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Investigating the role of individual differences in learning English as a foreign language in a blended learning environment

Różnice indywidualne w uczeniu się języka angielskiego jako obcego w środowisku blended learning

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OŚWIADCZENIE

Ja, niżej podpisana **Edyta Olejarczuk** przedkładam rozprawę doktorską pt: *Investigating the role of individual differences in learning English as a foreign language in a blended learning environment* na Wydziale Anglistyki Uniwersytetu im. Adama Mickiewicza w Poznaniu i oświadczam, że napisałam ją samodzielnie. Oznacza to, że przy pisaniu pracy, poza niezbędnymi konsultacjami, nie korzystałam z pomocy innych osób, a w szczególności nie zlecałam opracowania rozprawy lub jej części innym osobom, ani nie odpisywałam tej rozprawy lub jej części od innych osób. Oświadczam również, że egzemplarz pracy dyplomowej w formie wydruku komputerowego jest zgodny z egzemplarzem pracy dyplomowej w formie elektronicznej.

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Introduction

It is beyond doubt that learning a foreign language is a complex phenomenon and that some people learn faster achieving more spectacular results than others, which is aptly noted by Segalowitz (1997: 85), who claims: "Why do individuals differ so much in second language (L2) attainment? After all, every healthy human being in an intact social environment masters a first language to a degree of fluency that, in other skill domains, would be recognized as elite or near elite levels (…)". Therefore, in the past decades a number of applied linguists have invested a large amount of effort into trying to identify, name, classify, and describe the individual learner variables in respect of which people differ in order to examine what accounts for learners' differential success in foreign language (FL) learning. This was summarized by Larsen-Freeman and Long (1994: 153), who state: "one of the major conundrums in the SLA field is the question of differential success". These individual learner factors have been classified into the following broad categories: *cognitive*, *affective*, and *social* (Pawlak 2012a). Although numerous scholars give priority to learners' *motivation* (Dörnyei 2005a) or *foreign language aptitude* (Rysiewicz 2004) as factors determining the ultimate achievement, quite a few experts also share the present researcher's opinion that such variables as *language learning strategies* or *learning styles preferences* may shape the trajectories of FL learning and, therefore, should not be ignored.

It is also true that ubiquitous computing and round-the-clock access to the Internet, which provides a great number of web 2.0 tools, have opened new horizons for FL learning and teaching and increased the need for teacher training and professional development. With the advent of modern technologies and new ways of learning that were unknown several years ago, it is clearly interesting to investigate learner individual differences (IDs) in different computer-assisted FL learning environments, such as *face-to-face*, *distance*, *virtual* or *blended learning*. Additionally, because of the fact that, obviously, students learn in a variety of different ways and no single methodology is effective for all of them, it would be

useful to look at learners' beliefs about Computer Assisted Language Learning (CALL) and types of instruction that they are likely to benefit from. Although research on individual learner differences has proliferated in the last decades and the area of CALL has received increased attention in the past few years, there are only few extensive, state-of-the-art studies conducted among English for Specific Purposes students in which FL learning was aided by CALL. Thus, the study reported in the current dissertation is an attempt to fill the existing gap and dispel some of the myths surrounding the place of the computer medium in the EFL classroom. What is more, the topic appears to be fascinating and challenging at the same time. It should be also emphasized that the research project discussed in this dissertation largely stems from the present researcher's own experience as a language learner and a foreign language teacher.

It is interesting to note that this research project, exploring the relationship between IDs and CALL, is significant for several reasons. First of all, it may help EFL curricula designers and methodologists develop teaching materials which would suit various ways of teaching and learning and match students' level of L2 achievement. Moreover, this study may aid students by helping them to learn in a more enjoyable and effective manner by, for example, using an array of language learning strategies. Furthermore, this research project may encourage other researchers to conduct further studies on the same topic. Finally, the outcomes of the study will extend Polish and international literature on the influence of individual learner variables on FL attainment aided by CALL. In this dissertation, an attempt is made to explore the impact of selected cognitive and affective characteristics on ESP technical university students' achievement in a blended learning environment. In addition, the effectiveness of the two types of instruction, i.e. *face-to-face* and *blended learning* is investigated with respect to learners' beliefs about CALL. These objectives are achieved by employing a mixed methods research approach, which reconciles both *quantitative* and *qualitative* data collection procedures.

The current dissertation consists of five chapters, of which the first three are intended as a review of relevant theoretical background and the remaining ones present and discuss methodological considerations and findings of the empirical investigation. To be more precise, Chapter 1 explains basic terms in individual learner differences research and presents definitions, conceptualizations and classifications of the leading IDs, with particular attention being given to the factors that are the main focus of the current thesis, i.e. *language learning strategies*, *learning styles*, *foreign language aptitude*, and *motivation*.

Chapter 2, in turn, meant as an overview of the key issues related to Computer Assisted Language Learning, focuses on the definitions of CALL adopted for the purpose of this work and the vital distinctions between various CALL environments. A separate section is devoted to the importance of different CALL applications, or ways of harnessing computers for the purpose of FL learning, which is followed by a discussion of the main research directions into CALL. In Chapter 3, the emphasis is shifted to empirical investigations of the relationship between distinct IDs and CALL by first outlining a framework for conducting such studies, and subsequently presenting and discussing their methodology and main findings with respect to the effectiveness of specific types of instruction, the software used, and other mediating variables. The focus of attention in Chapter 4 is on the methodological considerations related to the study described in this thesis. This chapter includes information concerning the design, participants of the study as well as procedures applied throughout the process of data collection, data analysis and the interpretation of the results. Finally, Chapter 5 reports the findings of the research project, with the analysis and discussion of the results being followed by a set of tentative suggestions which, in the opinion of the author, could prove useful to foreign language teachers and instructors. The thesis closes with a conclusion that offers a summary of the most vital points touched upon throughout this dissertation, provides a set of pedagogical implications for FL teachers and researchers, and considers the possible objectives of future research endeavours and the ways in which these can be pursued. Being fully aware of the limitations of the current study and the tentative nature of the pedagogical recommendations, the present researcher hopes that these practicable solutions will contribute to increased efficiency of CALL-aided foreign language instruction among learners who aim at becoming competent users of English as a foreign language.

Chapter 1: Individual Differences in Second Language Acquisition

Introduction

There is a plethora of unique differences that account for an individual's success in the learning of a second/foreign[1] language. The study of language learner characteristics in respect of which people differ has a long tradition in foreign language studies and nobody would undermine the importance of such factors as motivation or aptitude. Accordingly, there is a vast number of articles and books devoted to this topic. The present chapter begins with an attempt to provide definitions of IDs, outlining different taxonomies proposed by various authors. For the purpose of this work, individual differences are divided into three broad categories of cognitive, affective, and social variables. Due to the fact that the scope of this chapter is limited, the discussion will mainly be confined to such factors as: intelligence, aptitude, cognitive/learning styles, learning strategies, age, motivation, personality, anxiety, self-esteem, willingness to communicate, as well as gender and beliefs. The selection of the IDs is dictated by the present author's belief that these particular variables appear to be the most promising areas of research in the field of Second Language Acquisition (SLA) and several of them were the focus of the study reported in the empirical part of the dissertation.

[1] In this thesis, the terms *foreign/second* language are used interchangeably.

