The influence of subtitles on the vocabulary acquisition of Flemish students prior to the instruction of English

A contrastive study of ASO, TSO and BSO

Master Dissertation

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1 Introduction

Language is an element in a human being’s life which is generally accepted to be one of the most essential and important aspects of one’s existence. Growing up, a child acquires the language that immediately surrounds it which is generally known as one’s mother tongue or native language. As stated by De Cock (2006), Flanders (government and inhabitants) takes up a positive attitude when it comes to plurilingualism which is also mirrored in its educational system. The first foreign language a native Flemish child learns in a classroom environment is French. As De Cock (2006) confirms, French classes start in the 5th year of primary education when the child is about 10 to 11 years old. At the age of 13 to 14, Flemish children are confronted with a second foreign language at school, namely English. According to a recent study carried out by Declercq, Denies & Janssen (2012), Flemish youngsters obtain better results for English than for French. The research was part of the ‘European Survey on Language Competences’ (ESLC) and demonstrated that Flemish youngsters are part of the top three in Europe for reading, listening and writing in English. One of the reasons that might account for this advanced proficiency in English is the presence of this language in the spare time of Flemish youngsters.

Considering the large amount of multimedia resources that is available today, the ubiquitous presence of the English language is not surprising. In former times, one could only listen to the radio or watch television, but nowadays children have radio, television, DVD, Internet, etc. at their disposal. Kuppens (2007) found that youngsters benefit from a daily encounter with subtitled English-spoken programmes and her findings could be applied to the Flemish youth because most programmes that are not in Dutch are subtitled in Flanders. However, a distinction is made between programmes for very young children and (pre-) adolescents and adults. Since younger children are too young to read and comprehend a foreign language, these programmes are often dubbed, whereas subtitles are provided for (pre-) adolescents and adults. Consequently, when watching a subtitled English television programme, one must rely on the subtitles in order to obtain an adequate understanding of what is said. Van Lommel, Laenen & d’Ydewalle (2006) argued that
processing information coming from several sources at the same time (watching, reading and listening), can occur successfully only from the age of ten.

Similar to my Bachelor paper (Beauprez 2013), the present study will investigate the influence of subtitles on the English vocabulary acquisition of Flemish students. Despite of the similar purpose, there are some significant differences that distinguish this paper from my Bachelor paper. A first difference is concerned with the participants involved: 147 students from the first and second year of secondary education participated in the present investigation of vocabulary acquisition. Because these students are in their first and second year of secondary school, they have not yet received instruction about the English language, whereas participants of the former research were in their fourth year of secondary school and already received two years of instruction. In this way, the first difference is also related to the participants’ age and level of proficiency in the English language. A second difference is concerned with the focus of the present paper in contrast to that of Beauprez (2013). The investigation of the latter was restricted to only three classes belonging to ASO or General Secondary Education, whereas the current investigation involves a contrastive study of nine classes belonging to ASO, BSO and TSO. Furthermore, in order to reach the large group of students, more than one school was involved. Although former studies have already produced evidence of the positive influence of subtitles on different levels of English proficiency, the present study will focus on some more aspects related to the acquisition of vocabulary through watching subtitled television programmes by means of the following research questions:

1. Will there be a significant difference in the degree of acquisition among the students from the different levels of education involved?
2. Which type of subtitling will generate the best results and will this apply to all students?
3. Do students acquire the vocabulary for a short or a longer period?

The focus of the current paper is restricted to only one aspect of second language acquisition, namely the acquisition of vocabulary. Although all aspects involved in
learning a second language are worthwhile to investigate, the choice to study the field of vocabulary acquisition was made since Meara (1980) described it as ‘A Neglected Aspect of Language Learning’. Furthermore, learning a language generally starts with acquiring words which can be tested by means of vocabulary tests (d’Ydewalle & Van de Poel 1999). According to Webb & Rodgers (2009), the vocabulary acquisition would increase more when the individual has reached a knowledge of about 3000 word families combined with watching television regularly. Because young people are currently overwhelmed by all sorts of English spoken multimedia, the present study will investigate the influence of watching subtitled English-spoken multimedia on the acquisition of vocabulary.

First of all, an overview will be provided of the relevant literature that will serve as the theoretical background for the present investigation. More specifically, information will be provided on the position of English in the world and in Flanders. Subsequently, more information will be provided on the concepts of second language learning, subtitling and multimedia, after which we will turn to the analysis and discussion of the results obtained through the questionnaire and the different vocabulary tests. The last section of the present dissertation will provide detailed answers to the research questions and suggestions for further research.
2 Theoretical background

The present chapter will provide an extensive overview of the consulted literature which will function as the theoretical background for the investigation of the obtained results. More specifically, more information will be supplied about the position of English, second language learning, subtitling and multimedia.

2.1 Why English?

“[English is] a language – the language – on which the sun does not set, whose users never sleep”

(Quirk 1985:1 as cited in Krajňáková 2012)

2.1.1 English in the world

Consulting the website of the United Nations provides a more specific insight with regard to the official languages that are applied. Among 5 other languages, English completes the list and is used as the working language next to French. Considering the widespread use of the English language, the assumption that there are more speakers of English than of French is not out of place. Consequently, the English-speaking community today cannot be restricted to countries with English as their native language, but must be expanded to a more global level. As Graddol (2006) indicates, the role of English as a global language is increasing and can be demonstrated by taking into consideration the growth of tourism all over the world. The image below, taken from Graddol (2006: 29), visualises the tendency of conversations in which no native speakers of English are included.
However, the above described demographic reason is not the only one to account for the worldwide spread of the English language. Graddol (2006) also adds a more economic reason to the distribution of English by introducing the concept of globalisation: "Globalisation allows companies to locate each of their activities wherever in the world provides the best cost advantage" (Graddol 2006: 34). In this way, English is used as the language of communication between the different countries which consequently leads to the assumption that “it is evident that the global spread of English led to the development of copious varieties of English and subsequently to the [sic] World Standard English” (Krajňáková 2012: 2).

Although the spread of English seems to be a fairly logical and straightforward concept representing the use of the English language all over the world, things are more complicated. One of the models concerning the spread of the English language that is generally accepted, is Kachru’s *Three Concentric Circles of English* which contains “historical, sociolinguistic, acquisitional, and literary elements” (Bhatt 2001 in Caine 2008).
As can be seen in the image (figure 2) above, Kachru’s model consists of three concentric circles (Inner, Outer and Expanding) in order to represent “the types of spread, the patterns of acquisition and the functional domains in which English is used across cultures and languages” (Kachru 1985 as cited in Rajadurai 2005: 112). Rajadurai (2005) describes Kachru’s model as outlined in the next paragraphs.

The Inner Circle represents the countries in which most people use English as the primary language. Consequently, the mother tongue of countries such as the USA, UK, Australia and Canada, which all belong to the Inner Circle, is considered to be English. The Outer Circle represents the countries in which the use of the English language is related to the colonial history of the place. Countries belonging to the Outer Circle often ascribe a wide range of functions to the English language depending on the domain in which it is used: social, educational, literary, etc. As stated by Samida & Takahashi (n.d.), people belonging to countries in the Outer Circle such as India, Singapore and Malaysia, have their regional language as their first language, whereas English is acquired as a second language. Lastly, the Expanding Circle represents all the other parts of the world in which the English language has a more restricted function being “English as a medium for international
communication in business, diplomacy, education, industry, research, and technology” (Samida & Takahashi n.d.: 50). According to Samida & Takahashi (n.d.), the Expanding Circle consists of approximately 100 million to one billion people spread over countries such as Saudi Arabia, Japan and Korea.

In conclusion, Kachru’s model demonstrates the worldwide spread and use of the English language which leads to the assumption that English is an international language for several reasons. According to Samida & Takahashi (n.d.), international business especially requires an adequate proficiency of English since “fluency in English is an important requirement to work for large corporations in the world. People are motivated to invest money and time to learn English because it results in high salary” (Samida & Takahashi n.d.: 50).

### 2.1.2 English in Flanders

Although it is clear that English is of great interest worldwide, its position in Flanders (and Belgium) is less clear-cut. When it comes to the language situation in Belgium, it is important to be aware of its unequivocal structure since Belgium consists of four language areas and has three official languages. As highlighted by De Taalwetwijzer, 1962 was the year in which the language boundaries in Belgium were regulated by law. Consequently, Belgium was subdivided into four language areas: the Dutch, the French, the German and the bilingual French-Dutch area. However, in contrast to these four language areas, Belgium has only three official languages: Dutch, French and German. As Goethals (1997) reports, Flanders is a monolingual Dutch area which means that English is considered as a foreign language. In addition, Goethals (1997) underlines the positive influence of foreign languages within the field of education which results in the fact that students are more motivated to learn since “13-year-old Flemish pupils already know about 400 English words before even taking a first formal English class” (Goethals 1997: 107). Furthermore, De Cock (2006) highlights the importance of import and export in Flanders which requires Flemish employees to be able to speak several languages apart from their mother tongue. Consequently, the assumption that English also plays an important role in a globalised Flanders is not groundless.
2.2 Second Language Learning

The current research was carried out on Flemish children whose native (or first) language was Dutch. Consequently, English has a subordinate position and might be considered as a second language of which instruction starts from the second year in high school onwards. The following sections will provide an overview of the relevant literature on the concept of a second language and its acquisition.

2.2.1 First and Second Language Acquisition

Considering all the capacities peculiar to human beings, the possibility to acquire languages is certainly the most important one. Al Ghazali (2006: 2) portrays language acquisition as: "one of the most impressive aspects of human development". Impressive indeed, since human beings are the only species able to develop and speak a language with such a complex structure. Although language acquisition refers to the more general process, a subdivision must be made. When young children are exposed to the language of their mother, they will develop a conversational fluency in this language by means of a naturalistic and unconscious language use (Oxford 1990 in Al Ghazali 2006) which is commonly referred to as First language acquisition. As Saville-Troike (2012) indicates, a first language is often referred to with various synonymous terms such as native language, mother tongue or primary language. However, little children are not restricted to learning one language at a time and Saville-Troike (2012) defines this process as simultaneous multilingualism. Following that, second language acquisition (or SLA) points out a field of study dealing with the acquisition of languages other than the mother tongue. Ellis (1997: 3) provides us with a more specific description of SLA: “'L2 acquisition', then, can be defined as the way in which people learn a language other than their mother tongue inside or outside the classroom, and, ‘Second Language Acquisition’ (SLA) as the study of this". Although the terminology determines this language as 'second', Saville-Troike (2012) underlines the fact that 'a second language' can actually be third, fourth or even tenth. Furthermore, she indicates that the term target language (TL) can also be used to refer to a second language to emphasize the purpose of learning.
Although SLA represents a rather clear process of acquiring another language apart from the native one, Saville-Troike (2012) stresses the fact that this general process can also be subdivided into three more specific types. The first subtype is informal second language learning which is characterized by taking place in a context that is rather informal and naturalistic. A good example of informal L2 learning is the situation in which a young Flemish child moves with its family to an English-speaking country and unconsciously picks up the English language while playing with English-speaking children without having received any instruction about how to speak English. Formal second language learning, on the other hand, represents the process of L2 learning within a more educational environment. An example of this type of L2 learning is the situation in which a Flemish student attends an Italian course in order to learn Italian. To conclude, a mixture of informal and formal second language learning occurs when a Flemish student takes Italian classes in Rome, but also uses Italian to communicate outside the educational context.

Considering the situation of the children in Flanders, it might be interesting to add a fourth type to this tripartite distinction of Saville-Troike (2012). Most English-spoken television programmes in Flanders are subtitled which means that, having not yet received English classes, Flemish children are forced to depend on reading the subtitles to obtain full understanding of the conversation they are hearing. In this way, they undergo a (language) immersion that is especially receptive. Schaerlaekens (2009) indicated that this receptiveness is characterized by the fact that for spoken and written language use, children being receptive only listen and read. Consequently, this characteristic can be applied to Flemish children watching English-spoken television because they have to read the subtitles while listening to the spoken English dialogue. In order to understand what second language acquisition is about, a few distinctions need to be clarified.

### 2.2.2 Language Acquisition and Language Learning

A fundamental distinction made by Krashen (1982) consists of the terms language acquisition and language learning. The process of language acquisition bears resemblances with a child’s development of first language abilities. Accordingly, Krashen (1982) points out that language acquisition is a completely subconscious
process in the sense that people are not aware of acquiring a language, but merely of using language for communication. As a result, acquired competence is subconscious too which means that, on the one hand, people are not aware of the rules attached to the acquired language and on the other hand, “we have a "feel" for correctness. Grammatical sentences "sound" right, or "feel" right, and errors feel wrong, even if we do not consciously know what rule was violated” (Krashen 1982: 14). The other element of Krashen’s fundamental distinction is language learning which refers to a conscious process in which one knows and is capable of using the rules of the particular language. According to Krashen (1982 in Tricomi 1986), acquisition is the most significant of the two because the acquired competence leads to the production of language and thus to language fluency. Language ability obtained through language learning, is only able to alter language produced by acquired competence. Furthermore, Krashen (1982 in Tricomi 1986) elaborates the distinction between acquisition and learning by indicating that both develop in a different way. Language learning, as mentioned above, comes from the knowledge of rules, patterns and conventions which results in the capability to put everything into practice. Acquisition, in contrast, only happens when comprehensible input is provided.

2.2.3 Implicit and Explicit learning

A second important distinction in the field of language acquisition deals with the concepts of implicit and explicit learning. Because Rieder (2003) acknowledged that the definition of this implicit/explicit distinction varies according to the field of study involved (e.g. vocabulary acquisition or grammar) and little investigation of this area has been done, a more general characterization of the two terms will be provided following Ellis (2008: 3):

“Implicit learning is acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes place naturally, simply, and without conscious operations. Explicit learning is a more conscious operation where the individual attends to particular aspects of the stimulus array and volunteers and tests hypotheses in a search for structure”
According to Rieder (2003), the field of second language vocabulary acquisition employs a set of terms which seems to correspond to the implicit/explicit distinction at a superficial level. This distinction between intentional and incidental learning will be discussed in the next paragraph.

