل تميز بين؟

II. Le questionnaire

Le questionnaire fait partie du mémoire de maîtrise, je serais donc très heureux si vous m'aidiez en répondant de manière sérieuse aux questions que j'ai proposées concernant le développement cognitif des enfants et en donnant votre point de vue sur certains concepts. priez pour que je réussisse mes études et obtienne mon diplôme de master.

Section un: informations sur le personnel

1-Genre: homme - femm

2-Åge:

3-Académique: niveau

4-statut socio-économique urbain - districts ruraux

Deuxième partie: les questions des enfants

5 niveaux de français. Pensez-vous que c'est:

Excellent pauvre

6- Pour montrer vos connaissances. Utilises tu:

Vocabulaire pauvre en vocabulaire riche

7-Tâche de jugements grammaticaux: trouvez-vous

Plus d'erreurs grammaticales Peu d'erreurs grammaticales

8-Dans l'exécution des tâches, votre temps de réaction est:

9- Pendant la session de travaux dirigés . Pouvez-vous résoudre le jeu Sudoku?

10- Pour les tâches auditives. Faites-vous de la discrimination?

Voix d'hommes

Voix de femme