1.1. Definitions and taxonomies of individual differences (IDs)

It is a common observation that people differ from each other, yet it is less obvious why and how they differ. The field of study that deals with individual and group differences in human behaviour is called differential psychology. As Revelle et al. (2011: 3) summarized in *the Wiley-Blackwell Handbook of Individual Differences*, "The study of individual differences include the study of affect, behavior, cognition and motivation as they are affected by biological causes and environmental events". Furthermore, researchers in the field of SLA have been interested in the individual differences between people learning their second, third or even fourth foreign language. A number of psychologists and applied linguists have made attempts to define, describe and classify individual differences in order to identify factors that account for success in learning a second/foreign language. As Cohen (2010: 161) explains, "When students embark on the study of an L2, they are not merely 'empty vessels' that will need to be filled by the wise words of the teacher; instead, they carry a considerable 'personal baggage' to the language course that will have a significant bearing on how learning proceeds". Indeed, a handful of factors of the learner's 'baggage' can potentially affect success in foreign language learning. Among them, there are variables that are relatively easily identifiable, such as *age* or *gender*, and those that are much more difficult to grasp, mainly due to problems involved in their measurement, such as *intelligence*, *aptitude*, *motivation*, *learning styles*, *learning strategies* or *personality factors*.

It is interesting to note that it is not very complicated to find definitions of individual differences in the literature. Strelau (2006) explains that the notion of individual differences is connected with the fact that entities, both human beings and animals, that belong to the same population are different in respect of comparable physical and mental characteristics. Dörnyei (2005a: 1), in turn, argues, "As the term suggests, individual differences (IDs) are characteristics or traits in respect of which individuals may be shown to differ from each other". In another of Dörnyei's (2006: 42) publications, he explains, "Individual differences (IDs) refer to dimensions of enduring personal characteristics that are assumed to apply to everybody and on which people differ by degree. In other words, they concern stable and systematic deviations from a normative blueprint". Even though the definitions presented above do not seem to be controversial, some problems arise with particular individual variables—for example, applied linguists have not been able to reach a consensus on whether learning styles can be equated with cognitive styles or to what extent intelligence is a part of foreign language aptitude. This brings about a problem with taxonomies of indi-

vidual differences which have been provided by various researchers according to differing criteria. As Ellis (1985: 10) claims, "The learner factors that can influence the course of development are potentially infinite and very difficult to classify in a reliable manner". Table 1.1. presents an overview of selected classifications of individual learner differences in chronological order proposed by different researchers. As can be seen from this list, classifications of individual variables have proved to be problematic as different scholars focus on various characteristics, which then are grouped into separate categories. For example, Dörnyei (2006) enumerates five most important ID variables while Cohen (2010) suggests only two categories which embrace many factors.

Table 1.1. Taxonomies of individual learner differences.

researcher	taxonomy
Ellis (1985)	personal factors and general factors
Gardner (1985)	language aptitude, personality, attitudes, motivation and orientation
Cook (1991)	motivation, aptitude, learning strategies, age, personality, other individual variation
Larsen-Freeman and Long (1994)	age, aptitude, socio-psychological factors, personality, cognitive style, hemisphere specialization, learning strategies, other factors
Williams and Burden (1997)	intelligence, cognitive style, motivation, anxiety, aptitude and learning strategies
Brown (2000)	styles and strategies, personality factors, sociocultural factors, age, aptitude and intelligence
Ehrman et al. (2003)	learning styles, learning strategies and affective variables
Dörnyei and Skehan (2003)	aptitude, cognitive and learning styles, learner strategies and motivation
Ellis (2004)	abilities, propensities, learner cognitions about L2 learning and learner actions
Dörnyei (2006)	personality, aptitude, motivation, learning styles and learning strategies
Johnson (2008)	cognitive variables, affective variables, personality variables and learning strategies
Pawlak (2009)	age, intelligence, aptitude, cognitive and learning styles, learning strategies, motivation, anxiety, beliefs and willingness to communicate
Cohen (2010)	characteristics outside the teacher's control and characteristics that can be shaped during the process of second language learning

Starting with the taxonomy proposed by Ellis (1985), one can observe that individual differences are divided into two broad categories: *personal* and *general* factors. The former refer to individuals' L2 learning and include nesting patterns, transition anxiety and the desire to maintain a personal language learning agenda. The latter were further divided into modifiable and unmodifiable factors and, as the name suggests, *modifiable* factors are those

than can be changed during the course of Second Language Acquisition, e.g. motivation, and *unmodifiable* factors are those which cannot be manipulated to some extent, e.g. aptitude. Ellis also concludes that there are social, cognitive and affective aspects of both personal and general factors. Gardner (1985), in turn, chooses to discuss language aptitude together with personality in one chapter and attitudes with motivation in another, and treats orientation as a distinct concept from motivation dividing it into two types: *integrative* and *instrumental*. Such a selection of IDs was probably dictated by Gardner's interest in those individual learner factors, motivation in particular. Cook (1991) provides a selection of individual differences singling out the following variables: motivation, aptitude, learning strategies, age, personality and other individual variation. What is surprising in this taxonomy is the fact that he only briefly discusses the issue of cognitive style as well as the introvert/extrovert distinction under the label of personality, and uses the term *other individual variation* for such factors as intelligence, sex differences, command of the first language or empathy, providing only a very brief sentence description for each of the variables. Larsen-Freeman and Long (1994) devote one chapter, entitled *Explanations for differential success among second language learners*, to eight IDs categories. They further divide some of the sections into the following subsections: socio-psychological factors into motivation and attitude; personality into self-esteem, extroversion, anxiety, risk-taking, sensitivity to rejection, empathy, inhibition, tolerance of ambiguity; and cognitive style into field independence/dependence category width, reflectivity, impulsivity, aural/visual, and analytic/gestalt. Finally, they discuss six IDs which they label *other factors*, that is (1) memory, awareness, will, (2) language disability, (3) interest, (4) sex, (5) birth order, and (6) prior experience.

Williams and Burden (1997), first of all, divide individual differences into two categories: *obvious* (age, gender, personality, aptitude, intelligence and motivation) and *less obvious* (cognitive styles and strategies, anxiety and preparedness to take risks). Secondly, they briefly describe such individual variables as intelligence, cognitive style, motivation, anxiety, aptitude, learning strategies and, finally, decide to devote two whole chapters to motivation and learning strategies. Brown (2000) makes a distinction between styles and strategies, personality factors (self-esteem, inhibition, risk-taking, anxiety, empathy, extroversion/introversion, and motivation), sociocultural factors, age, aptitude and intelligence, and discusses them in separate chapters. It is interesting to note that he views motivation as a personality factor, which might be regarded as a somewhat surprising idea. Ehrman et al. (2003) focus their attention on learning styles, learning strategies and affective variables,

i.e. motivation, self-efficacy, tolerance of ambiguity, and anxiety. They also mention other areas of individual differences, such as aptitude, gender, culture, age and other demographic variables. Dörnyei and Skehan (2003) organize their article on IDs in SLA into four main sections: foreign language aptitude, cognitive and learning styles, learner strategies, and motivation, deciding at the same time to omit some individual variables, not describing, for example, personality. Another scholar providing a taxonomy of factors responsible for individual differences in L2 learning is Ellis (2004), who divides them into four categories: abilities, propensities, learner cognitions about L2 learning and learner actions. The first category, that is *abilities*, refers to cognitive capabilities for language learning and comprises such factors as intelligence, language aptitude and memory. *Propensities* can be defined as cognitive and affective qualities, such as learning style, motivation, anxiety, personality, and willingness to communicate. *Learner cognitions* about L2 learning include learner beliefs and learner actions equated with learning strategies. Ellis does not describe some of the other important individual variables, among which age is the most conspicuous, justifying his decision by the fact that the four main categories do not comprise age; they are rather affected by it. He also implies that age is too broad an area and requires separate treatment. Dörnyei (2006), in turn, introduces an overview of five individual factors which comprise personality, aptitude, motivation, learning styles and learning strategies, all of which he sees as the most important ID variables. Johnson (2008) in his introductory course to foreign language learning and teaching groups individual differences into *cognitive variables* (intelligence and aptitude), *affective variables* (motivation and attitude), *personality variables* (extroversion/introversion, tolerance of ambiguity, empathy or ego permeability, and cognitive style), and *learning strategies*. This taxonomy appears to be incomplete, taking into consideration the fact that the scholar does not mention some important factors, the most notable of which is age.