### 2.2.4 Intentional and Incidental Learning

The third and last distinction deals with intentional and incidental learning. To obtain a full understanding of these concepts, two points of view must be outlined. Firstly, Eysenck (1982: 198 as cited in Laufer & Hulstijn 2001) approaches the concepts from an operational angle by underlining that the difference between both types of learning boils down to the presence of pre-learning instructions that do or do not draw the learner’s attention to the possibility of an examination on the subject. Secondly, Laufer & Hulstijn (2001) look at incidental and intentional learning from an educational point of view. By doing so, they describe incidental learning as picking up (language) elements without a real intention to learn them, in contrast to intentional learning. This educational and more generally accepted point of view does not mention the influence that the awareness of a possible test might have on the learner. Although the above described distinctions might seem to be clear-cut, Laufer & Hulstijn (2001) point out that one must not confuse the implicit/explicit distinction with the incidental/intentional one. They state that “Although implicit learning can be incidental only (i.e. without learners’ awareness of an upcoming retention test, or without learners’ deliberate decision to commit information to memory), explicit learning can occur both intentionally and incidentally” (Laufer & Hulstijn 2001: 11).

### 2.2.5 Vocabulary acquisition in a second language

“Words are the building blocks of language, the units of meaning from which larger structures such as sentences, paragraphs and whole texts are formed” (Read 2000: 1 as cited in Giridharan & Conlan 2003).

The above-mentioned citation provides an adequate indication of the importance of words, or vocabulary, in learning a language by defining them as ‘building blocks’. Although their significance and the fact that the acquisition of vocabulary is seen as a part of second language learning psychology, Meara (1980) considers vocabulary
(acquisition) as ‘A Neglected Aspect of Language Learning’ the research of which has been considered atheoretical and unsystematic. Even though vocabulary (acquisition) is a generally known term, one might wonder what it really means to know a word, that is, what vocabulary knowledge really comprises. Hulstijn (2001: 259) defines vocabulary knowledge as “a dictionary-like mental lexicon consisting of lexical entries” which corresponds to the explanation of Ma (2009) that vocabulary knowledge stands for being aware of a word’s meaning and being able to use it depending on its context.

Although the citation of Hulstijn (2001) already provides a good approximation of the concept of vocabulary, Lehr, Osborn & Hiebert (2004: 5) define vocabulary as “knowledge of words and word meanings”. Moreover, Lehr et al. (2004) point out that vocabulary is not a straightforward concept, but can be split up into different types. Firstly, the distinction between oral and written vocabulary represents the two ways in which a word can occur. Lehr et al. (2004) refer to oral vocabulary as the words that we are able to identify and apply in oral activities such as speaking and listening, whereas print vocabulary is said to contain words that we are able to identify and use in written activities such as writing and reading. Secondly, word knowledge can also be subdivided into receptive and productive vocabulary. The former is the term that is used to denote all the words that one is able to recognize in the oral or written form. The latter represents the entity of words that one is able to actually employ in oral or written activities. Accordingly, Laufer (1998) argues that the process of word learning usually evolves from receptive to productive vocabulary. In order to understand the way in which vocabulary acquisition works within a second language, it is especially important to have a good understanding of what exactly a word is. As Lehr et al. (2004) outline, defining what it means to know a word is not that simple. Researchers, such as Miller & Gildea (1987), investigated the way in which children acquired new words and concluded that knowing a word cannot be restricted to recognizing it in its oral or written form or being able to reproduce its dictionary definition. They claim that knowing a word must be equated with having the knowledge to employ and understand the word when it occurs in both an oral or written form and in various contexts.

Nagy & Scott (2000 in Lehr et al., 2004) further explore the concept of ‘knowing a word’ by introducing a number of dimensions that are typical of word knowledge. The
The first dimension is related to the incremental nature of word knowledge and underlines that word exposure in various contexts will improve the consciousness about how and when to use a particular word. A second dimension deals with the multidimensional nature of word knowledge, that is, the meaning of a word is not at all fixed and unique, but will vary according to the context in which the word occurs. For this reason, not only the meaning of the word, but also its function will vary according to the conversation, sentence or text in which the word is used. A last dimension that is introduced by Nagy & Scott (2000 in Lehr et al., 2004) concerns the way in which words are interrelated, that is, knowing what a particular word means will link it up with other words with a related meaning. In providing this last dimension, Lehr et al. (2004) add another, but similar, dimension which concerns the way in which knowing a word links up with having other knowledge. In other words, the broader one’s knowledge about a particular concept, the greater the number of words that one will be able to associate with the concept. Lehr et al. (2004) refer to this dimension by means of the concept of word schema. Lastly, Johnson, Johnson & Schlicting (2004 in Lehr at al., 2004) define another dimension of word knowledge as being able to take into consideration the various implications and connotations a word can have. In this way, word knowledge also includes the capability to understand idioms, jokes and other instances in which a word is used with an ambiguous meaning.

As Hulstijn (2001) acknowledges, many second language learners are confronted with feelings of doubt and uncertainty when it comes to the task of acquiring the vocabulary of a new language. But how many words does a second language learner need to know? Hazenberg & Hulstijn (1996: 158) argue that “a truly principled answer to this question is not possible”. Although a concrete and unequivocal answer is not possible, many researchers did endeavour to define a general and satisfactory amount of words that a second language learner should know to communicate fluently. Nation (2006) investigated the connection between the ideal coverage of words known and the understanding of various kinds of written and spoken texts. Results indicated that when the ideal coverage is 98%, a vocabulary knowledge of about 8000 – 9000 word families is required to secure a good understanding of a written text. Comprehension of a spoken conversation is claimed to be possible when the vocabulary sizes reaches the amount of 6000 – 7000 word families. In order to
understand what is meant by the term coverage, Webb and Rodgers (2009: 339) explain it in detail: “Coverage refers to the percentage of known words in the discourse. Knowing the words does not necessarily indicate that the discourse will be understood”.

2.3 Factors influencing second language (vocabulary) acquisition

In the preceding paragraphs, a general introduction was given about the various elements related to the acquisition of a second language. The following paragraphs will elaborate on a number of variables that are concerned with second language acquisition on the level of the individual. In other words, these variables “have been suggested as possible characteristics of individuals that will influence how successful different individuals will be at learning another language” (Gardner, Tremblay & Masgoret 1997: 344). The reason for the interest in these rather individual variables, comes from the fact that the participants involved in the present study differ from each other in age, level of competence, etc.

2.3.1 Age

The age factor is of considerable importance in the process of language acquisition. As mentioned before, first language acquisition starts when children are still very young and normally results in a fluent proficiency in that particular language. Despite the fact that the acquisition of a first language can be considered as an easy and almost automatic process, this does not always hold for the acquisition of a second language. Hulstijn (2007: 193) states that “it appears that children are faster and ultimately more successful L2 learners than adults”. In a similar manner, Granena & Long (2012) point out that the age at which an individual is confronted with a second language corresponds to a great extent with the degree of success in the acquisition of that second language. Similar to Hulstijn (2007), Granena & Long (2012) underline that during the first stages of the L2’s morphology and syntax acquisition, older children and adults are said to improve more quickly. However, when predicting the level of the final L2 proficiency, results have demonstrated that the ultimate proficiency decreases when the age at which an individual is first exposed to the second language increases.
Johnstone (2002) argues that the issue when to start learning a (second) language remains without a definite answer because there exist many opinions among the different parts of Europe. In trying to provide an answer to the question which age is the best to start, Johnstone (2002) introduces the theory of the ‘critical period hypothesis’ or CPH. This hypothesis is overtly agreed upon by experts within the field of first language acquisition to fix the age of onset (i.e. when one starts learning) before one’s puberty. Consequently, Johnstone (2002) underlines that when learning a first language does not start before puberty, it is almost impossible to acquire it successfully. Following this, a similar application of the CPH-theory can be found in the field of second language acquisition. According to Johnstone (2002), a majority of people in society acknowledge their belief that children are more capable of learning languages than adults because “young children are far less inhibited and far more open and receptive; they seem to soak their foreign language up, like a sponge” (Johnstone 2002: 6).

Additionally, the theory of CPH has been applied to the process of learning a second language in different ways. However, Johnstone (2002) underlines that when the learning of a subsequent language starts during or after puberty, one will never achieve a native-like proficiency in that particular language. To account for this, Johnstone (2002) refers to a more biologically oriented view to second language learning which states that while growing up, changes in the brain occur which result in a decrease of the language learning capacity. Modern techniques have demonstrated this tendency which led to the assumption that “young children are born with a special intuitive capacity for language which enables them to acquire their first language – or first languages (in the case of bi- and plurilingual children) –, but with puberty this innate capacity begins to atrophy” (Johnstone 2002: 7). However, this does not mean that one will never be able to learn another language when puberty has passed. In what follows, characteristics of both the younger and older learner will be outlined in line with the theory of Johnstone (2002).

In studying the young language learner, several observations have become apparent. Djugunovich (1995 in Johnstone 2002) maintains that a child’s attitude towards languages especially evolves between the ages of 6 to 9 due to the development of “an explicit concept of themselves as language learners” (Johnstone
Another study conducted by Johnstone and his colleagues, focussed on foreign language learners aged 8 and 11 differing from each other in terms of anxiety. It was shown that the 8-year-olds did not undertake action to control their anxiety, whereas the 11-year-olds did. Moreover, Johnstone (2002) underlines that, notwithstanding the difference in coping with anxiety, both groups may have been equally anxious, but differed in their way of expressing it. Moving on to some characteristics of the older language learner, Bialystok and Hakuta (1999 in Johnstone 2002) argue that “there is a gradual deterioration over time, often in areas such as capacity to perform tasks under time-pressure, risk-taking, establishing long-term memory codes and ability to recall details” (Johnstone 2002: 12-13). Due to the decline of capacities, the older learner will experience more difficulties to acquire a new language compared to a young person.

To conclude the current section on the age factor, it is important to keep in mind that one is never too old or too young to learn a language. Nevertheless, each age has its advantages and disadvantages ranging from better retention abilities and easier acquisition at a young age to having more experience to control and handle anxiety at an older age. Focussing on the participants of the present study, we might assume that these children are in the beginning of their puberty which might mean that foreign language acquisition could take place to a lesser degree. However, one must keep in mind that age is not the only factor influencing second language acquisition, but “merely one of a cluster of contextual and developmental factors that may make acquisition more difficult for mature learners” (Johnstone 2002: 9).

2.3.2 Aptitude

In their analysis of the different variables affecting the process of language learning, Gardner et al. (1997: 345) describe language aptitude as “a general term referring to those verbal abilities that facilitate L2 learning”. Nevertheless, there are researchers who have crossed the boundaries of language learning in defining the notion of language aptitude. In extending language aptitude, Dörnyei (2005) links it to the general field of human abilities by underlining the difference between some basic terms such as ability, aptitude and intelligence which are often used as synonyms. Within the field of psychology, mental ability is often used to indicate a number of
features that are involved in human activities such as processing information and thinking. Moreover, within the context of second language learning, the term ability is frequently applied to denote the 'learning ability' of the individual which is a general term to address one’s capacity to acquire new skills or knowledge. Correspondingly, Dörnyei (2005) states that language aptitude and language ability mean the same thing, namely the ability (or capacity) to learn a language. Furthermore, Dörnyei (2005) elaborates the concept of intelligence which is frequently used as a synonym for ability. He distinguishes intelligence from ability by highlighting the broader meaning of intelligence as “a general sort of aptitude that is not limited to a specific performance area but is transferable to many sorts of performance” (Dörnyei 2005: 32).

2.3.3 Motivation

One of the most influential variables within the field of second language acquisition, is motivation. Dörnyei (1998) confirms the importance of this variable by highlighting the influence of the motivational component on the rate and success of the acquisition of a second language. Moreover, the motivational factor is essential at two moments in the process of second language acquisition. Firstly, motivation is the crucial factor and primary impetus to start learning a second language. Secondly, once started motivation will make sure that the individual will see through the process of second language learning.

But what exactly is motivation? As Dörnyei (1998) remarks, there exists little agreement in literature about an accurate definition of the concept. In fairly general terms it can be said that “motivation is responsible for determining human behaviour by energising it and giving it direction” (Dörnyei 1998: 117). Equally important for the conceptualization of the motivational factor are the findings of Gardner, Tremblay & Masgoret (1997: 345) who define motivation as “the individual’s attitudes, desires and effort to learn the L2”. Furthermore, Ahmadi (2011) indicates that the factor of motivation consists of two more specific subtypes outlined by Gardner & Lambert (1972 in Ahmadi 2011: 8) as “instrumental motivation, i.e. learning the language as an instrument to achieve practical goals, and integrative motivation, i.e., learning the language out of interest in or desire to identify with the target”. As stated before,
motivation is a dynamic concept not easily to define. However, according to Gardner (2007: 10) the motivated individual is “goal directed, expends effort, is persistent, is attentive, has desires (wants), exhibits positive affect, is aroused, has expectancies, demonstrates self-confidence (self-efficacy), and has reasons (motives)”. Furthermore, Gardner (2007: 14) demonstrated the dynamic nature of motivation by means of a schematic representation:

![Figure 3: The dynamic nature of motivation (Gardner 2007: 14)](image)

2.3.4 Attitude

In their research on the motivational factor, Masgoret & Gardner (2003) applied a socio-educational model in which motivation is attached to another important variable, namely attitude. In order to explain the importance of attitude, this concept is subdivided into two distinct classes which are believed to boost the motivation of the language learner: integrativeness and attitudes towards the learning situation. Integrativeness demonstrates “an openness to identify, at least in part, with another language community” (Masgoret & Gardner 2003: 126). Correspondingly, Masgoret & Gardner (2003) underline that this openness will influence the L2 acquisition since language learning implies the acquisition of pronunciations, word order, word sounds and many other features. Attitudes towards the learning situation demonstrate “the individual’s reaction to anything associated with the immediate context in which the
language is taught” (Masgoret & Gardner 2003: 127). To summarize, both integrativeness and attitudes towards the learning situation which are labelled under the variable of attitude form an important aspect of the motivational factor within the field of language learning.