Two of the recent individual differences taxonomies have been proposed by Pawlak (2009) and Cohen (2010). Pawlak (2009) confines his discussion to the following IDs: age, intelligence, aptitude, cognitive and learning styles, learning strategies, motivation, anxiety, beliefs and willingness to communicate, which are grouped into four categories. Firstly, he describes age, intelligence, and aptitude, which he regards as cognitive in nature and makes the comment that such factors cannot be controlled by the teacher or the learner. Secondly, he enumerates cognitive styles, learning styles and learning strategies which are, as is the case of age, intelligence and aptitude, *cognitive* in nature, but can be manipulated externally to some extent. Thirdly, the scholar focuses on motivation, which is clearly subject to

change and, finally, he discusses anxiety, beliefs and willingness to communicate. Cohen (2010) elects to focus on individual characteristics outside the teacher's control and such factors that can be shaped during the process of second language learning. Among the former he includes age, gender and language aptitude; whereas the latter comprise learning styles, learning strategies and motivation, which, in his view, are interrelated in a variety of ways.

It should be stated that many of the variables mentioned above cannot be affected by the teacher or are generally considered to be stable factors, among them: age, gender, aptitude, intelligence or some personality traits. There are, however, factors that can be shaped to some extent through appropriate training, e.g. learning strategies or motivation, in order to help learners achieve better results in foreign language learning. All things considered, it should be stated that further attempts should be made in order to provide one inclusive taxonomy of individual learner differences.

1.2. Overview of selected individual learner differences

In the present thesis, the individual learner differences are classified into three broad categories: cognitive, affective, and social variables. While a variety of definitions of the aforementioned terms have been suggested, this dissertation will use the definition proposed by Ellis (1985: 100):

> Social aspects are external to the learner and concern the relationship between the learner and native speakers of the L2 and also between the learner and other speakers of his own language. Cognitive and affective aspects are internal to the learner. Cognitive factors concern the nature of the problem-solving strategies used by the learner, while affective factors concern the emotional responses aroused by the attempts to learn a L2.

The subsequent parts of subsection 1.2. will be devoted to describing the three categories of individual variables with more emphasis being laid on the factors that are the main focus of the empirical investigation reported in the present thesis.

1.2.1. Cognitive variables

There are two sets of intellectual qualities connected with second or foreign language learning, both of which are cognitive in nature. The first one, more general, is *intelligence* and the other one is *aptitude* that specifically refers to learning a language. Therefore, this section will begin with a description of these two individual learner differences, followed by a discussion of other cognitive variables such as cognitive styles and learning styles, learning strategies, and age.

1.2.1.1. Intelligence

The field of intelligence research has been of great interest to numerous researchers over literally hundreds of years, mainly due to the fact that this topic appears to be inherently fascinating. However, there has been considerable disagreement concerning the definition and structure of intelligence because, as Sternberg (1985: 3) points out, "Intelligence is among the most elusive of concepts". Williams and Burden (1997: 17) claim, "Intelligence is a topic about which a great deal has been written, but about which most teachers continue to feel confused".

In fact, although the area of intelligence has been widely researched and a great number of definitions have been proposed, there is not one universally accepted definition of the concept. Ellis (1985: 110), for example, defines intelligence in the following way: "Intelligence is the term used to refer to a hypothesized 'general factor' (often referred to as the 'g' factor), which underlies our ability to master and use a whole range of academic skills". Brown (2000: 100) argues, "Intelligence has traditionally been defined and measured in terms of linguistic and logical-mathematical abilities". Lightbown and Spada (2006: 57), in turn, explain that, "The term 'intelligence' has traditionally been used to refer to performance on certain kinds of tests". Komorowska (2009) maintains that the concept of intelligence is not narrowly defined yet and that intelligence is often connected with the ability to cope with a new situation. Dörnyei (2005a) distinguishes between ability, aptitude and intelligence and claims that intelligence is a synonym for the first of these. Williams and Burden (1997: 19) summarize the introductory chapter to their book on individual differences in the following way: "Intelligence is what psychologists call a hypothetical con-

struct, a term of convenience to account for something that doesn't really exist". Finally, an overview of intelligence definitions by different authors and sources is offered by Legg and Hutter (2007: 22), who come up with their own, informal definition of the notion, which is: "Intelligence measures an agent's ability to achieve goals in a wide range of environments".

In addition to trying to define the concept, attempts have been made to find out how to measure intelligence and what components it consists of. An important scholar who contributed to intelligence research development was William Stern, a German psychologist and philosopher, who coined the term *Intelligence Quotient* (IQ). At the beginning of the 20th century, intelligence was thought to be a factor contributing to foreign language learning to a large extent. The question was if high scores on IQ tests could predict success or failure in all four language skills, i.e. listening, speaking, reading and writing to the same extent. When immersion programmes started to be developed in Canada, Genesee (1976) attempted to find out whether those programmes could be equally successful with both highly intelligent and less intelligent children. He correlated French achievement tests and intelligence test scores; however, he did not find any relationship between intelligence and what he described as *communication skills*, i.e. speaking and listening. By contrast, he did find a relationship between intelligence and what he labelled as *academic language skills* — reading and writing. Genesee's finding led to a conclusion that intelligence is related to foreign language learning in respect of certain language skills. A few years later, Cummins (1980) made a distinction between what he defined as *basic interpersonal communicative skills* (BICS) and *cognitive/academic language proficiency* (CALP), and found out that IQ test scores were related to the latter.

As mentioned earlier, attempts have been made to describe what components intelligence includes. As Sternberg (1996: 11) comments, "On no question about intelligence has there been greater disagreement among psychologists than on the question of its structure. Undoubtedly, describing all theories of intelligence in detail would go beyond the scope of this chapter. Therefore, only the best-known ones will be briefly described. It seems reasonable to start the discussion with a British educational psychologist, Charles Spearman (1904), who claimed that intelligence is composed of two kinds of factors: *specific factors* (s), unique to the tasks used to measure intelligence, and a *general factor* (g) common to all meaningful activities, the latter of which "has generated considerable controversy" (Kane and Brand 2003: 7). Thurstone (1938) believed in the existence of the fol-

lowing seven primary mental abilities: verbal comprehension, word fluency, number facility, special visualization, associative memory, perceptual speed and reasoning. Guilford (1967) distinguished three components of intelligence which are: operations (five kinds), contents (five kinds), and products (six kinds). Due to the fact that all three subcategories are independent, they are multiplicative and, as a consequence, they form a large cube of 150 different factors. Another conceptualization of intelligence was presented by Goleman (1995), who named it *emotional intelligence*, in which emotion is placed at the higher level of human abilities hierarchy.

Yet another theory of intelligence that was proposed was a theory of fluid intelligence and crystallized intelligence. Its author Raymond B. Cattell (1967: 209) argued:

> According to the theory of fluid and crystallized general ability, there is not one general ability factor, as originally propounded by Spearman (1904) and supported by Thurstone (1938), but two. It states that these two broad factors are distinguishable by one, crystallized intelligence, gc, loading most heavily the culturally acquired judgmental skills, while the other, called fluid ability, gf, is found loading insightful performances in which individual differences in learning experience play little part.

According to Cattell, the famous/infamous *g factor* of intelligence is composed of two abilities: *fluid* and *crystallized*. The former involves the ability to reason and solve problems; whereas the latter refers to knowledge and skills that are accumulated over a lifetime, and tends to increase with age. As can be seen above, there were researchers who distinguished only two components of intelligence (Spearman 1904) and those who postulated the existence of as many as 150 of them (Guilford 1967). As Gardner and Moran (2006: 227) put it succinctly, "the debate of whether intelligence is a singular individual quality or a plethora of components (…) has waxed and waned throughout the 20th century".

Apart from the general intelligence theories briefly discussed earlier, somewhat more promising perhaps appear to be Gardner's (1983) *Theory of Multiple Intelligences* and Sternberg's (1985) *Theory of Successful Intelligence*, which are specifically related to language learning. Gardner, a Harvard psychologist, argued that instead of viewing intelligence as a unitary construct, it should be considered as being composed of different kinds of intelligences. The theory that he advanced was revolutionary at the time it was proposed and, as Gardner (1983: 5) explains, "[It] challenges the classical view of intelligence that most of us have absorbed explicitly (from psychology or education texts) or implicitly (by living in a culture with strong but possibly circumstanced view of intelligence)". Gardner

listed seven intelligences, which are presented in Table 1.2., arguing that all people possess all of these intelligences; however, different types of intelligence predominate in different individuals.

Table 1.2. The seven intelligences (adapted from Gardner and Hatch 1989).

The seven intelligences		
Intelligence	End-states	Core components
Logical-mathematical	Scientist Mathematician	Sensitivity to, and capacity to discern, logical or numerical patterns; ability to handle long chains of reasoning.
Linguistic	Poet Journalist	Sensitivity to the sounds, rhythms, and meanings of words; sensitivity to the different functions of language.
Musical	Composer Violonist	Abilities to produce and appreciate rhythm, pitch, and timbre; appreciation of the forms of musical expressiveness.
Spatial	Navigator Sculptor	Capacities to perceive the visual-spatial world accurately and to perform transformations on one's initial perceptions.
Bodily–kinesthetic	Dancer Athlete	Abilities to control one's body movements and to handle objects skillfully.
Interpersonal	Therapist Salesman	Capacities to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people.
Intrapersonal	Person with detailed, accurate self-knowledge	Access to one's own feelings and the ability to discriminate among them to guide behavior; knowledge of one's own strengths, weaknesses, desires, and intelligences.

Sternberg (1985), on the other hand, proposed a *triarchic*, or three-part theory of intelligence, which is referred to as a *Theory of Successful Intelligence*. Sternberg (2005: 189) suggested the following multidimensional definition of successful intelligence, according to which "(Successful) intelligence is 1) the ability to achieve one's goals in life, given one's sociocultural context; 2) by capitalizing on strengths and correcting or compensating for weaknesses; 3) in order to adapt to, shape, and select environments; and 4) through a combination of analytical, creative, and practical abilities". Consequently, as the name *three-part theory* suggests, there are three major sets of components or mental processes underlying all aspects of intelligence: metacomponents (or executive processes), performance components, and knowledge acquisition components (Sternberg 2002b). *Metacomponents* enable a person to plan and make decisions as well as monitor and evaluate the decision-making process, *performance components* execute the instructions of the metacomponents, whereas *knowledge acquisition components* are all the processes responsible for acquiring new knowledge, such as selecting information. Sternberg and Grigorenko

(2003) underline three aspects of intelligence which are *analytical abilities* (involved in analyzing, evaluating and contrasting things), *creative abilities* (involved in creating, exploring and discovering), and *practical abilities* (involved in implementing and putting into practice). It was also assumed that it is possible to 'teach for' successful intelligence (Sternberg 2002a; Sternberg and Grigorenko 2003; Sternberg and Grigorenko 2004), which involves instructing learners as well as assessing them analytically, creatively and practically. This was connected with the belief that such teaching can enable students to recognize their strengths and compensate for their potential weaknesses.

To conclude, intelligence may be a powerful predictor of success in SLA, especially academic skills. However, there are still some issues connected with intelligence which have not been satisfactorily resolved yet. There is no universal definition of intelligence or a theory that would explicitly provide all the components of intelligence. There are also questions connected with whether intelligence is inborn or whether it can be modified. Without doubt, the notion of intelligence has been connected with success at learning. Consequently, researchers have attempted to conceptualize the ability that is connected with success in foreign or second language learning, which will be discussed in section 1.2.1.2.

1.2.1.2. Aptitude

Closely related to intelligence is another cognitive individual variable—language aptitude. As Dörnyei (2006: 45) writes, "The concept of language aptitude is related to the broader concept of human abilities, or intelligence, covering a variety of cognitively-based learner differences". Language aptitude has been referred to in different ways, such as, for instance a 'special ability', 'gift', 'knack', 'feel', or 'flair' for languages (Cohen 2010) or special 'propensity' or 'talent' for learning an L2 (Dörnyei 2005a). As Stern (1994: 368) explains, "The definition of second language aptitude and its measurement depend upon underlying language teaching theories and interpretations of learner characteristics and of the language learning process". Lightbown and Spada (2006: 57), for example, define language learning aptitude as "specific abilities thought to predict success in language learning (…)". Ranta (2002: 162), in turn, claims, "Aptitude is viewed as a stable trait of the individual which predicts how quickly he or she will learn a foreign language". A more recent definition of L2 aptitude has been proposed by Robinson (2012: 57), who defined it as "the ability to

successfully adapt to and profit from instructed, or naturalistic exposure to the L2". It is important to underline that language aptitude does not determine whether or not a person can learn a language but it can provide information on the rate at which he or she is likely to master an L2, an assumption that is supported by Dahlen and Caldwell-Harris (2013: 902), who claim, "It is commonly assumed that all typically developing individuals can learn a foreign language. However, the amount of time required and the best teaching method of learning environment may differ from person to person".

A number of questions have been posed in the history of aptitude research, among which the most frequently asked ones are as follows:

- "Is there a specific talent for learning languages? If yes, what is the structure of such a talent?" (Skehan 1998);
- "Should languages be taught to everybody or only to those who have sufficient aptitude? Should students with different aptitudes be placed into separate 'streams'? Can aptitude be developed by training?" (Stern 1994);
- "Is such a talent innate? Is it relatively fixed? Is it amenable to training? Can such a talent be measured effectively?" (Dörnyei and Skehan 2003).

Surprisingly, although nobody questions the existence of aptitude, it is difficult to present one universal answer to all the questions listed above or provide an extensive description of the construct. It is reasonable to start the discussion of language aptitude with a description of two test development programmes implemented by John Carroll and Stanley Sapon as well as Paul Pimsleur, who designed two of the leading instruments of prognosis and diagnosis in the 1950s and 1960s. The *Modern Language Aptitude Test* (MLAT; Carroll and Sapon 1959) and the *Pimsleur Language Aptitude Battery* (PLAB or LAB; Pimsleur 1966) have become the most widely used and cited aptitude tests from the time they were developed (Dörnyei 2005a).

Table 1.3. A comparison of the MLAT and the PLAB (after Stern 1994).

MLAT and PLAT constituents			
MLAT		PLAB	
	Ability assessed		
Test task descriptions	Names of tests	Names of tests	Test task descriptions
Learn words for numbers in an artificial language.	Number learning	Symbol discrimination	Learn phonetic distinctions and recognize them in different con-

			texts.
Listen to sounds and learn phonetic symbols for them.	Phonetic script	Sound-symbol association	Associate sounds with written symbols.
Decipher phonetically spelt English words and identify words with similar meanings.	Spelling clues	Rhymes	List as many words as possible that rhyme with four given words.
	The ability to discriminate, remember, interpret, and produce the phonic substance of another language. Auditory alertness. The ability to relate the phonology to forms of graphemic representation.		
Recognize the syntactic functions of words and phrases in sentences.	Words in sentences	Language analysis	Make judgements with the help of translations about the meanings and rules of use of an unknown language.
	The ability to pay attention to morphological, syntactic, and semantic features of a language, to relate linguistic forms to each other, and to develop patterns, regularities, and rules from linguistic materials: linguistic (grammatical-semantic) sensitivity and an inductive learning ability.		
Learn and recall words in an artificial language.	Number learning Paired associates		
	Memory ability: the capacity to memorize and recall words in a new language. Rote memory. MLAT only. Not tapped by PLAB.		
		Vocabulary	Identify the meaning of different words.
	Word knowledge, i.e., lexical competence in the first language tested in PLAB only.		
		Grade-point average in academic areas	Information gathered by tester.
		Interest in learning a foreign language	Short questionnaire.
	PLAB contains a general school achievement and motivational components, not considered in MLAT, as part of the concept of aptitude.		