2.3.5 Anxiety and Self-Confidence

When it comes to learning languages, assuming that every individual will be equally successful would be too simplistic. Horwitz, Horwitz & Cope (1986) point out that many people assert to experience difficulties when learning a second language which are mostly described as a mental block. Furthermore, the authors define anxiety as “the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system” (Horwitz, Horwitz & Cope 1986: 125) and highlight that it is related to the evaluation of performance in a social and educational context. Moreover, Horwitz et al. (1986) make a distinction between three parallel types of anxiety. The first type of anxiety is described as communication apprehension which is most likely to be paraphrased as the anxiety to enter into a conversation with other people. For the most part, these people are anxious to speak in groups or in public and especially when the conversation involves a second language that one is still acquiring. A second type of anxiety related to language learning is concerned with tests. According to Horwitz et al. (1986), individuals suffering from test-anxiety struggle with the impossibility to realize impeccable test results. Moreover, Horwitz et al. (1986: 128) claim that “students who are test-anxious in foreign language class probably experience considerable difficulty since tests and quizzes are frequent and even the brightest and most prepared students often make errors”. Lastly, Horwitz et al. (1986) introduce the fear of negative evaluation which bears some resemblances with the second type, but is not completely the same because there is a different context involved. The second type of anxiety is restricted to tests, whereas the last type covers a larger domain and can occur in any social situation.

Related to the above described variable of anxiety, is self-confidence. Gardner, Tremblay & Masgoret (1997) underline the positive influence of self-confidence opposed to the negative nature of anxiety. According to Clément (1980 in Gardner et
al. 1997), self-confidence must be considered as a crucial factor for the motivation to learn a second language. Moreover, the author claims that the self-confidence variable itself contains two distinct notions, namely the absence of language anxiety and the confidence within the context of learning a second language.

2.4 Subtitling

The basic assumption to conduct the current study was the observation that present-day young people are surrounded with a large amount of multimedia such as TV, DVD, internet and games. As Frankenhuis, van der Hagen & Smelik (2007: 11) further elaborate, young people are entwined with media which functions as “a source of information, communication and entertainment”. On the basis of the results obtained through the questionnaire, it is not an unfounded assumption that watching television might be considered as one of the most popular activities involving multimedia among young people. In Flanders, there is a wide variety of television channels and programmes in which Dutch and English are the most common spoken languages. Most of the English-spoken programmes broadcast in Flanders are subtitled and d’Ydewalle (2002: 59) provides an explanation for this tendency by stating that “smaller countries import a large number of television programs from abroad. The imported programs are generally either dubbed or subtitled in the local language”. Because Belgium is a rather small country, most English-spoken programmes are subtitled and only a few programmes, mostly for children, are dubbed due to its high cost.

But what exactly is subtitling? Gottlieb (2004: 220) defines subtitling as “a diasemiotic translation in polysemiotic media (including films, TV, video and DVD), in the form of one or more lines of written text presented on the screen in sync with the original dialogue”. Although this definition is rather extensive, it contains some terms that might need more explanation. A first term is diasemiotic which is a specific term for the crossing over of two different channels of discourse, that is, from speech to a written version visible on the screen. A second term requiring more information is polysemiotic which refers to the various sources of information simultaneously involved in multimedia as for example a television programme. However, there exists a difference of opinion about the number of sources of information involved in for
example a subtitled movie. On the one hand, Gottlieb (2004) supports the existence of four channels of information such as music and effects, dialogue, the non-verbal picture and the written pictorial elements. On the other hand, d’Ydewalle (2002: 59) argues that there are “three different input channels: the visual image, the soundtrack (including the foreign voices) and the subtitles (a translation of the voices). The text lines of the subtitles should, ideally, be completely overlapping with the translated information of the soundtrack”.

2.4.1 Different types of subtitling

Because most English-spoken programmes in Belgium are broadcast with subtitles, most people are able to provide a clear-cut description of the concept being the written text visible on the screen which is a translation of the spoken dialogue. Although correct, the paraphrase remains somehow superficial. In what follows, some light will be shed on the various types of subtitling in order to provide a detailed overview of this heterogeneous concept.

As Cabrera & Bartolomé (2005) state, the most common type of subtitling is the interlinguistic or interlingual one which refers to subtitling between two different languages. Moreover, the interlingual type also includes bilingual subtitling and “Belgium is one of the countries using multilingual subtitles (Flemish and French) in order to avoid having to translate a film or a program twice (there is a line of subtitles for Flemish and another one for French)” (Pellieter 2012: 130). In Belgium, the bilingual type of subtitling especially occurs in the cinema and to a lesser extent on television. The interlingual type is part of the interlingual-intralingual distinction in which intralingual refers to subtitling within one and the same language. As Cintas (2005) observes, intralingual subtitles often fulfil a social function, that is, supporting the deaf and hard-of-hearing. Furthermore, Williams & Thorne (2000) indicate that the interlingual-intralingual distinction is especially determined by the factor of translation present in the interlingual type, but absent in intralingual subtitling. Moreover, there are some other classifications that are closely related to the distinction between interlingual and intralingual subtitles. A first classification is the distinction between captions as opposed to subtitles. Although most people will not consider these to be different, Zarei (2009) sums up some major features
distinguishing captions from subtitles. Firstly, captions are especially intended for the hard-of-hearing and deaf people and consequently contain references to the person speaking and other sound effects included such as the ringing of a telephone. Secondly, captions mostly occur within one and the same language, whereas subtitles are mostly a translation. Accordingly, Zarei (2009) reports that although these features indicate a clear-cut distinction between captions and subtitles, UK English applies the term subtitles to denote both captions and subtitles.

To conclude the current section on the various types of subtitling, a last example of different terminology is provided by Zanón (2006) who makes a distinction between three subtitle types: bimodal, standard and reversed subtitling. Although Zanón (2006) applies a different terminology, the three types are connected with the above described distinctions. Bimodal subtitling largely corresponds to intralingual subtitling, standard subtitling is linked to the interlingual type and reversed subtitling refers to the subtitling type in which the spoken dialogue is provided in the learner’s native language, whereas the subtitles appear in the second language. The current study involves two of the above described subtitling types, namely interlingual and intralingual.

2.4.2 How does watching a subtitled programme work?

When watching a subtitled programme, the viewer perceives several channels of information. More specifically, d’Ydewalle & De Bruycker (2007: 196) describe these channels as “three different but overlapping sources of information: the visual image, the soundtrack in a foreign language; and the subtitles in the native language”. At first, dealing with three different sources of information (watching, listening and reading) at the same time appears to be a rather complex and difficult task, but most of the viewers seem to deal with this quite well. Investigating how a person is able to subdivide his or her attention simultaneously among the various sources of information has been studied extensively. In what follows, an overview will be provided of the most relevant investigations.

In order to have a good understanding of the process of watching a subtitled programme, Etemadi (2012) highlights the distinction between ‘normal’ reading and
the reading of subtitles. More specifically, Etemadi (2012) states that the reading of subtitles bears more resemblances to the act of listening than to the actual reading because “the words are shown once, then gone [sic] away. The viewer has no chance to go back and refer to an earlier part in the text” (Etemadi 2012: 240). Although claimed to be closely related to the act of listening, one still has to read the subtitles in order to comprehend the dialogue. Consequently, researchers investigated the process of reading the subtitles and discovered a tendency to initiate reading the subtitles at their onset. Accordingly, d’Ydewalle & Gielen (1992 in d’Ydewalle & De Bruycker 2007) investigated this tendency and subsequently came across two aspects. Firstly, the immediate commencement of reading the subtitles at their onset seemed to be rather compulsory and was not impaired by various contextual factors as for example the soundtrack. Secondly, both people experienced and inexperienced with subtitles appeared to demonstrate this particular tendency. All things considered, one can state that shifting the attention between the subtitles and the rest of the sources of information is a largely automatic process.

Furthermore, Van Lommel, Laenen & d’Ydewalle (2006: 244) pointed out that “even when both the subtitles and the soundtrack are in the mother tongue, viewers spend considerable time watching the subtitles”. Consequently, researchers investigated the eye-movements when watching a subtitled programme in order to investigate the process of reading subtitles. D’Ydewalle & De Bruycker (2007) conducted a study in which they focused on the eye-movements of adults and children. The individuals, twelve adults and eight children (grade 5-6) participating in the experiment were all native speakers of Dutch and were not acquainted with the Swedish language of the movie. While watching the subtitled Swedish movie, participants’ eye-movements were recorded and analysed. Subsequently, d’Ydewalle & De Bruycker (2007) summarized their study with a threefold conclusion. Firstly, the eye-movement patterns of children and adults did not differ significantly. Secondly, when standard subtitling was provided, a more regular pattern was achieved with subtitles consisting of two lines than with one line which was reflected in the time needed to read the subtitles. Lastly, participants needed more time to read the two-line subtitles compared to the reading of the one-line subtitles.
2.4.3 The pros and cons of subtitles

Within the literature on subtitling and foreign language learning, opinions are divergent and inconsistent. On the one hand, Zarei (2009) remarks that subtitles have often been considered as a factor disturbing the attention and impeding the development of listening skills. The reason for this negative attitude towards subtitles comes from the belief that subtitles make viewers too much dependent on the written text instead of paying attention to the spoken dialogue. Vanderplanck (1988) on the other hand, demonstrates a view on subtitling completely opposite to the previously outlined view by Zarei (2009), and states that “far from being a distraction and a source of laziness, subtitles might have a potential value in helping the learning process by providing learners with the key to massive quantities of authentic and comprehensible language input” (Vanderplanck 1988: 272-273). In what follows, an overview will be provided of respectively some disadvantages and advantages related to the use of subtitles.

As stated before, opinions on the use of subtitles are rather divided. Danan (2004) indicates that several language learners and teachers have a negative attitude towards the use of subtitles. As an explanation, Danan (2004) brings forward the assumption that subtitles would stimulate learners to rely more on the written text instead of paying attention to the spoken (foreign) language. Consequently, language learners experience feelings of guilt or annoyance whereas teachers demonstrate a rather hostile attitude when it comes to subtitles. Furthermore, Zanón (2006) reports that subtitles are often considered as a nuisance because they appear as disturbing visual information. Likewise, Koolstra, Peeters & Spinhof (2002) provide another possible disadvantage of subtitles as being a negative influence on the processing of information because they cover parts of the original visual information.

However, in everyday life subtitles are not considered to cause a limited view for which Koolstra et al. (2002) have several reasons. Firstly, subtitles are mostly depicted at the bottom of the screen whereas the main events are assumed to appear in the middle of the screen. Secondly, subtitles are not permanently visible and the visual information remains visible for the viewer even when subtitles are depicted on the screen because subtitles are somewhat transparent. Furthermore,
Koolstra et al. (2002) also point at another possible disadvantage of subtitles which is related to the attention of the viewer. More specifically, subtitles are believed to distract the attention because they force the viewer to shift his or her attention between the different sources of information in order to obtain a good understanding of the content. However, as outlined in section 2.4.2, the reading of subtitles is an almost automatic process and does not impede the simultaneous understanding of the various channels of information. Lastly, Koolstra et al. (2002) point out another possible disadvantage of subtitles by highlighting the mental effort involved in watching a subtitled television programme. Taking into consideration the activities of watching, listening and reading that take place simultaneously, assuming that watching a subtitled programme is a demanding activity is not out of place.

Moving on, it is important to remark that there are just as many (or even more) benefits to subtitles. To start, Koolstra et al. (2002) highlight that the reading of subtitles has a positive influence on information processing involved in watching a subtitled television programme since reading is faster than listening. Accordingly, the processing of information coming from various channels is also considered to have a positive influence as Zanón (2006: 43) states that “a subtitled video provides a triple connection between image, sound in one language and text, normally in another, sound and text being typically linked by translation”. Consequently, the multiple sources of information stimulate the viewer to create associations between a word and its meaning. Furthermore, Vanderplanck (1988) observes two possible advantages of the use of subtitling. A first advantage is linked to subtitles’ potential to enhance the acquisition of a language because they provide the language learner with an amount of input that is authentic and comprehensible. Secondly, subtitles could be considered to be responsible for an increase of the learner’s attention for the unfamiliar language and consequently improve the language learner’s proficiency in that particular language. All things considered, there are enough positive things about subtitling to overrule the previously mentioned disadvantages. In order to provide a good overview of these advantages, Koolstra et al. (2002: 335) conclude their list of pros and cons about subtitling as follows:

“Subtitled television programmes can be processed well by viewers. Most likely, the necessary condensation involved in the adaptation of spoken text to subtitles
does not lead to information loss and subtitles do not distract the viewer’s attention from the picture. Even when the sound of the television is drowned out by other noises in the room, subtitled programmes can still be followed. Because reading is faster than listening, information processing while watching subtitled programmes is also efficient”.

2.4.4 The effect of subtitles

Taking into consideration the several advantages and disadvantages of subtitling provided in the previous section, one might wonder what the actual effect of subtitles might be. Vanderplanck (1988) argues that subjects watching a television programme or film without subtitles experienced more insecurity and anxiety. Moreover, he states that subtitles are important because “the text provides instant feedback and therefore positive reinforcement for learning” (Vanderplanck 1988: 277). The effect of subtitles on the acquisition of a language has been widely studied focusing on various aspects. In what follows, an overview will be provided of a selection of relevant studies on the possible effects of subtitles.

As stated in the previous section, Danan (2004) indicated that some people have a negative attitude about the use of subtitles. While it is hardly surprising that this negative attitude can be attributed to people living in countries where subtitling is not a common practice, Flemish people do not tend to have this negative attitude because subtitles are commonplace in Flanders. Moreover, as the study (section 2.4.2) by d’Ydewalle & De Bruycker (2007) pointed out, the reading of subtitles can be considered as an almost automatic and effortless activity. A study that yielded detailed information about the effect of subtitles was carried out by Bianchi & Ciabattoni (2008) and included 87 participants. The authors concluded that “when students watch a film in a foreign language and text aids are displayed, three channels compete in catching the students’ attention and in favouring (or hampering) comprehension and learning: one auditory channel, and two visual channels (one verbal and one non-verbal)” (Bianchi & Ciabattoni 2008: 86).