Table 1.3. presents a comparison of the MLAT and the PLAB which clearly shows that in both batteries language aptitude is not viewed as a single entity but a composite of different characteristics. The MLAT includes the following five parts: *Number Learning*, *Phonetic Script*, *Spelling Clues*, *Words in Sentences* and *Paired Associates*. According to Carroll (1965), there are four aptitude components which are:

1. *Phonetic coding ability*—the ability to identify sounds, to form associations between those sounds and symbols representing them as well as to retain those associations.
2. *Grammatical sensitivity*—the ability to recognize the grammatical functions of words in sentences.
3. *Rote learning ability*—the ability to form and remember associations between stimuli.
4. *Inductive language learning ability*—"the ability to infer linguistic forms, rules, and patterns from new linguistic content itself with a minimum of supervision or guidance" (Carroll 1965: 130).

The PLAB, on the other hand, is composed of the following six parts: *Grade Point Average*, *Interest in Foreign Language Learning*, *Vocabulary*, *Language Analysis*, *Sound Discrimination* and *Sound-Symbol Association* that measure three factors of language aptitude proposed by Pimsleur which are as follows:

1. *Verbal Intelligence*—that comprises "(…) both knowledge of vocabulary in your native language and the ability to reason analytically about language (…)" (Pimsleur 1968: 73).
2. *Motivation*—Pimsleur (1966) claimed that motivation was significantly related to foreign language learning.
3. *Auditory Ability*—which is the ability to hear, recognize and reproduce sounds in a foreign language.

As can be observed in Table 1.3., there are striking similarities between the *Modern Language Aptitude Test* and the *Pimsleur Language Aptitude Battery*. Firstly, two of PLAB's leading components deal with Verbal Intelligence and Auditory Ability, both of which have their counterparts in the MLAT. It is interesting to note that Pimsleur considered verbal intelligence an important part of language aptitude and used two subtests, i.e. Vocabulary and Language Analysis to measure it. Carroll also devoted one subtest, that is Spelling Clues, to measuring verbal intelligence and vocabulary knowledge. Another simi-

larity is the fact that both tests were developed at a time when *audiolingualism* was the prevailing instructional approach (Ellis 2004). An obvious difference between these two instruments was their respective authors' stance on whether motivation is an integral part of aptitude (Pimsleur) or it is something which should not be measured using an aptitude test (Carroll). Another difference is the fact that the PLAB contains a general school achievement component, which is not present in the MLAT. What is more, the PLAB was designed to be administered to a younger population than post-puberty or adult learners which is visible in the case of the MLAT test. Finally, the PLAB does not include any memory component.

Undoubtedly, the MLAT and the PLAB are two of the most widely used and referred to language aptitude tests in the world (Dörnyei 2005a), also translated into other languages, e.g. into Hungarian (DeKeyser 2000; Sáfár and Kormos 2008). However, since the 1950s and 1960s when the MLAT and the PLAB were first used, a number of various studies have been conducted and there was therefore a need to update the theories and instruments used to measure language aptitude (Robinson 2012; Robinson 2013). Interestingly, there are still some applied linguists who discount the relevance of aptitude, for example Cook (1991: 76), who claims:

> Such tests are not neutral about what happens in the classroom, nor about the goals of language teaching. They assume that learning words by heart is an important part of L2 learning ability, that the spoken language is crucial, and that grammar consists of structural patterns. In short, MLAT mostly predicts how well a student will do in a course that is predominantly audiolingual in methodology rather than in a course taught by other methods.

Cook's point of view is justified by his conviction that the MLAT is not adequate in all teaching conditions and for all learners. Skehan (2002: 70) also calls into question the role of foreign language aptitude tests by stating, "(…) as instructional methodologies have changed, foreign language aptitude have been perceived as irrelevant". Also with the growing influence of the *Communicative Language Teaching* (CLT) approach, the relevance of aptitude was questioned. To quote Skehan (2002: 72), "(…) aptitude was seen to be irrelevant, and more appropriate to old-fashioned class learning", especially in the light of SLA research growth after the 1970s as well as Krashen's (1981) view that aptitude was relevant for learning, not acquisition.

However, as some experts point out, there has been "a notable reawakening of interest" (Ellis 2004: 533) in FL aptitude recently and "challenging reconceptualizations of aptitude have emerged" (Dörnyei and Skehan 2003: 593). Similarly to Carroll's and Pimsleur's

belief that aptitude is componential, other researchers are also convinced that this cognitive variable is not a unitary construct (Skehan 2002; Skehan 1998; Sparks et al. 2011; Leaver et al. 2005; Sparks and Ganschow 1993; Parry and Child 1990; Rysiewicz 2003) and, as a consequence, other models of language aptitude have been proposed. Skehan (1998), for example, narrowed the model of foreign language aptitude down to the following three parts: *Auditory ability*, *Linguistic ability* and *Memory ability*. It is interesting to note that Skehan's vision of FL aptitude simplifies that proposed by Carroll, since, for example, *auditory ability* corresponds to *phonetic coding ability* and *memory ability* is similar to *rote learning ability*. The third component proposed by Skehan, that is *linguistic ability*, comprises Carroll's *inductive language learning ability* and *grammatical sensitivity*.

In his most recent works, Skehan has attempted to relate various aptitude components to the different SLA process stages (Skehan 2002; Dörnyei and Skehan 2003), a proposal which is illustrated in Table 1.4. As Skehan (2002: 89) explains, "It is important to note here that we are not taking existing aptitude tests and then seeing if SLA relevance can be perceived for each of them. Rather, we are taking SLA stages, and exploring whether aptitude would be relevant for each of these stages". While some stages in Table 1.4. clearly relate to the abilities measured by certain subtests found in the MLAT or the PLAB, in other cases, the model proposed by Skehan "(…) reveals where it would be useful to produce aptitude tests if we are to be able to predict effectively in acquisition-rich contexts" (2002: 90).

Table 1.4. SLA processing stages and potential aptitude components (from Skehan 2002).

SLA Processing stage	Aptitude Component
1. noticing	auditory segmentation attention management working memory phonemic coding
2. pattern identification	fast analysis/working memory grammatical sensitivity
3. extending	inductive language learning ability
4. complexifying	grammatical sensitivity inductive language learning ability
5. integrating	restructuring capacity
6. becoming accurate, avoiding error	automatisation proceduralisation
7. creating a repertoire, achieving salience	retrieval processes
8. automatizing rule-based language, achieving fluency	automatizing, proceduralisation
9. lexicalizing, dual coding	memory, chunking, retrieval processes

Most recently, Robinson has proposed new models of the concept (Robinson 2002a; Robinson 2002b; Robinson 2007; Robinson 2012; Robinson 2013) and focused on the question whether there are any optimal combinations of ID variables that are conducive to efficient learning. As Robinson (2007: 269) highlights, "The issue then is how best to describe the ID factors and their combinations in such a way as to define sets of aptitudes or optimally conducive sets of abilities for learning (…) during exposure and practice under one condition, or on one task, or accompanied by one FonF technique versus another".

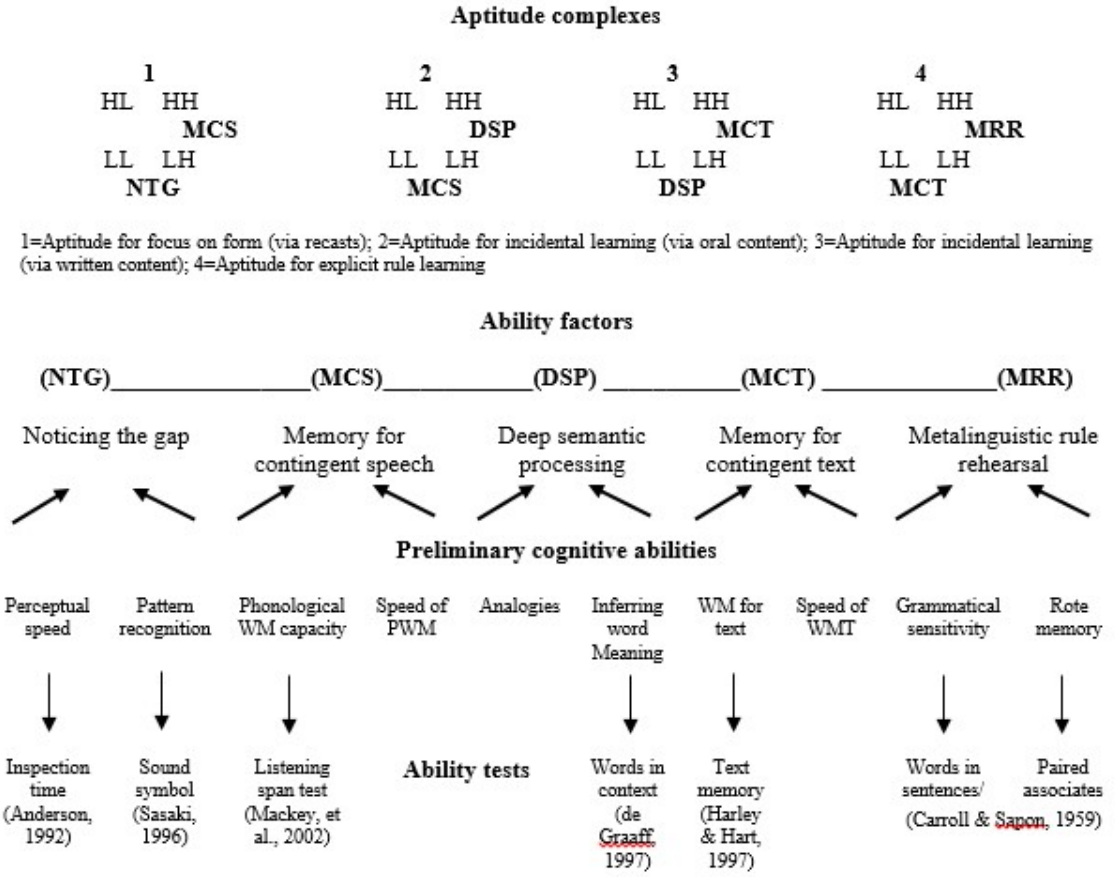

Fig. 1.1. A hierarchical model of aptitude complexes, ability factors and cognitive abilities (from Robinson 2007).

The two closely related hypotheses proposed by Robinson are *The Aptitude Complex Hypothesis* and *The Ability Differentiation Hypothesis*. Robinson (2002b) distinguished three conditions of exposure to input: *explicit learning* (something that is done intentionally and requires effort and concentration), *implicit learning* (knowledge is acquired

independently of conscious attempts, compared to children's learning the patterns of the L1) and *incidental learning* (unintentional learning, compared to children's L1 implicit learning). *The Aptitude Complex Hypothesis*, is based on the work of Snow (1994), and claims that "(…) certain sets or combinations of cognitive abilities are drawn on in learning under one condition of instructional L2 exposure versus another" (Robinson 2007: 274). As maintained by Robinson (2012: 67), "Not all learners can be expected to have equivalent aptitudes for learning from each of these options"; therefore "(…) if the effects of instruction and practice are to be optimized for individual learners, then these should take place under those conditions to which their aptitudes are best matched". Figure 1.1 presents a model of aptitude complexes, ability factors, and cognitive abilities. *Aptitude complex 1*, for learning from recasting, is a combination of abilities for noticing the gap (NTG) between the recast and the learner's prior utterance, and memory for contingent speech (MCS). It is argued that these two abilities are crucial for holding the interlocutor's recast in memory. *Aptitude complex 2*, for incidental learning from oral input, containing a flood of particular forms, is composed of the ability factor called memory for contingent speech (MCP) and deep semantic processing (DSP). *Aptitude complex 3*, for incidental learning from frequent exposure to a particular form provided in written input is similar to aptitude complex 2 because it also contains DSP; however, the second component is memory for contingent text (MCT) rather than speech. Finally, *aptitude complex 4*, for learning from a brief rule explanation, comprises MCT and metalinguistic rule rehearsal (MRR). It is proposed that each of the ability factors is measured by different existing aptitude subtests; for example MRR can be measured by the MLAT *Words in Sentences* (grammatical sensitivity) and *Paired Associates* (rote memory).

The second part of Robinson's framework, *The Ability Differentiation Hypothesis*, was based (among others) on the works of Sparks and Ganschow (1993) and Grigorenko (2002), and on the assumption that some learners have L1-based disabilities which underlie poor aptitude for L2 learning. The theory proposed by Sparks and Ganschow (Sparks and Ganschow 1993; Ganschow et al. 1998; Sparks et al. 2008) was labelled *the Linguistic Coding Differences Hypothesis* (LCDH). It was the outcome of a line of enquiry on the etiology of foreign language learning difficulties, the main focus of which was on cognitive, affective and linguistic domains. The researchers claim that a learner's level of language skill and aptitude for learning should be taken into consideration when examining the role of affect in foreign language learning. The LCDH posits that "(…) skills in the native language components—phonological/orthographic, syntactic, and semantic—provide the

basic foundation for FL learning" (Ganschow et al. 1998: 248). Robinson (2007: 278) summarized *the Ability Differentiation Theory* in the following way:

> (…) the Ability Differentiation Hypothesis claims that some L2 learners may have more clearly differentiated abilities — and strengths in corresponding aptitude complexes — than other learners and further that it is particularly important to match these learners to conditions of practice which favor their strengths. This is in contrast with other learners who may have less differentiated abilities and equivalent strengths and aptitudes for learning under a variety of conditions of exposure and classroom practice.

As Sáfár and Kormos (2008: 117) claim, "The significance of Robinson's research is that he investigates the aptitude-treatment interaction, conceiving of language aptitude as a dynamic construct".

New conceptualizations of foreign language aptitude required the development of new aptitude tests. For instance, Grigorenko et al. (2000) devised *the Cognitive Ability for Novelty in Acquisition of Language as applied to foreign language test* (CANAL-FT), which is grounded in cognitive theory, dynamic (test takers are tested at the time of learning) and simulation-based. The primary purpose of the CANAL-FT was to test the CANAL-F theory, which holds that "(…) one of the central abilities required for FL acquisition is the ability to cope with novelty and ambiguity" (Grigorenko et al. 2000: 392). The CANAL-FT reflects Sternberg's *Triarchic Theory of Human Intelligence*, described in the current chapter, section 1.2.1.1. (Sternberg 1985; Sternberg 1996; Sternberg 2002a; Sternberg 2002b). There are five knowledge acquisition processes underlying the CANAL-FT, which are as follows:

1. *Selective encoding*—distinguishing between more and less relevant information.
2. *Accidental encoding*—encoding background or secondary information and grasping the background context of the information stream.
3. *Selective comparison*—determining the relevance of old information for current tasks to enhance learning.
4. *Selective transfer*—applying decoded or inferred rules to new contexts and tasks.
5. *Selective combination*—synthesizing various pieces of information that have been collected via selective and accidental encoding.