More specifically, four factors are involved in the process of watching a subtitled television programme. As a first variable, the authors discuss the relation between
the subtitles, the dialogue and the picture visible on the screen. In practical terms, this first variable deals with the “semantic match between the verbal channels (audio and text) and the non-verbal channel (images)” (Bianchi & Ciabattoni 2008: 86). Correspondingly, they found that the greater the match between the different channels, the better the results at all levels of proficiency. The second variable highlighted by the authors is concerned with the participants’ level of proficiency and closely related to the third variable which is the type of task employed to identify the level of proficiency. Furthermore, Bianchi & Ciabattoni (2008) describe the fourth variable as the type of textual aid that accompanies the programme such as intralingual (captions), interlingual (subtitles), reversed or no subtitles. After analysing the variables, the authors came across several observations. Firstly, comprehension was most affected by interlingual subtitles, while beginners and advanced participants benefitted most from the intralingual subtitles. Secondly, the language-in-use comprehension of participants with a lower level of proficiency was positively influenced by interlingual subtitling in contrast to the advanced participants who benefitted more from the intralingual subtitles.

Furthermore, d’Ydewalle & Van de Poel (1999) carried out a study on 327 children aged 8 to 12 in order to investigate the implicit foreign language acquisition through watching a still-motion movie in two languages, namely Danish and French. Although results turned out to be rather limited, the authors did notice some influence. A similar study was conducted by Koolstra & Beentjes (1999) and consisted of 246 Dutch children attending primary school (grades 4 and 6). The focus of the study was to find out whether these children would acquire English vocabulary by watching a television programme with English audio. The large group of children was subdivided into three groups, each group watched the fragment in a different way: with Dutch subtitles, without subtitles and a third group watched the fragment with Dutch audio and consequently functioned as a control group. Koolstra & Beentjes (1999) discovered that highest vocabulary acquisition was obtained by the group that watched the fragment with Dutch subtitles (interlingual). Additionally, this study weakens the belief that subtitles are a distraction and that they would impede the viewer’s hearing of the spoken words.
Likewise, Karakaş & Sariçoban (2012) conducted a study to find out whether incidental vocabulary learning takes place while watching a subtitled cartoon. To this end, 42 first grade English Language Teaching students participated in this study consisting of a pre-test/post-test design. Results indicated that “no matter whether participants watched the movies with subtitles or without them, they improved at a significant level from pre-test to post-test scores. The gains of participants were thought to be the result of contextual aids of cartoons” (Karakaş & Sariçoban 2012: 12). In a similar study conducted by Roohani & Rabiei (2011), 90 advanced English Foreign Language students participated to investigate “the effectiveness of watching movies and the use of subtitling in movies in the field of L2 vocabulary learning” (Roohani & Rabiei 2011: 102). Results of this study indicated that all modes of watching a subtitled movie (bimodal, standard and no subtitles) improved the vocabulary scores, but that due to the presence of two languages and two sources of information, the standard or interlingual subtitling mode was responsible for a larger incidental acquisition of vocabulary.

To conclude this overview of studies dealing with the effect of subtitles on the acquisition of a language, Zarei (2009) points at the consensus of opinion about the capacity of subtitles to improve language acquisition in general. Nevertheless, there does not exist unanimity about which subtitling mode is the most efficient. Consequently, this paper will investigate which type of subtitles is the most effective for incidental vocabulary acquisition of inexperienced learners of English while watching a subtitled English-spoken television movie.
2.5 Multimedia and second language acquisition

As outlined in the previous sections, young people have an unlimited access to various kinds of media such as TV, DVD, CD, internet and games. The Flemish participants involved in the current study have access to a wide variety of English-spoken media such as television programmes, songs on the radio and games. Consequently, when Flemish people watch an English-spoken television programme, this is mostly provided with Dutch subtitles. As discussed in the previous section, subtitles are an efficient tool for the improvement of the comprehension of the foreign language, but multimedia provides the individual with some other influences as well. Sokoli (2006) represents the multiple channels of information involved in watching a subtitled television programme in the image below:

![Diagram showing multiple channels of information included in a subtitled television programme](image)

*Figure 4: Multiple channels of information included in a subtitled television programme (Sokoli 2006: 3)*
Considering the evolution of the various types of multimedia, Livingstone (1999: Ch. 1 p. 3) refers to a previous study that “characterizes the children of the 1960s as the TV generation, those of the 1970s as the video generation, those of the 1980s as the Nintendo generation, and those of the 1990s as the Internet generation”. When it comes to the children born in the late nineties up to now, the influence of all the various types of multimedia may not be underestimated. Accordingly, Prensky (2001: 1) referred to young people in the United States as “our students changed radically. Today’s students are no longer the people our educational system was designed to teach”. More specifically, Prensky (2001) named today’s young people as ‘Digital Natives’ because they are growing up in an environment in which multimedia is everywhere and almost indispensable. In what follows, an overview will be given of theories, effects and examples of multimedia.

2.5.1 Theories about multimedia

To obtain a good understanding of the influence and importance of multimedia annotations, some of the most significant theories concerning this topic will be explained. A first theory requiring considerable attention is Paivio’s Dual Coding Theory. As Paivio (2006) states, cognition is made up of two separate subsystems, namely a verbal and a non-verbal system for the activity of storing and processing information. More specifically, according to Ahangari & Adbollahpour (2010: 3) there is a “verbal system for storing and processing linguistic information such as printed words and a non-verbal system for storing and processing spatial information and mental imagery such as static and dynamic pictures or objects”. Furthermore, Ahangari & Abdollahpour (2010) underline that when the individual receives information by means of the verbal and visual form, this information will be classified in more than one way in the brain which consequently results in a better retention of the information. With regard to the functions of both subsystems, Paivio (2006) highlights that these systems can work both cooperatively and independently because they are connected to each other as well as to the sensory modality. Subsequently, Al-Saghayer (2001) elaborates this potential cooperation between the two subsystems by stating that this interconnectedness has to do with the fact that one system is able to generate representations in the other.
A second theory concerning multimedia annotations is introduced by means of Mayer’s (1997) generative theory of multimedia learning. On the one hand, Mayer’s theory is based on the above explained Dual Coding Theory of Paivio and on the other hand it is connected to the generative theory of Wittrock (1974, 1989 in Mayer 1997). According to Plass, Chun, Mayer & Leutner (1998: 26) this theory “posits that learners engage in three major processes – selecting, organizing, and integrating – when they are presented with the visual and verbal information such as illustrations and text”. Furthermore, Plass et al. (1998) underline that when the individual is able to control the verbal and visual representations, learning will be more efficient. To conclude this section on the theories concerning multimedia annotations, it is important to have a notion of how Mayer portrays the individual (or learner) in his generative theory of multimedia learning. Mayer (1997: 4) defines the individual as “a knowledge constructor who actively selects and connects pieces of visual and verbal knowledge” which reflects the situation in which a viewer watching subtitles programmes might be able to improve his or her lexicon.

2.5.2 Influence of multimedia on L2 acquisition

Having introduced some relevant theories about multimedia, the present section will shed light on relevant literature about the use of multimedia annotations. To start, Mayer (2005) conceptualised the multimedia principle which claims that the acquisition of words increases more when they are accompanied by pictures than by just words alone. Although words have a long history within the field of instruction, technological developments have expanded the instruction methods with the use of pictorial elements. Nevertheless, one cannot expect every type of multimedia to guarantee an effective improvement of the acquisition of a language.

Accordingly, Chun & Plass (1996) discovered that individuals demonstrate a higher retention of words when they were provided with a lexical element supported by different types of media. The authors connected this tendency to the two different ways in which the word is represented which can be explained by means of Paivio’s Dual Coding Theory (see section 2.5.1). According to this theory, the individual can rely on two different recall cues which consequently results in an increased possibility to acquire a word compared to words that are represented in only one way (e.g.
either written or spoken). Likewise, Jones & Plass (2002) investigated the effect of multimedia annotations on listening comprehension of American students taking a French course. Results demonstrated that the students who listened to an aural text accompanied by both pictorial and written cues achieved higher scores on a vocabulary test than students with single or no annotations at their disposal. In other words, the availability of more than one type of representation offers a better chance to acquire new words which confirms Mayer’s generative theory of multimedia learning (see section 2.5.1). More specifically, Jones (2004: 123) stated that “the presence of both pictorial and verbal cues can facilitate learning, in particular when the corresponding visual and verbal representations are contiguously present in working memory”.

Although the presence of various multimedia annotations must be considered as a surplus value for the acquisition of a language, Martinez-Lage (1997 in Al-Seghayer 2001) pointed at some beneficial factors of the use of multimedia for language learning. Firstly, by using multimedia annotations immediate access is provided to the varied extra information such as visual, textual and audio annotations. Secondly, as multimedia contains images learners are able to establish a significant connection between the word and the visual information in order to control their assumption of a word’s signification. But what about the relationship between multimedia and the acquisition of a second language? Omaggio (1979 in Al-Seghayer 2001) investigated the relation between pictures and reading comprehension of beginning French students. Results indicated that the pictures affected the reading comprehension significantly. Likewise, Oxford & Crookal (1990: 16) analysed the influence of visual imagery and concluded that “visual imagery is a very useful semi-contextualizing aid for learning L2 vocabulary. The use of visual imagery for vocabulary learning is based on making associations between a picture and a word”.

Snyder & Colon (1998 in Al-Seghayer 2001) carried out a study to investigate the influence of both audio and visual aids on the acquisition of a second language. The design of the study required two groups of participants to undergo a seven-week training under different circumstances. A first group of participants followed the standard curriculum which contained restricted visual and audio aids, whereas the second group attended an expanded curriculum with more visual and audio input.
After their seven-week training, students were examined and results showed that the group with the expanded curriculum achieved better scores for vocabulary retention. Furthermore, Neuman & Koskinen (1992) stated that when a video offers the viewer a combination of both subtitles and sound, the context extends significantly. Moreover, when visual aids are combined with the audio, viewers are able to link the meaning to the words visible in the subtitles on the screen. In their study on vocabulary learning, 129 students (7th and 8th grade) were involved to view a fragment under different conditions: non-subtitled television, subtitled television, textbook only, and listening to and reading a text. Results confirmed Neuman & Koskinen’s (1992) assumption that due to subtitled television, viewers were able to deduce the meaning of a word from the context.

To conclude the present section on multimedia annotations, it is important to be aware of the following four observations. Firstly, to achieve representational results it is important that the selected material depicts meanings accurately. Consequently, the choice of fragments and pictures is an essential process in testing the influence of multimedia on language acquisition. A second observation is concerned with effectiveness of the different modes of multimedia. Several studies demonstrated that both the picture mode and video had more influence than audio only. This observation highlights the fact that remembering a word (meaning) is easier when its meaning can be visualized. Thirdly, the use of multimedia such as a video fragment gives the learner the opportunity to establish meaningful relations between the visual and verbal systems. The reason for the establishment of meaningful relations can be found in Paivio’s Dual Coding Theory which states that words are dually coded.
3 Research

Considering the omnipresence of English in the more than ever digitalised world, it would be a logical assumption that children and adolescents in Flanders will be influenced by the wide variety of English-spoken programmes at their disposal. Previously, programmes were only available via radio, television and video whereas now, DVD, Internet, and television create a world in which everything is available at any moment. In Flanders, English-spoken programmes are mostly subtitled and DVDs offer the possibility to switch on or off the type of subtitles of his or her preference. Taking into consideration the multiple ways in which children are confronted with the English language, it might be interesting to investigate the assumption that they will already be familiar with English vocabulary even prior to instruction. Consequently, the aim of this research is to investigate whether the omnipresence of subtitled English-spoken media does influence the vocabulary knowledge of Flemish children prior to instruction of the English language. More specifically, the present study will investigate which type of subtitles is the most influential and whether vocabulary is acquired for a short or longer period.

In order to understand the way in which the participants’ vocabulary knowledge has been tested, the present section will outline the design, procedure and the participants of this investigation. Since this research was carried out as a contrastive study between ASO, TSO and BSO participants, more information will be provided upon this particular distinction within the educational system in Flanders. The subdivision of the Flemish educational system might not be considered insignificant since there are important differences between the branches of study and their focus. Furthermore, light will be shed on the results and the interpretation of the obtained information.

3.1 Educational system

This research was carried out in Flanders which is situated in the North of Belgium. Although the main language in Flanders is Dutch, it is important to keep in mind that Belgium is in fact a trilingual country with French and German as the other languages. De Ro (2008) elaborates the trilingual structure in more detail by
indicating that each group of speakers corresponds to a community which means that Belgium consists of a Flemish, French and German speaking community. As De Ro (2008) states, education in Belgium is compulsory starting from age 6 until the individual becomes 18. However, most children start with a non-compulsory section of the educational system at the age of 2.5, the nursery. Following nursery class, the child has to pass through primary and secondary education in order to fulfil its compulsory attendance at school. Within primary school no distinctions are made between levels of competence, but this changes when the child enters secondary school. As De Ro (2008) states, secondary education consists of four stages which differ according to the level of competence of the individual (see figure 5).

The first stage of secondary education is made up of two years and is considered as a degree of orientation. Children can choose to enter either A-stream education or B-stream education. The A-stream provides children with general knowledge and is intended for those who did not experience any difficulties with primary education. B-stream, on the other hand, is intended for children who experienced difficulties with learning and consequently are in need of an education adapted to their qualities. In this way, the first year of B-stream functions as some kind of first class between primary and secondary education after which children can enter either the second year of vocational training or the first year of the A-stream (Leplae 2001). As De Ro (2008) explains, when children enter the second stage of secondary education, they can enter four different education forms: ASO (General secondary education), TSO (Technical secondary education), KSO (secondary Arts education) or BSO (Vocational secondary education). General secondary education or ASO offers the students a very broad and general training without emphasising a specific occupation. Consequently, most ASO students continue their studies in Higher education. Technical secondary education, in contrast to ASO, focuses more on general and technical subjects and provides the students with practical classes. When students complete their TSO education, they can either start working or continue their studies in Higher education. Students with an artistic talent are more likely to enter secondary Arts education which combines a general education with specific artistic activities. After this form of secondary education students can also either start working or continue their studies in Higher education.
The last form of secondary education is Vocational secondary education or BSO which differs considerably from the previous three types. BSO especially focuses on the practical aspects of education “in which young people learn a specific occupation in addition to receiving general education” (De Ro 2008: 27). As Hempen & Vanleke (2013) underline, all Flemish pupils receive the same training in the first two years of their secondary education. Consequently, the above described differences within secondary education start from the second cycle when the child and its parents need to decide which type of secondary education complies the best with the capacities of the child. Although during the first two years of secondary education the A-stream/B-stream distinction - instead of the ASO/BSO/TSO distinction - is used, I will use these three terms to maintain the difference between the groups in order to provide a well-organised overview of the results.
3.1 Structure of education

Doctor (Universities only)

Bachelor following bachelor

Master following master

Professional bachelor

Bachelor

Master

Academic bachelor

PROFESSIONAL EDUCATION

COLLEGES OF HIGHER EDUCATION ONLY (a)

Vocational (5)

TEACHERS ONLY

General (5)

LEADERS

Art (5)

TECHNICAL EDUCATION

Technical (5)

UNIVERSITIES AND COLLEGES OF HIGHER EDUCATION (ASSOCIATION) (b)

Vocational (5)

4th stage

PART-TIME

3rd stage

2nd stage

1st stage

ELEMENTARY EDUCATION

PRIMARY EDUCATION

NURSERY EDUCATION

(a) All students who have successfully passed the second year of the 3rd stage or passed an entry test, have access to the 4th stage of vocational education.