The five knowledge acquisition processes apply at four levels: lexical, morphological, semantic, and syntactic and two modes of input and output: (1) visual, predominating in reading and writing and (2) aural, being involved in listening and speaking. As Grigorenko et al. (2000) argue, for language learning to take place one needs to understand and

encode the linguistic material into working memory, and then transfer the material to long-term memory for later retrieval. Two types of recall tasks can assess these aspects of encoding, storage and retrieval, i.e. immediate recall (right after learning takes place) and delayed recall (at some time interval after learning takes place). The CANAL-FT is composed of nine sections: five of them involve immediate recall and four of them (identical to the five sections) entail delayed recall. These sections are as follows: learning meanings of neologisms from context, understanding the meaning of passages, continuous paired-associate learning, sentential inference and learning language rules. The CANAL-FT focuses on the learning of an artificial language, *Ursulu*, the rules of which are based on different existing languages, not resembling any language in particular at the same time.

Other aptitude tests summarized by different authors (Grigorenko et al. 2000; Dörnyei 2005a; Robinson 2012; Dörnyei and Skehan 2003; Wen and Skehan 2011; Robinson 2005; Parry and Stansfield 1990; Parry and Child 1990; Leaver et al. 2005; Lett and O'Mara 1990) are: DLAB—the Defense Language Aptitude Battery (Petersen and Al-Haik 1976), VORD (Parry and Child 1990), York Language Aptitude Test (Green 1975) or the German Aptitude Test (Miller and Philips 1982). However, as Dörnyei (2005a: 41) points out, "there is a general agreement in the literature that the new batteries did not demonstrate superiority over the MLAT".

The connection between foreign language aptitude and L2 success has been found in a number of different studies. DeKeyser (2000), for example, discovered that aptitude scores are a crucial predictor of achievement in acquisition-rich contexts. Parry and Child (1990) pointed out that foreign language aptitude measured by the MLAT predicts language learning success more efficiently than the VORD test. Carroll (1981) reported that the correlations between foreign language aptitude and proficiency were between .40 and .60. Other studies also confirmed that aptitude test scores predict success in L2 learning (Carroll 1965; Skehan 1998). Finally, Dörnyei and Skehan (2003: 589) conclude, "(…) individual differences in second language learning, principally foreign language aptitude and motivation, have generated the most consistent predictors of second language learning success. Correlations of aptitude or motivation with language achievement range (mostly) between 0.20 and 0.60, with a median value a little above 0.40".

An important achievement in foreign language aptitude research in Poland is reflected in the work of Rysiewicz (2007, 2008b), who made an attempt to investigate the relationship between foreign language aptitude, intelligence and FL achievement scores among seventh grade learners. He used an English achievement test, the *Lexicon* (*Leksykon*,

Jurkowski 1997) and the *Standard Raven Progressive Matrices* (Raven, Raven, and Court 1998), and concluded that proficiency in second language learning is heavily dependent on L1 lexicon and "(…) inductive language learning abilities have been shown to be essential to successful mastery of a FL" (Rysiewicz 2008b: 98). Quite unexpectedly, Rysiewicz did not confirm that the memory component of FL aptitude plays a crucial role in FL learning. Another significant achievement in the Polish research in the area of foreign language aptitude was Rysiewicz's (2008a) adaptation of the MLAT. The instrument he developed was named TUNJO—*Test Uzdolnień do Nauki Języków Obcych*, which will be described in detail in Chapter 4, as it was used for the purpose of the study reported in the present dissertation.

Apart from those described above, other central issues in language aptitude studies are: (1) the extent to which foreign language aptitude and intelligence overlap and (2) the relationship between foreign language aptitude and working memory. Firstly, as Biedroń (2012: 67) suggests, "Traditionally, FL aptitude and intelligence have been treated as separate", a claim that was based on the results of earlier studies (Gardner 1985; Gardner and Lambert 1972; Skehan 1982). However, Grigorenko et al. (2000: 400) comment on the relationship between FL aptitude and intelligence in the following way: "(…) It appears that there is an overlap between these two factors", which has also been highlighted in the work of Sawyer and Ranta (1999). Undoubtedly, an important study in this respect was conducted by Sasaki (1996), who investigated the relationship between second language proficiency, FL aptitude and two intelligence types, namely, verbal and reasoning. After conducting a second-order factor analysis, she found moderate to strong relationships between aptitude and intelligence. Biedroń (2011a: 130), in turn, discovered that "(…) intelligence and foreign language aptitude are moderately positively correlated and the correlation is based on the shared feature representing the memory factor".

Research into working memory (WM) and SLA appears to be another very important current direction in language aptitude studies. According to Schumann (2008), memory is classified into *working* (*short-term*) and *long-term memory*. *Working memory*, according to Biedroń (2012: 72), is "(…) the most significant to the theory of FL aptitude component of the system of memory". Baddeley (1992: 556) defined working memory in the following way: "The term working memory refers to a brain system that provides temporary storage and manipulation of the information necessary for such complex cognitive tasks as language comprehension, learning, and reasoning". Working memory is believed to determine foreign language learning outcomes (Baddeley 2003; Wen and Skehan 2011;

Biedroń and Szczepaniak 2012) and is often treated as "(…) a key component of FL aptitude" (Biedroń 2012: 81). Robinson (2002a) found that working memory strongly correlated with language aptitude scores. Kormos (2013: 134) claims, "A number of researchers have argued that working memory capacity might be a cognitive ability that is just as important in language learning as the traditional concept of foreign language aptitude". Miyake and Friedman (1998), for instance, proposed the 'working memory as language aptitude' hypothesis, which was supported by research undertaken by Kormos and Sáfár (2008), and Sáfár and Kormos (2008: 129), according to whom, "(…) working memory is a better predictor of language learning success than the traditional construct of language aptitude".

All in all, the ability to learn a foreign language has been of interest to a number of psychologists and applied linguists. Rysiewicz (2003, 2004, 2008a, 2010), on the basis of previously conducted studies, formulated several assumptions about foreign language aptitude and, in his view, this cognitive variable can be perceived as:

- an autonomous dimension which is independent of both affective and general cognitive factors;
- independent of intelligence, although it partially overlaps with it;
- relatively stable and not easily modifiable through training;
- not a unitary construct;
- always a better prognostic of L2 learning success than other IDs.

The observation that some people can learn foreign languages easier and faster than others has led researchers to develop theories of foreign language aptitude as well as to construct tests that will measure learners' ability to learn a FL. The tests have helped researchers and educators to be able to predict success or failure in FL learning instruction, investigate cognitive ability factors, screen out poor language learners, evaluate the effectiveness of language teaching programmes and, last but not least, tailor instruction to learners' aptitude level (Grigorenko et al. 2000; Dörnyei 2005a; Carroll 1990). It is, however, disputable if all these benefits are indeed possible and realistic. In spite of the earlier criticisms of foreign language aptitude related to the fact that it is ineffective, without doubt it is still relevant to foreign language learning. Thus, there is a consensus among some experts in the area of individual differences (Robinson 2002a; Leaver et al. 2005) that more research is needed into variables pertaining to a broader definition of language aptitude. Among such variables are, for example, learning styles which will be the focus of a discussion in the next section.