(b) Modular education is not divided into stages and years of study and thus is not represented in the diagram.

(c) The former training programmes of one cycle provided by colleges of higher education are transformed into professional bachelor courses from the 2004-2005 academic year onwards.

(d) The two-cycle training courses of the colleges of higher education and academic training courses of the universities are transformed into academic bachelor and master courses from the 2004-2005 academic year onwards. These training courses are transformed from an at least two-year candidate's course and an at least two-year intermediate course into a three-year academic bachelor and an at least one-year master course. Candidate degrees are not considered equal to bachelor degrees.

In addition to the levels of education included in the diagram, there are also part-time and adult education.

Figure 5: Educational system in Flanders (De Ro 2008: 21)
3.2 Participants

The target group of this research consists of Flemish students from the first and second year of secondary education which means that they are between 12 and 14 years old. Concerning their knowledge of the English language, they can be considered as absolute beginners because they have not yet received English classes. The participants involved in the present study belong to both the A-stream and the B-stream and attend school in respectively the Sint-Janscollege and the Onze-Lieve-Vrouwe-instituut in Poperinge (West Flanders).

Eight first year classes and one second year class took part in this study and were subdivided into three classes from ASO, three classes from TSO and three classes from BSO. The second year class belonged to the BSO group and was included because there were no three first year classes BSO available for participation in this experiment. Even though these students are one year older, they also have not yet received English classes which made them still fit for the present study. The use of the subdivision in three groups of three classes is a consequence of the practical organisation of this study. The test itself consisted of three subtitle modes (Dutch, English, none) and by involving three separate classes for each level of competence (ASO, TSO, BSO) the test could take place within the students’ classroom. In order to preserve the overview, the students are indicated by means of groups. The first group contains 51 students belonging to ASO, the second group represents the 56 students belonging to TSO and the third group depicts the 30 students belonging to BSO. Because the test itself also requires three sections, the groups will be subdivided once more during the procedure of the test in accordance with the different types of subtitling. To make sure that the results of the test remained uninfluenced, the students needed to be unaware of the test’s purpose. This was accomplished by letting the first part take place about two weeks before the fragment was presented to the students. The first part (see below) was carried out by the teachers themselves and presented to the students as an ordinary unexpected vocabulary test in order to maintain the students’ unawareness.
3.3 Design and Focus

The main aim of the present study is similar to that of my Bachelor paper, that is, investigating whether watching a fragment from an English-spoken programme would influence and increase the English vocabulary knowledge of the students. More specifically, the fragment was presented to the students with different types of subtitling to find out whether subtitling really influenced vocabulary acquisition or not. However, the current study also contains differences in comparison to my Bachelor paper. Firstly, the number of students involved is about three times the number of students that participated in my Bachelor paper which will provide a more accurate insight in the effect of subtitling on vocabulary acquisition. Secondly, this present study will not restrict itself to ASO-students only, but includes three different levels of competence: ASO, TSO and BSO.

The design of the present study is similar to the experiment of my Bachelor paper which means that the influence of subtitling on the English vocabulary acquisition of the students was tested by means of a pre-test/post-test experiment. The large group of students was divided into three subgroups according to the three levels of competence involved: 1 group ASO students, 1 group BSO students and 1 group of TSO students. Subsequently, each group was again subdivided into three smaller groups according to the three types of subtitling (Dutch, English, none) involved in this investigation. These subgroups correspond to the three classes involved, so that there were no practical inconveniences.

- **Group 1: 51 ASO students:**
  a) 16 students watched the fragment with Dutch subtitles
  b) 16 students viewed the fragment with English subtitles
  c) 19 students watched the fragment without subtitles

- **Group 2: 56 TSO students:**
  a) 20 students watched the fragment with Dutch subtitles
  b) 19 students viewed the fragment with English subtitles
  c) 17 watched the fragment without subtitles
- **Group 3: 30 BSO students:**
  a) 8 students watched the fragment with Dutch subtitles
  b) 10 students viewed the fragment with Dutch subtitles
  c) 12 students watched the fragment Dutch subtitles

### 3.4 Materials

This research is primarily concerned with the accidental acquisition of English vocabulary by means of watching an (subtitled) English-spoken programme. In order to investigate the possible vocabulary acquisition, I needed a list of words that would be used as the ultimate test to investigate whether the vocabulary knowledge of the students increased or not. To this end, I decided to use a list of words that was selected from a film. First of all, it was important that the students would be able to recognize the film or series from which the words were selected. Secondly, considerable attention was dedicated to the proficiency level of the students in order to select an adequate excerpt from the film of series. For my Bachelor paper, I selected the vocabulary list from an episode of *Fawlty Towers* which was an adequate level for the 16-year-old participants involved in the research. The participants of the present study, however, are about 12 years old and have not yet received any English instruction at school. Consequently, the level of English applied in a series such as *Fawlty Towers* would be too hard to follow for these young students. For this reason, I decided to use a rather popular cartoon which was likely to be known by many of the participants. Accordingly, the words included in the vocabulary list were selected from the cartoon *Finding Nemo* belonging to the Walt Disney collection. *Finding Nemo* combines a funny story and amusing characters with “plainer and clearer language than others, slow speed, and idiomatic expressions” (Wang & Zhang 2012: 1012). From this cartoon, an excerpt of about 15 minutes was presented to the students during the second phase of the research. Additionally, the students were requested to fill in a questionnaire which interrogated them about their opinions, feelings and experiences related to the English language and their habits when it comes to watching English-spoken programmes.
3.5 Procedure

The experiment that was used to test the possible progress in vocabulary knowledge of the students consisted of three phases. It is important to underline that all the nine classes went through these three phases. In what follows, an overview will be given of the course of each phase which was equal for each group of students (ASO, BSO, TSO).

The first phase of the experiment was the pre-test and occurred in the week before the spring half-term and thus also before the fragment was presented to the students. The materials used to carry out this first phase consisted of a vocabulary list of 30 English words which were selected from the fragment. The students’ task was to fill in either the accurate Dutch translation of the words, or if not possible, a description or explanation. More specifically, this pre-test was carried out for two reasons: firstly, to obtain an insight in the students’ general knowledge of English vocabulary. A second, not less important, reason was to prevent the students from knowing that they were participating in a vocabulary research. Accordingly, the students’ unawareness was maintained by means of the cooperation of the teachers. On my personal request, they presented the vocabulary test under the pretext of an ordinary test concerning languages in general, since these students have not yet received English classes.

The next stage of the experiment must be considered as the main and most important phase of the investigation and lasted for about 50 minutes. During the second part, the excerpt of about 15 minutes was presented to the students. Although all students watched the same fragment, this must be described in more detail. All three subgroups of the main groups (ASO, TSO and BSO) watched the excerpt with a different type of subtitles being: Dutch subtitles, English subtitles or no subtitles at all. Furthermore, the students were not informed about the purpose of the excerpt or about paying specific attention to the subtitles or the words that occurred in the dialogues. Directly after the presentation of the excerpt, the students were asked to complete the same vocabulary list they filled in a few weeks before. The main purpose of this first post-test was to investigate whether the students were able to fill in more correct translations when the words from the vocabulary list were supported by a context consisting of sound, visual elements and/or subtitles.
Consequently, the main research question was: did the vocabulary knowledge of the students improve after watching the fragment? In order to find out, the results of the pre-tests were compared with the results of this first post-test which can be found in section 3.7.3. Following the first post-test, the students were asked to complete a questionnaire in which they were interrogated about their habits concerning watching television, the frequency of contact with the English language, etc. The results of the questionnaire were analysed together with the results of the vocabulary tests in order to find possible correlations.

The third, and last, phase of the experiment was carried out immediately after the Spring Break which was about four weeks after the excerpt was presented to the students. The second post-test was similar to the pre-test since it also requested the students to fill in the same vocabulary list once more and was handed out by the teachers. The main aim of the second post-test was to find out whether the students were able to remember the meaning of the words on the list for a longer period of time.

### 3.6 Data processing and analysis

The main aim of the present investigation was to learn more about the potential English vocabulary acquisition of Flemish students while watching an English-spoken programme with a particular type of subtitles. Moreover, this research involved students from all proficiency levels within the Flemish educational system in order to find out whether all students acquired vocabulary to the same degree.

Potential vocabulary acquisition was tested by means of a 30-word vocabulary list selected from a 15-minute excerpt of *Finding Nemo*, a cartoon which was very much appreciated by the students. Because the words occurred in a specific context that was not provided when the students filled in the pre-test, these were corrected while taking into account the various possible translations. More specifically, the word ‘big’ can have two possible Dutch translations, namely ‘groot’ and ‘dik’ which occurred regularly. Although the word ‘big’ occurs as ‘groot’ in the excerpt of *Finding Nemo*, during the pre-test students did not dispose of this particular context. Consequently, when ‘dik’ was filled in as translation of ‘big’ during the pre-test, this was considered...
as a correct answer. However, when correcting the first post-test, ‘dik’ was no longer accepted as the translation of ‘big’ since the context required ‘groot’ as the correct translation and I wanted to find out whether the context and subtitles would help the students to grasp that.

Results were processed and analysed by means of Microsoft Excell 2007 to obtain a detailed overview of the possible increase in vocabulary knowledge of all students. Furthermore, these results were entered as a score out of 30 and later on transferred into percentages. In order to visualise the obtained results, data were presented by means graphs.

3.7 Results and Discussion

The following part of this paper will introduce some core information about the present investigation. Moreover, some general insights will be given into the data obtained through the questionnaire. Furthermore, an overview and discussion will be provided of all the test results from all the students involved.

3.7.1 Questionnaire

The present section will provide a detailed overview of the information obtained through the questionnaire (see Appendix B). In contrast to the analysis of the different vocabulary tests, the results of the questionnaire include all students’ answers, that is, also non-native Flemish students and students who were absent during one of the vocabulary tests. In this way, all students’ opinions are included which can only lead to a better understanding of how these young people think about the English language. In order to provide adequate insights into the results of the questionnaire, the questions will be grouped and discussed with respect to the three groups involved. Altogether, 147 first and second year students with an average age of 12 filled in the list of questions. The overall majority indicated Dutch to be their mother tongue and only four students acknowledged to have another native language (Russian and Portuguese).
In the second set of questions (question 5 -8), the students were asked about their attitude about, opinion on and experiences with the English language. To the question whether or not they have already travelled to a country where they were confronted with the English language, 23.13% of the students answered positively (see figure 6). Going on vacation and visiting family were the most common occasions to travel to countries such as Canada, North America and London. Moving on to question 6, the students were asked to describe their knowledge and understanding of the English language (see figure 6). 68.71% of the students defined their knowledge as ‘a little bit’, especially referring to single words picked up from songs and movies. 21.77% of the students declared to have a good understanding of English because of several reasons such as family living in America, songs on the radio and watching films and videos on YouTube. Interestingly, the advanced understanding of English might be caused by the fact that YouTube is an international website where Dutch subtitles are not a common practice.
Accordingly, the third question in this second set dealt with the degree of difficulty (easy, difficult or in between) of the English language (question 7). Although one student displayed a rather radical point of view by claiming that it is not necessary to know more than one language, 42.18% of the students considered the English language to be easy. However, there was a remarkable difference between the three groups involved (see figure 7). Whereas almost half of the ASO (45.45%) and TSO (47.54%) students considered the English language to be easy, results were reversed in the BSO group. 41.94% of the BSO students indicated the English language to be difficult which was also reflected in the pre-test average score (see section 3.7.2). The reason for this difference is not clear-cut, but one must keep in mind that there are several variables at stake such as: different focus of education (ASO, TSO, BSO), language aptitude, personal interest and motivation (see 2.3). Furthermore, the students were asked whether they come into contact with the English language in their daily lives (question 8). As expected, only a minority (31.29%) replied positively and acknowledged that the internet was the most common way to come into contact with people speaking English.
The next part of the questionnaire (questions 9-11) focussed on the students’ attitude towards and experiences with the English language. The answers to the question whether or not the students consider English as an important language were very straightforward because 98.00% confirmed the importance of English by stating that it is a world language. These findings clearly indicate that young people are aware of the value of English and thus link up with the status of English as a global language which was outlined in 3.1. Although the students have not yet received English classes at school, I wanted to know whether they had already received instruction of the English language in another context, that is, outside the educational environment (question 10). Results clearly indicated that most of the students (93.88%) had never received any English classes. The remaining students had received instruction when on camp or because their family was living in a country where English was the main language.

Question 11 required the students to estimate their proficiency in English ranging from very good to insufficient. 46.26% of the students considered their knowledge of English as sufficient, 28.57% insufficient, 22.45% good and 2.72% very good. It is remarkable that although these students have not yet received any English classes, most of them already consider their knowledge to be sufficient and good (68.71%). Focussing on the number of students who described their proficiency as insufficient, it is remarkable that only 16.36% of the ASO students filled in insufficient compared
to 36.07% of the TSO students and 35.48% of the BSO students. These results can be explained by pointing at the different focus of ASO, TSO and BSO education which was outlined in section 3.1.

Figure 9: Overview results questions 12, 13 and 14

A last set of questions (12-20) focussed on the students’ opinion on and experience with subtitles. As expected, most of the students (83.00%) acknowledged to watch English-spoken programmes with Dutch subtitles daily (or weekly) such as *The Simpsons*, *Modern Family* and *Grey’s Anatomy*. However, these results were not surprising because most of the English-spoken programmes are broadcast with subtitles in Flanders. My expectations were that the number of students watching English-spoken programmes with English or without subtitles would be lower than the number of students watching English-spoken programmes with Dutch subtitles. However, the results surpassed my initial expectations that English or no subtitles would be very unpopular. Nevertheless, 19.73% of the students acknowledged to watch English-spoken programmes with English subtitles daily (or weekly) and 25.85% of the students indicated to watch these programmes without subtitles daily (or weekly). Although these results are rather low, they can be seen as an outcome of the influences of multimedia such as Facebook and YouTube which are international sources of information. Accordingly, the students were asked about the ways in which they access English-spoken: media and television, DVD, the internet and games were the most common ways of access which confirms the assumption
that young people are more than ever surrounded by all kinds of (English-spoken) media.

Furthermore, question 16 was concerned with whether or not the students usually switch on subtitles and, if so, which type: Dutch or English subtitles. In line with the results of the previous questions, most students preferred (89.12%) to switch on Dutch subtitles because otherwise they would not be able to follow the programme. These results confirm the findings of d'Ydewalle & De Bruycker (2007) who stated that the reading of subtitles is a fairly automatic process and does not impede the comprehension and visibility of the programme.

<table>
<thead>
<tr>
<th>Question 18</th>
<th>ASO (55)</th>
<th>TSO (61)</th>
<th>BSO (31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtitled version</td>
<td>40</td>
<td>72.73%</td>
<td>46</td>
</tr>
<tr>
<td>Dubbed version</td>
<td>15</td>
<td>27.27%</td>
<td>15</td>
</tr>
</tbody>
</table>

*Figure 10: Dutch subtitles or dubbed version (question 18)*

Given the students’ preference for Dutch subtitles, I wanted to find out what their preference would be when the two possible options are Dutch subtitles or a dubbed version (question 18). 76.19% of the students acknowledged to prefer Dutch subtitles over a dubbed version which confirms the assumption that people are accustomed to the use of subtitles because it provides a more natural form of the programme compared to a dubbed version. These results partly correspond to a previously conducted study by Lippens (2010) which also dealt with the incidental acquisition of English prior to instruction. Lippens (2010) found that the majority of her participants preferred the subtitled version over the dubbed one, which is also the case in the present study (76.19%). However, Lippens (2010) pointed out that TSO and BSO students were more likely to prefer the dubbed version, whereas ASO students were more likely to prefer the subtitled version. These findings do not correspond with the results of the present study. As outlined in figure 10 above, only 16.13% of the BSO students and 24.59% of the TSO students indicated to prefer the dubbed version over the subtitled one, but the highest percentage of students preferring the dubbed version was found in the ASO group (27.27%). The reason for these inconsistent
results is not clear and research on a larger scale is needed to provide adequate and consistent insights.

Because the main focus of the present study is the acquisition of vocabulary, I wanted to gain some insights into the students' attitude towards unfamiliar English words. Consequently, question 17 was concerned with what the students would do when an unfamiliar English word occurred in the programme. The majority of the students (51.02%) stated not to pay further attention to the word, followed by 17.69% who stated that they would ask one of their parents to translate the word. Furthermore, 25.85% would try to derive the meaning from the context and 5.44% would look up the meaning of the word. It is remarkable that 25.85% of the students would try to derive the meaning from the context which will hopefully be reflected in the vocabulary (post-) tests (see figure 11).

In the last pair of questions, the students were asked to give their opinion on two more issues, namely the potential of subtitles to improve their knowledge of English and whether or not they are motivated to start English classes in the near future. Almost all students answered the former question positively stating that subtitles are useful because hearing the English pronunciation and reading the Dutch translation at the same time provide a better connection and thus increase the possibility to actually remember the word. This observation confirms the multimedia principle of
Mayer (2005) who stated that when the word is represented in several ways (audio, pictorial, written), it will be remembered more easily. Furthermore, the latter question pointed out that most of the students (86.39%) are very motivated to learn the English language. However, taking into consideration each group separately indicated that 25.81% of the BSO students experienced feelings of anxiety, whereas the percentage of students experiencing anxiety in the ASO and TSO group is only 9.09% and 11.48%. The reason for this difference can be found in the education of the students. Whereas the ASO students receive a fairly theoretical education including several languages, the education of TSO and especially BSO students focuses more on the practical aspects of education and consequently to a lesser degree on languages.

The questionnaire confirmed the expected outcome that Dutch subtitles would be the most common type to watch an English-spoken television programme. About 89.00% of the students acknowledged to favour Dutch subtitles because it offers them the best opportunities to obtain full understanding of the English conversations. Furthermore, 25.85% of the participants indicated to watch English-spoken programmes without subtitles regularly. Moreover, English subtitles were the least popular with only 19.73% of the students who stated to access English-spoken programmes with this type of subtitles daily (or weekly). Considering these results, one might wonder how the results of the various post-tests will link up with the information obtained through the questionnaire.
3.7.2 Pre-test

The first phase of the experiment, the pre-test, consisted of the vocabulary list without the specific context in which the words originally occurred. Moreover, students were not aware of the purpose of them filling in an English vocabulary list because the teachers presented it as an ordinary vocabulary test. Before starting the analysis, it is important to stress that there will be many individual differences influencing the results of the students. These individual differences can have several reasons. Firstly, not every student has a talent for learning languages or disposes of the required motivation to succeed. The most important variables responsible for these individual differences among the students were explained in section 2.3. In order to provide insights into the presence of individual differences, the lowest and highest scores of each class will be outlined. Secondly, it is important to keep in mind that the present study contrasts the three main sections of the Flemish educational system (ASO, BSO and TSO), that is, each section has a different focus which will be represented in the tests. In a time span of one week, all students were confronted with the pre-test which was carried out by the teachers in the week before the spring half-term. Afterwards, all teachers assured me of the students’ unawareness of the purpose of the test by explaining that students believed the test to be the teacher’s experiment to insert some spare time for them.

Figure 12: General overview of the pre-test results (ASO, TSO, BSO)
Figure 12 represents a general overview of the pre-test results for each group. The first group that completed the pre-test consisted of the ASO students. Three classes, or 51 students, took part in the first stage of the study without being aware of the purpose of the English vocabulary list. Since these students are in their first year of secondary education, they have not yet received any instruction of the English language which is reflected in the collective average score of 46.97%. The average scores per class do not differ a lot. Group a (16 students) that was predetermined to watch the excerpt with Dutch subtitles, achieved an average score of 44.38%. Nevertheless, the highest score (83.33%) and lowest score (6.67%) of the group illustrate the presence of individual differences in one and the same class. Group b (16 students), predetermined to watch the excerpt with English subtitles, achieved an average score of 47.92% which is slightly higher than group a. Additionally, the highest and lowest scores were 86.67% and 16.67%. The last group of ASO students, group c (19 students), was predetermined to watch the excerpt without subtitles. This group had an average score of 48.60% with a highest and lowest score of respectively 90.00% and 20.00%. An overview of the highest and lowest scores of each class of the ASO group is provided in figure 13 below.
The three TSO classes (56 students) achieved an average score of 40.70% which is already about 6.00% below the average score of the ASO students. Similar to the ASO students, the three classes were predetermined to watch the excerpt in three different ways. Group a (20 students) with an average of 40.83% achieved highest and lowest scores of respectively 90.00% and 16.67%. For group b (19 students) with an average of 40.88% and group c (17 students) with an average of 40.39%, the highest and lowest scores were respectively 83.33% / 16.67% and 96.67% / 13.33% (see figure 14).

![Figure 14: Pre-test results of the TSO groups (a, b and c)](image)

Lastly, three BSO classes (30 students) completed the pre-test with an average score of 31.41%. Groups a (8 students), b (10 students) and c (12 students) obtained highest and lowest scores of respectively: 50.00% / 13.33%, 66.67% / 20.00% and 60.00% / 6.67%. A detailed overview of the pre-test results is included in figure 15.
As stated before, a difference of about 6.00% between the collective (of the three classes) averages of the ASO and TSO students and about 15.00% between the general averages of the ASO and BSO students can be observed which can be linked to the difference in focus of the various branches of the Flemish educational system (see section 3.1) because ASO offers students a more general and theoretical education, whereas TSO focuses more on the technical aspects of education and BSO concentrates especially on a vocational training. Consequently, it might be assumed that ASO students will be stronger in languages compared to the TSO and BSO students since they receive a much more theoretical education including history, languages, etc.
3.7.3 First Post-test

The pre-test provided some general insights into the level of English vocabulary knowledge of the students. The next step of the investigation consisted of the presentation of the 15-minute fragment to the students which provided them with the subtitles and a specific context for the words included in the vocabulary test. The main purpose of the first post-test was to find out whether or not incidental vocabulary acquisition took place because the students did not know that there existed a link between the vocabulary list from the pre-test and the fragment. The first post-test took place immediately after the spring half-term or about two weeks after the students filled in the pre-test and was carried out by myself. After the presentation of the fragment, I was contented to see the students’ astonishment when I handed out the vocabulary list. The teachers’ cooperation was successful and students remained unaware of the purpose until after the fragment was presented. Figure 16 provides a general overview of the first post-test scores without taking into account the different modes in which the students watched the fragment. Although all groups improved their pre-test score, the improvement was the least noticeable in the BSO group (+0.27%) in contrast to the ASO group (+3.72%) and the TSO group (+2.98%). The following sections will discuss the first post-test of the three groups separately with attention to the different types of subtitling.
3.7.3.1 ASO

The exact number of ASO students that participated in the present study is 54, however there are only 51 students included in the final calculations. Four students were not included because they were absent during one of the tests or because they had another mother tongue than Dutch. As mentioned before, the group of ASO students consisted of three classes (a, b and c) and each class watched the fragment with a different type of subtitles (Dutch, English or no subtitles).

Group a watched the fragment with Dutch subtitles and achieved an average score of 49.17% which demonstrated an improvement of 4.79% in comparison to their pre-test. This improvement was even larger than the improvement of the collective average of the three ASO classes. Similar to the pre-test, more attention was paid to the individual differences within one and the same group by outlining the highest and lowest scores of each class. As can be derived from figure 18 below, the highest score does not change from the pre-test to the first post-test, whereas an increase of 10.00% can be observed for the lowest score.
Group b watched the fragment with English subtitles and improved its average pre-test score of 47.92% with 3.75% to 51.67%. Although this increase is smaller compared to that of group a, it is remarkable because the students could only make an appeal to the subtitles in a language that was unfamiliar to them. Although the subtitles were not in the students’ mother tongue, the presence of multiple sources of information still remains a very influential factor. As the English word occurs in both the audio and the written subtitles on the screen, students might still be able to create a logical connection between the word and the meaning and subsequently recognize the words easier when they occur in a vocabulary test. As can be seen in figure 19 below, the highest and lowest scores of both the pre-test and the first post-test remained unchanged. However, this does not mean that these students did not benefit from this type of subtitles, but that the English subtitles were not helpful to all students due to the individual variables such as aptitude, motivation, etc.
The last class of ASO students, group c, watched the fragment without subtitles. As expected, this group obtained the smallest improvement because they could not depend on any written (Dutch or English) representation of the words. Nevertheless, their pre-test average score of 48.60% increased to 51.23%. Furthermore, the highest and lowest scores of the first post-test also demonstrated a small increase in comparison with the pre-test scores as can be seen in figure 20.
At the start of the investigation, 61 students were about to take part in the experiment. Due to absence or another native language than Dutch, the final number of TSO participants was reduced to 56. Before starting the discussion of the separate groups, it is interesting to look at the collective average of the TSO students which was 43.68%. Compared to the collective average of the pre-test (40.70%), the TSO students achieved an improvement of 2.98% which is a slightly smaller increase than the ASO group (3.72%), but nevertheless significant. Although the collective average increased with 2.98%, one might wonder how this improvement is reflected in the average scores of the separate classes which are represented in figure 21.
Similar to the ASO students, group a watched the fragment with Dutch subtitles and was expected to achieve the highest improvement. However, the average score of the first post-test was 41.83% which demonstrated an increase of not more than 1.00% compared to the pre-test (see figure 22). To obtain further insight in the variety of scores of group a, the lowest and highest scores will be taken into consideration. As can be seen in the table above, the highest score of the pre-test remained unchanged in the first post-test which is similar to group a from the ASO section. Furthermore, the lowest score increased from 16.67% to 20.00% and also displays similarities with the ASO group a (increase of 10.00%). In this way, the TSO students took less advantage from watching the fragment with Dutch subtitles compared to the ASO students.
The second TSO class, group b, watched the fragment with English subtitles and improved its pre-test average of 40.88% to an average of 45.09% in the first post-test (see figure 23). The increase of 4.21% is considerably higher in comparison to group a who watched the fragment with Dutch subtitles (+ 1.00%). In contrast to group a where the lowest score increased and the highest remained unchanged, the situation is reversed in group b. Students with a very low score do not seem to benefit from the presence of English subtitles, whereas the highest score increased with 6.67%.
The third TSO class, group c, watched the fragment without subtitles and was expected to achieve the least improvement (see figure 24). Nevertheless, this group recorded an increase of 3.73% from pre-test to first post-test which is even higher than group a who watched the fragment with Dutch subtitles. These results were rather surprising because both the lowest and highest score increased with a percentage of about 3.33% while no subtitles were provided.

### 3.7.3.3 BSO

The last group to complete the first post-test consisted of 30 BSO students (one absent) from the first and second year of secondary education. Before starting the discussion of the results, it is important to highlight that these results were obtained in a different way due to several reasons. First of all, the collective average pre-test result of the BSO students was 31.41% which is much lower than the collective averages of the ASO and TSO students, respectively 46.97% and 40.57%. This fairly low average indicated that the basic word knowledge of the BSO students was not as rich as compared to that of the other students involved in the present study. For this reason and because of a technical problem with the English and non-subtitled version on my DVD accompanied with a shortage of time, I decided to give all these students an equal chance at testing the influence of subtitling and presented the fragment with Dutch subtitles in each of the three classes.

Because I did not have the tripartite division of the BSO group according to the different types of subtitles that were applied, I decided to subdivide the pre-test results into two groups: a weak subgroup (from 0.00% to 46.67%) and a strong subgroup (from 50.00% and 100.00%). The analysis of the two post-tests than focussed on how these two subgroups evolved during the process. To start, the majority of the students (24) achieved a score that was lower than 50.00% and thus belonged to the weak subgroup. Consequently, the strong subgroup consisted of only six students. The weak subgroup achieved an average pre-test score of 25.00%, whereas the strong subgroup recorded an average score of 57.22% which is about twice as much. From these pre-test results, it is already clear that the group of BSO students also includes various levels of language proficiency.
After the first post-test, the average score of the weak subgroup increased from 25.00% to 25.56% which is a fairly small improvement and rather difficult to explain. Because these students belong to the weak subgroup, aptitude can be put forward as the most essential variable influencing these results. BSO students are receiving a training that is primarily focussing on the vocational aspects, and to a lesser degree on the theoretical aspects such as languages. Nevertheless, this does not count for every student in this group, since there is also a strong subgroup in this section. The strong subgroup improved its pre-test average of 57.22% to 58.89% in the first post-test. Although both groups recorded a fairly low improvement, their results did increase after watching the fragment with Dutch subtitles which means that they do pick up elements from being confronted with it. Figure 25 represents the pre-test and first post-test results of both the weak and the strong subgroup.

3.7.3.4 Comparison

The present section will provide a comparison and discussion of the different groups according to the type of subtitles that was applied. In other words, comparisons will be made between the pre-test and first post-test of the a, b and c groups of the three fields of study.
A groups (Dutch subtitles)

Figure 26 demonstrates that a distinction in level of proficiency of the English language was already present from the start of the investigation. The average pre-test score of the ASO group represented a difference of 3.55% with the TSO average and 12.97% with the BSO average. The main reason for the rather large dissimilarities can be found in the educational background of the students involved. ASO students receive a very general and broad education of which a considerable part is occupied with languages (French, Latin (optional), English and later German). TSO students receive an education that is also general, but mainly emphasizes technical subjects accompanied by practical classes. BSO students receive a vocational education which mainly focuses on the practical aspects of learning a specific occupation. Consequently, based on the (general) nature of their education, ASO students are likely to have a more developed ability to learn languages, whereas TSO and BSO students will be more likely to have a more developed ability for the technical and practical aspects of their education. Although these arguments are correct, they remain very theoretical and may not be generalised.

Figure 27 below provides an overview of the lowest and highest pre-test score of each group and underlines the fact that within one and the same group, individual differences are included. The highest and lowest scores of the BSO group are
represented by means of the actual pre-test score, whereas later on these will be replaced by the average scores of the weak and strong subgroup due to the fact that all three BSO classes watched the fragment with Dutch subtitles.

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>ASO</th>
<th>TSO</th>
<th>BSO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lowest score</strong></td>
<td>6.67%</td>
<td>16.67%</td>
<td>6.67%</td>
</tr>
<tr>
<td><strong>Highest score</strong></td>
<td>83.33%</td>
<td>90.00%</td>
<td>66.67%</td>
</tr>
</tbody>
</table>

*Figure 27: Pre-test: lowest and highest scores of a groups*

But how do Dutch subtitles influence vocabulary knowledge of these students? As mentioned before, the first post-test was filled in immediately after the fragment was presented to the students. Before the experiment, expectations were that the group who watched the fragment with Dutch subtitles would improve their results the most because the translation of the words was provided in their mother tongue on the screen. An overview of the average first post-test scores of the three groups is included in figure 26.

Although all groups improved their average pre-test score, the progression was not equally divided: ASO (+4.79%), TSO (+ 1.00%) and BSO (+0.29%). The ASO group recorded the largest improvement which can be seen as a confirmation of the fact that this field of study focuses more on a general education which includes more languages. Furthermore, the results of question 11 in the questionnaire demonstrated that these students assess their proficiency of the English language more positively because 75.00% of the ASO group a described their proficiency as sufficient to very good in contrast to 65.00% of the TSO group a and 66.00% of the BSO group a. These results also indicate that the ASO students have more self-confidence than the other students, because they are more confronted with languages in general. To find out how this improvement is reflected on the level of the individual, the lowest and highest scores are presented in figure 28 below.
A first important remark concerns the results of the BSO group. As mentioned before, the scores included in the table above represent the average scores of the weak and strong subgroup of the BSO students since all students watched the fragment with Dutch subtitles and a subdivision into three separate groups was not possible. Furthermore, both the lowest and highest scores of all groups were improved in the first post-test. Although not all groups achieved the same improvement, results underline the positive influence of Dutch subtitles on the vocabulary acquisition in the short term of these students.

**B groups (English subtitles)**

Because the BSO students all watched the fragment with Dutch subtitles, there were only two classes belonging to the ASO and TSO that watched the fragment with English subtitles. Figure 29 represents both the pre-test and first post-test averages of the b groups.
Similar to the analysis of the a group, the pre-test average of the ASO students in group b was significantly higher (+7.02) than that of the TSO students. Watching the fragment with English subtitles seemed to be influential as well because both groups recorded an increase: +3.77% for the ASO students and even almost 5.00% for the TSO students. Considering the ASO group, the improvement with English subtitles is smaller than with Dutch subtitles which comes up to my expectations. However, the reverse applies for the TSO students of which the English subtitles group achieved a higher improvement compared to the Dutch subtitles group. Last year, I experienced the same tendency in the investigation of a small group of ASO students of which the group that watched the fragment with English subtitles achieved higher scores than the group that watched the fragment with Dutch subtitles (Beauprez 2013). The lowest and highest scores of the two b groups remained more or less unchanged which means that most changes occurred in between these extremes.

C groups (no subtitles)

The c groups watched the fragment without subtitles and also consisted of only one ASO class and one TSO class. Figure 30 represents the evolution of the c groups from pre-test to first post-test. Again these results were rather surprising because the expectations were that this type would generate the least good results.

![Figure 30: Pre-test / first post-test averages c groups (ASO and TSO)](image-url)
However, the ASO group improved its pre-test score with 2.63% and the TSO group recorded an increase of 3.73%. The TSO class that watched the fragment without subtitles increased their average first post-test score even more than the TSO class that watched the fragment with Dutch subtitles which is remarkable because the former did not have written text at their disposal.

### 3.7.4 Second Post-test

![Figure 31: Overview pre-test / first and second post-test (ASO, TSO and BSO)](image)

The first post-test was filled in by the students immediately after the fragment was presented which means that it focussed on the possibility of short-term incidental vocabulary acquisition. The second post-test took place during the weeks after the Easter holidays which was about one month after the first post-test. The purpose of the second post-test was to find out whether the students also remembered the words in the long term which was tested by means of filling in the vocabulary list once more without watching the fragment. Due to the long period between the first and second post-test, expectations were that the second post-test results would decline. However, few groups demonstrated the expected decline, whereas the other groups further improved their first post-test score (see figure 31). In the next sections, the three groups will be analysed in the same way as the first post-test.
3.7.4.1 ASO

Before starting the analysis of the second post-test on the level of the separate classes, attention must be paid to the collective average of the ASO group. As can be seen in figure 32 above, the collective average of the second post-test was 50.56% which demonstrated a small decrease of 0.13% in comparison to the first post-test average of 50.69%. Although expected, this decrease was rather small which indicated that most of these students successfully remembered the words over a longer period. In order to find out which type of subtitles generated the best results, the classes will be discussed separately.
Group a watched the fragment with Dutch subtitles and improved their first post-test average with 4.79% compared to the pre-test which was in line with the expectations. The average score of the second post-test demonstrated a decrease of 0.84% in comparison to the first post-test (see figure 33). Although these results were in line with the expectations that there would be a decrease from first post-test to second post-test, the reduction was less than 1.00%. Similar to the previous tests, more attention was paid to the lowest and highest score in order to obtain a more detailed insight.

A first remarkable observation is concerned with the highest scores of the three tests which remained unchanged during the whole process. These results indicate that group a included students with a fairly high level of proficiency who did not seem to benefit from the presence of Dutch subtitles and were also able to maintain their knowledge on the long term. Another striking feature is concerned with the lowest score which does not remain unchanged. As can be seen in the figure above, there was an increase of 10.00% from pre-test to first post-test which indicated that students with a lower level of proficiency benefitted from the presence of Dutch subtitles on the short term. However, the lowest score of the second post-test clearly indicated that long-term word retention does not occur when students have a lower level of proficiency as there was a reduction of 10.00% in comparison with the first
post-test. Consequently, the lack of various sources of information especially influenced the students with a lower proficiency.

Group b watched the fragment with English subtitles and recorded an improvement of 3.75% from pre-test to first post-test which was in line with the expectations that incidental short-term vocabulary acquisition would take place. However, the expected decrease of the results was not realised in the second post-test which demonstrated an increase of 0.62% (see figure 34). Considering the lowest and highest scores of group b, it is remarkable that no changes occur from pre-test to first post-test, whereas both the lowest and highest scores increase in the second post-test.
Group c watched the fragment without subtitles and improved its pre-test score of 48.60% to 51.23% in the first post-test. Whereas the previous group was considered to be an exception, group c did come to the initial expectations as the second post-test average decreased with 0.18% (see figure 35). Similar to group a, the highest score remained unchanged from first to second post-test which might be an indication that students with a higher level of proficiency processed the information from the first post-test in a better way than the students with a lower level of proficiency. Consequently, the lower score decreased from 23.33% to 16.67% which indicates that long-term word retention after watching the fragment without subtitles is more difficult for people with a lower level of proficiency of the English language.
3.7.4.2 TSO

Looking at the collective averages of the TSO group, the average of the second post-test is rather remarkable because it is the highest and increased with 2.37% compared to the first post-test average (see figure 36). These results are striking because considering the low average score of the previous tests (compared to the ASO students), I expected that the results of the TSO students would decrease in the second post-test because of the long period between the two tests. In order to find out where this increase comes from, the classes will be discussed separately.

Figure 36: Collective averages of TSO group

Figure 37: Overview pre-test / first and second post-test TSO group a
Group a watched the fragment with Dutch subtitles, but improved their results with only 1.00% from pre-test to first post-test. However, they obtained a larger improvement (+ 1.50%) from the first post-test to the second post-test (see figure 37). Taking into consideration the lowest and highest scores of the a group, a clarification for the increase can be found. The lowest score came to the expectations to increase from pre-test to first post-test and decrease from first post-test to second post-test because of the lack of contextual cues and the rather long period between the two tests. The highest score remained unchanged from pre-test to first post-test, but increased with 6.67% from first post-test to second post-test. In this way, students with a lower level of proficiency of the English language do not benefit from the Dutch subtitles over the long term, whereas the students with a higher level of proficiency do.

Another case in which remarkable results occurred is group b who watched the fragment with English subtitles. This group recorded an increase of 4.21% from pre-test to first post-test (see figure 38). Because the first post-test was filled in immediately after the students watched the fragment, an increase of 4.21% was considered as a rather normal and very positive evolution demonstrating the short-term influence of both the subtitles and the multimedia. However, the students recorded an increase of 5.61% from first to second post-test which is extremely high in comparison to all the other groups involved in this study.
Looking at the lowest and highest score of the three tests (see figure 38), it becomes clear that the ‘abnormality’ can be found in the lowest score of the second post-test which increased with 13.33% compared to the pre-test and first post-test, whereas the highest score demonstrated a ‘normal’ tendency with a peak in the first post-test and a decline in the second post-test.

![Figure 39: Overview pre-test / first and second post-test TSO group c](image)

Group c (figure 39) watched the fragment without subtitles, but obtained a good score in the first post-test (+3.73%). Furthermore, the average score of the second post-test remained unchanged compared to the first post-test which indicated that most of the students did acquire some words in the long term. In group c, the lowest score stabilised from the first to the second post-test without an extreme increase.

### 3.7.4.3 BSO

As stated in the analysis of the first post-test, all BSO students watched the fragment with Dutch subtitles. The first post-test indicated that both the weak and strong subgroups slightly improved their results which confirmed the assumption that the combination of multiple sources of information (audio, visual, written) lead to a better understanding of the events. Moreover, the BSO students further improved their results in the second post-test. The weak subgroup recorded an increase of 1.80% (see figure 40 below) which is a fairly positive observation. Because there was a long
period between the first and second post-test, I expected that the second post-test results would decrease. However, the weak subgroup achieved an even higher score in the second post-test which indicated that these students might have been triggered to look up the meaning of the unknown words and in doing so improved their word knowledge.

![Graph showing BSO students' performance](image)

*Figure 40: Overview pre-test / first and second post-test BSO students (weak and strong subgroup)*

The strong subgroup in this analysis also improved its first post-test results with 0.55% which is a smaller increase than the weak subgroup, but nevertheless a positive observation. Consequently, one might assume that the strong subgroup also benefitted from the Dutch subtitles and was able to memorize the words in the long term.

**3.7.4.4 Comparison**

The present section will provide a comparison and discussion of the first and second post-test of the different groups (a, b and c) of the three fields of study. The main purpose of this second post-test was to find out whether or not the students were able to remember word meanings over a long period. As outlined in the previous sections, most groups did not come up to the expected decline, but even improved their second post-test results. Several reasons could account for this remarkable tendency. Firstly, during the weeks between the first and second post-test, students
may have thought about the meaning of the English words in the vocabulary list. On the one hand, it is possible that students consulted one another to find out the definite translation of the words. On the other hand, it is possible that question 17 of the questionnaire triggered the students to look up the unknown words and in doing so improved their vocabulary knowledge as demonstrated in the second post-test. Secondly, although there was supervision students might have copied notes from each other which lead to higher scores. Thirdly, the high scores could also be the result of coincidence. However, due to the fact that most groups displayed an improvement of the second post-test, the first reason seems to be the most acceptable one.

**Groups a (Dutch subtitles)**

![Figure 41: Overview of first and second post-test averages of a groups (ASO, TSO and BSO)](image)

The ASO group that watched the fragment with Dutch subtitles was the only group which did come up to my personal expectations that the second post-test results would demonstrate a decline in comparison with the results of the first post-test. This group achieved an average score of 48.33% which was 0.84% below the average of the first post-test. Nevertheless, this was a very small decrease and a positive indication of the fact that most students were able to remember some of the words over a longer period of time.
The group of TSO students recorded an average second post-test score of 43.33% which demonstrated an increase of 1.50% in comparison to the first post-test. Likewise, the BSO students also improved their first post-test results with 1.61% to 33.31%. These results were rather unexpected due to the long period between the presentation of the fragment and the first post-test on the one hand, and the second post-test on the other hand.

**Group b (English subtitles)**

![Bar chart: Overview of first and second post-test averages of b groups (ASO and TSO)](Figure 42)

Figure 42: Overview of first and second post-test averages of b groups (ASO and TSO)

Nevertheless, the unexpected increase was not restricted to the a groups as can be derived from figure 42. Both the ASO and TSO class managed to increase its second post-test score, but they did not do this to the same extent. The ASO class recorded an increase of 0.62% which can be considered as a normal and acceptable increase caused by a good memorization of the words, looking up the meaning of unknown words or a chance hit. However, the increase achieved by the TSO class was difficult to consider as a normal increase because it consisted of not less than 5.61%. Although it is possible that these students improved their results because they looked up the meaning of the unknown words, the difference with the increase of the ASO class is extreme. Therefore, it is plausible that other reasons such as cooperation among the students or coincidence are at stake.
A more regular pattern was discovered in the groups that watched the fragment without subtitles. Although the ASO class recorded a decline of 0.18%, both groups managed to maintain their acquired word knowledge from the first post-test over a longer period of time.
4 Conclusion

The main aim of the present study was to investigate the influence of subtitles on the (incidental) English vocabulary acquisition of Flemish ASO, TSO and BSO students prior to instruction. To this end, the students watched a 15-minute English-spoken cartoon with different types of subtitles. At the start of the investigation, expectations were high for the effect of Dutch subtitles for two reasons. Firstly, Cabrera & Bartolomé (2005) stated that interlingual subtitles are the most common type of subtitling. Secondly, the majority of English-spoken television programmes broadcast in Flanders are provided with Dutch subtitles which leads to the assumption that Flemish students are likely to be accustomed to the interlingual subtitling type. The present study included students from the three sections of the Flemish educational system, namely ASO, TSO and BSO. As outlined in section 3.1, each field of study offers the student a specific type of education that caters for the capacity of the individual which means that there may also be differences in the level of language proficiency among the three types of education. Nevertheless, one must keep in mind that each group of students, regardless of the type of education, will contain differences caused by individual factors such as language aptitude, motivation, attitude and self-confidence. In order to demonstrate these individual differences, the highest and lowest scores of each group were outlined during the investigation. After analysing and discussing our results, this last chapter will attempt to provide an adequate answer to the research questions.

To start, the first research question was concerned with whether there would be a significant difference in the degree of acquisition among the students from the different levels of education involved. In order to answer this question properly, average scores (in %) of the three groups will be used without taking into account the way in which the separate classes watched the fragment. The pre-test demonstrated that the three groups that participated in the present study differed from each other in level of proficiency right from the start. The ASO students achieved an average score of 46.97% which exceeded the average of the TSO and BSO students of 40.70% and 31.41% respectively. The main reason for the rather large difference in pre-test scores can be attributed to the fact that ASO, TSO and BSO are three different sections in the Flemish educational system and consequently offer the students
distinct types of education. As outlined in section 3.1, ASO provides students with a very theoretical, broad and general education including several languages, history, etc. TSO and to a larger degree BSO students receive an education that is also general, but focuses more on the technical and practical aspects of learning. Due to the nature of their education, ASO students were assumed to perform better than the TSO and BSO students and this assumption was confirmed by the pre-test results.

To find out whether there was a difference in the degree of acquisition among the three groups, closer attention must be paid to the average scores of the first and second post-test. The average first post-test scores demonstrated that all groups improved their results, ASO students achieved an average of 50.69%, TSO students recorded an average of 43.68% and the BSO students obtained an average score of 31.68%. Although all scores increased, the three groups did not improve to the same extent. Compared to the pre-test, the ASO students recorded an increase of 3.72%, the TSO students 2.98% and the BSO students only 0.27%.

The last phase of the investigation was considered as the ultimate test to find out whether the students acquired the English vocabulary in the long run or not. In the second post-test, the ASO students recorded an average score of 50.56%, the TSO students achieved a score of 46.05% and the BSO students obtained a score of 33.31%. Compared to the first post-test, the score of the ASO students declined with 0.13%, whereas the TSO and BSO students improved their results with 2.37% and 1.63%. In order to discover whether all groups acquired the English vocabulary to the same extent, the overall percentage of improvement from pre-test to second post-test must be taken into consideration. Surprisingly, the TSO students achieved the largest increase of 5.35% from pre-test to second post-test, followed by the ASO students with an increase of 3.59% and the BSO students who recorded a 1.90% increase. Although it is hard to formulate a definite cause for the surprising results, several reasons can be brought forward. Firstly, the pre-test already pointed out that the initial levels of proficiency differed among the three groups with the ASO group as the one with the highest pre-test score. Consequently, due to the already high pre-test score, one could assume that the ASO students did not have much room left for improvement in contrast to the TSO and BSO students. Secondly, the large increase of the TSO students can be explained by referring to the fact that these students
spend much of their leisure time playing games and watching online videos. Moreover, TSO students are likely to be good in informatics which also includes many English terms. Furthermore, the fact that all groups did improve their pre-test score seems to confirm the observations made Mayer (2005) and Chun & Plass (1996) who stated that when words are accompanied by different types of media, an increase of acquisition takes place. Likewise, the fragment from Finding Nemo contained multiple sources of information such as visual imagery, written text and audio which all helped to increase the possibility to memorize the meaning of the words included in the vocabulary list because “visual imagery is a very useful semi-contextualizing aid for learning L2 vocabulary. The use of visual imagery for vocabulary learning is based on making associations between a picture and a word” (Oxford & Crookal 1990: 16).

The second research question was concerned with which type of subtitles would generate the best results and whether this would apply for the three groups (ASO, TSO and BSO). A first important remark is concerned with the BSO students because they all watched the fragment with Dutch subtitles for reasons outlined in the previous sections. Consequently, the results of these students will be discussed separately later on in the present paragraph. In order to provide adequate and clarifying results of which type of subtitling generated the best results, each subtitling type is represented through the average score of one group of participants consisting of both ASO and TSO students. The group that watched the fragment with Dutch subtitles (a groups of ASO and TSO) achieved an average first post-test score of 45.50% (pre-test average: 42.61%) which further increased to 45.83% in the second post-test. Although the Dutch subtitles group performed well, the other groups performed even better which was unlike the expectations. The group that watched the fragment without subtitles recorded an average first post-test score of 47.59% (pre-test average: 44.39%) which more or less remained unchanged (47.59%) in the second post-test. Nevertheless, the highest score throughout the post-tests was achieved by the group that watched the fragment with English subtitles and ranged from 48.78% in the first post-test (pre-test average: 44.39%) to 51.50% in the second post-test. Consequently, English subtitles generated the best results regardless of the levels of education (ASO, TSO and BSO) of the students involved in the present study.
These results did not meet the initial expectations that Dutch subtitles would generate the best outcome and confirm the findings of my Bachelor paper (Beauprez 2013) in which English subtitles also generated the best results for intermediate learners of English. However, another previously conducted study by Holbrecht (2012) dealt with the same subject with advanced learners of English and concluded that Dutch subtitles generated the best results. Although the general results demonstrated that English subtitles generated the best results, one might wonder which type of subtitling benefitted the different educational sections involved in this study the most. To this end, the percentage of improvement from pre-test to first post-test will be used to outline the influence of the subtitling type. To start, the BSO students all watched the fragment with Dutch subtitles and unfortunately it was not possible to test the potential influence of the other types. Nevertheless, the BSO students improved their pre-test average score of 31.40% to 31.70% which was a very small increase of 0.29%. The reason for this rather small increase is hard to define because these students were really enthusiastic about the whole experiment and the film Finding Nemo. Consequently, a possible explanation for the small increase could be that these students watched the fragment very attentively, but did not pay much attention to the subtitles which led to a smaller degree of association between the English word and the Dutch translation.

Furthermore, the ASO group that watched the fragment with Dutch subtitles achieved an increase of 4.79% and performed better than the ASO group that watched the fragment with English subtitles which means that in the present study ASO students benefitted the most from Dutch subtitles. Results of the TSO students represented the opposite because the TSO students who watched the fragment with English subtitles improved their pre-test score with 5.00% which means that in the present study, TSO students benefitted the most from the English subtitles. These results were rather surprising and it is not possible to formulate a definite explanation. However, one could assume that the ASO students perform better when Dutch subtitles are provided because they are more able to transfer and associate the English audio to/with the Dutch translation. Consequently, one could assume that the TSO students were more able to create associations between the English audio and the English word in the list because these students are more likely to spend more of their leisure time on playing games and watching online videos.
Furthermore, the lowest and highest scores of all tests were outlined in order to provide insights into the individual differences in each group. Taking into consideration the lowest scores of the students who watched the fragment with Dutch subtitles seem to confirm Bianchi & Ciabattoni’s observation that individuals with a lower level of proficiency benefit the most from interlingual subtitles because the scores increased from 6.67% (ASO), 16.67% (TSO) and 25.00% (weak subgroup BSO) to 16.67% (ASO), 20.00% (TSO) and 25.56% (BSO).

The final research question intended to investigate whether students acquired the vocabulary for a short or longer period. The short-term acquisition of vocabulary was tested by means of the first post-test which was carried out immediately after the presentation of the fragment. All students improved their pre-test score which demonstrated the short-term effect of the different types of subtitles. About a month later, the second post-test was carried out in order to test the long-term effect of the different types of subtitles. Initial expectations were that results would decline from first to second post-test due to the rather long period between the two tests. However, the second post-test results displayed very inconsistent results ranging from a decline of 0.84% to unchanged and an increase of 5.61%. Due to the large differences included in these results, it is not possible to draw a definite conclusion concerning the long-term effect of subtitles in the present study. Nevertheless, a possible reason for the increase of the second post-test results can be that students consulted each other on the meaning of the words or that students were triggered by question 17 in the question which was concerned with the occurrence of unfamiliar words and how to deal with them.

To conclude the present research on the influence of subtitles, answering the research questions provided useful results and insights. Nevertheless, results also highlighted that there are still many insecurities about which type of subtitling is most beneficial and how this is related to the level of proficiency of the participants. Therefore, further research on the influence of subtitling must be carried out with a larger group of participants in order to obtain more definite results.
5 References


Ma, Qing. 2009. Second Language Vocabulary Acquisition. Bern: Peter Lang AG.


### 6 Appendices

#### 6.1 Appendix A: Vocabulary list

Hieronder vind je een lijst met Engelse woorden! Vul de correcte Nederlandse vertaling ervan in! Zn. = zelfstandig naamwoord; Bn. = bijvoeglijk naamwoord; Ww. = werkwoord; Bw. = bijwoord; Vw. = voegwoord

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<td>2)</td>
<td>Whole <em>(Bn.)</em></td>
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<td>3)</td>
<td>To breathe <em>(Ww.)</em></td>
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<td>4)</td>
<td>The neighbourhood <em>(Zn.)</em></td>
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<td>20)</td>
<td>To remember <em>(Ww.)</em></td>
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21) Forever (Bw.)

22) To sing (Ww.)

23) The food (Zn.)

24) Big (Bn.)

25) Because (Vw.)

26) To be afraid (Ww.)

27) To gather (Ww.)

28) A class (Zn.)

29) A tail (Zn.)

30) Gone (Bn.)
6.2 Appendix B: Questionnaire

Woordenschatonderzoek

1. Naam: ________________________________________________________________
2. Klas: __________
3. Leeftijd: ______ jaar.
4. Wat is je moedertaal? Spreek je nog andere talen thuis?
   ________________________________________________________________
5. Ben je al eens naar een land geweest waar men Engels spreekt? Waar?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
8. Kom je soms in contact met mensen die Engels spreken? Wie en op welke manier (brief, gsm, internet)?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
9. Vind je het belangrijk om Engels te kunnen spreken, schrijven en begrijpen? Waarom wel of niet?
   ________________________________________________________________
   ________________________________________________________________

11. Hoe schat jij jouw kennis van de Engelse taal in?
   Heel goed 0  Goed 0  Voldoende 0  Onvoldoende 0

12. Kijk je veel naar Engelstalige programma’s met Nederlandse ondertiteling? Hoeveel uur per dag? Hoeveel dagen in de week? Welke programma’s (of games)?
   _______________ uur per dag  //  _______________ dagen per week
   Bv.__________________________________________________________

13. Kijk je veel naar Engelstalige programma’s met Engelse ondertiteling?
   Hoeveel uur per dag? Hoeveel dagen in de week? Welke programma’s (of games)?
   _______________ uur per dag  //  _______________ dagen per week
   Bv.__________________________________________________________

14. Kijk je veel naar Engelstalige programma’s zonder ondertiteling?
   Hoeveel uur per dag? Hoeveel dagen in de week? Welke programma’s (of games)?
   _______________ uur per dag  //  _______________ dagen per week
   Bv.__________________________________________________________
15. Op welke manier bekijk je deze Engelstalige programma's dan? TV, DVD, online...
______________________________________________________________
______________________________________________________________
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17. Indien je naar een Engelstalig programma kijkt en er is een woord dat je niet direct begrijpt: zal je het woord achteraf opzoeken in een woordenboek of proberen af te leiden uit de Nederlandse ondertiteling? Of besteed je er geen verdere aandacht aan?
______________________________________________________________
______________________________________________________________
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18. Bekijk je een Engelstalig programma liever met de Nederlandse ondertiteling of in een gedubde versie?
______________________________________________________________
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19. Denk je dat de ondertiteling je helpt om je kennis van de Engelse taal te verbeteren? Leg uit.
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Thank You!!!
6.3 Appendix C: Test results

6.3.1 ASO

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**Gemiddelde**  
40,88%  45,09%  50,70%
**Group c**

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**Gemiddelde**  40,39%  44,12%  44,12%
### 6.3.3 BSO

#### Group a

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#### Group b

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### Group c

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**Gemiddelde** 30,56% 35,56% 37,50%