1.2.1.3. Cognitive styles and learning styles

Another two individual learner variables discussed in the current section are cognitive styles and learning styles. Ehrman et al. (2003) point out that although the term *cognitive style* was first used almost twenty years earlier than *learning style*, those two concepts are used interchangeably in the literature on learning styles together with such terms as: *personality type*, *sensory preference*, *modality* and others. Zhang et al. (2012: 1) hold that "Different scholars have their own preferred style terms, both in their writings and in the talks they deliver, including cognitive style, learning style, thinking style, mind style, mode of thinking or teaching style", all of which can come under one umbrella term 'intellectual styles'.

But what exactly is cognitive style and what is its relationship with learning style? This question has often been encountered in the literature and, as discussed by Dörnyei and Skehan (2003: 601), it "(…) has long been an interesting puzzle". Cassidy (2004) stresses that the terms *learning style* and *cognitive style* are used interchangeably; however, on some occasions, they are afforded separate and distinct definitions. Some researchers choose to use the term *learning style* (Pawlak 2009; Oxford 2001; Ehrman et al. 2003; Oxford 1992) while others opt for the concept of *cognitive styles* (Ellis 1985; Johnson 2008; Larsen-Freeman and Long 1994; Stern 1994). It can be argued that the difference between learning style and cognitive style is unclear and various scholars present different approaches to this issue. Ellis (1985: 114) states that "cognitive style is a term used to refer to the manner in which people perceive, conceptualize, organize, and recall information"; whereas Griffiths (2012: 152) claims that "cognitive style refers to how individuals think, process information, and solve problems in general. As such, it is a broader concept than learning style, which is more focused on how an individual acquires and retains new understanding or knowledge". Brown (2000: 113) explains the difference between cognitive styles and learning styles in the following way:

> The way we learn things in general and the way we attack a problem seem to hinge on a rather amorphous link between personality and cognition; this link is referred to as cognitive style. When cognitive styles are specifically related to an educational context, where affective and psychological factors are intermingled, they are usually more generally referred to as learning styles.

As mentioned earlier, learning styles, similarly to foreign language aptitude, are cognitive in nature and appear to be appealing for psychologists and educationists because, as Dörnyei (2005a: 122) claims, "(…) unlike abilities and aptitudes—they do not reflect innate endowment that automatically leads to success. That is, styles are not yet another metaphor for distinguishing the gifted from the untalented but rather they refer to *personal preferences*". Nevertheless, the concept of learning style may lead to some misunderstandings in view of the fact that, as noted by Dörnyei (2005a: 120), "(…) the area is a quagmire: There is a confusing plethora of labels and style dimensions; there is a shortage of valid and reliable measurement instruments; there is a confusion in the underlying theory; and the practical implications put forward in the literature are scarce and rather mixed, and rarely helpful".

As regards the definition of learning styles, Keefe and Ferrell (1990: 59) define them as "(…) a complexus of related characteristics in which the whole is greater than its parts. Learning style is a gestalt combining internal and external operations derived from the individual neurobiology, personality, and development and reflected in learner behavior". Dunn and Griggs (1988: 3) provide an interesting description of this individual learner variable: "Learning style is the biologically and developmentally imposed set of characteristics that make the same teaching method wonderful for some and terrible for others". Oxford (2001: 359) claims, "Learning styles are the general approaches—for example, global or analytic, auditory or visual—that students use in acquiring a new language or in learning any other subject". Ellis (2004: 534), in turn, provides a relatively short definition of learning style, stating that the concept "(…) refers to an individual's preferred way of processing information and of dealing with other people". As far as the characteristics of learning styles are concerned, this cognitive variable is viewed as stable, biologically determined and internalized (Biedroń 2012), stable over time or changing with experience or situation (Cassidy 2004), fixed (Riding and Sadler-Smith 1997) or modifiable in only limited ways (Pawlak 2009).

Educators and psychologists have conceptualized cognitive styles and learning styles in disparate ways proposing different descriptive models, only some of which aim to investigate language learning. Kolb's (1984) construct, based on his broader *Experiential Learning Theory* (ELT), is one of the most endorsed models in the L2 field. The ELT conceptualizes learning as "(…) the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and trans-

forming experience" (Kolb 1984: 41). The ELT construct, illustrated in Table 1.5., describes two modes of grasping experience: *Concrete Experience* (CE) and *Abstract Conceptualization* (AC) as well as two modes of transforming experience: *Reflective Observation* (RO) and *Active Experimentation* (AE). The experiential learning process is presented as "(…) an idealized learning cycle or spiral where the learner 'touches all the bases'—experiencing, reflecting, thinking and acting" (Kolb and Kolb 2005a). On the basis of the permutation of the two style continuums (*concrete* versus *abstract thinking* and *active* versus *reflective information processing*), four basic learning approaches emerge: diverging, assimilating, converging and accommodating.

Table 1.5. Kolb's model of learning styles (based on Kolb and Kolb 2005a).

Learning approach	Dominant learning abilities	Style description
diverging	CE and RO (concrete and reflective)	Students possessing this learning style: – are best at viewing a situation from different points of view, – perform better in activities such as brainstorming, – have broad cultural interests, – like to gather information, – tend to be imaginative and emotional, – prefer to work in groups and receive personalized feedback.
assimilating	AC and RO (abstract and reflective)	Students possessing this learning style: – are best at understanding a wide range of information and putting it into logical form, – are more interested in abstract concepts than focused on people, – prefer readings, lectures and exploring analytical models.
converging	AC and AE (abstract and active)	Students possessing this learning style: – are best at finding practical uses for ideas and theories, – prefer to deal with technical tasks rather than social issues, – tend to experiment with laboratory assignments and practical implications.
accommodating	CE and AC (concrete and active)	Students possessing this learning style: – enjoy involving themselves in challenging experiences, – prefer to work with others to get assignments done and to test different approaches to complete a project.

Oxford (1992), in turn, distinguished the following four major dimensions (aspects) of learning styles:

- *the analytic–global aspect*—in which *analytic* students prefer to concentrate on grammatical details, are reflective and avoid free-flowing communication activities while *global* students like socially interactive, communicative events and avoid analysis of grammatical minutiae;
- *sensory preferences*—referring to the channels with which learners feel the most comfortable: *visual* (learners with this preference like to read and obtain visual stimulation), *auditory* (learners who prefer to listen to lectures or audiotapes) and *hands-on* (learners who like movement and working with models); Oxford's *sensory preferences* model is similar to the *perceptual learning modalities* distinction proposed by Reid (1987), the only difference being the fact that her construct contains four *perceptual learning channels* instead of three, i.e. *visual*, *auditory*, *kinesthetic*, and *tactile*, and that Oxford's *hands-on* dimension comprises the last two modalities;
- *intuitive/random vs. sensory/sequential learning*—in which *intuitive/random* learners think in abstract and dislike step-by-step learning while *sensory/sequential* students prefer to do tasks at hand and only then to move to the next activity;
- *orientation toward closure or openness*—referring to the extent to which students need to reach a decision or clarity: learners *orientated toward closure* tend to be hard-working and well-organized while learners *less oriented toward closure* tend to take learning a language less seriously, for example, as if it was a game.

Oxford (2001) states that differences in second language learning styles may be related to various factors such as, for example, biological factors, among which she enumerates biorhythms, sustenance, and location. *Biorhythms* refer to the part of the day when learners are most effective in performing different tasks. *Sustenance* is connected with the need for food or drink while learning. The third factor is *location*, which refers to the environment students work in, for example, temperature or light.

Another distinction was proposed by Willing (1987), who differentiated between the following four general learning styles:

- *concrete learning style—concrete* students are those who enjoy social aspects of learning, games and group work and like to learn from experience;

- *analytical learning style*—refers to individuals who prefer logical presentation, focus on specific problems and proceed by means of hypothetical–deductive reasoning;
- *communicative learning style*—*communicative* learners are those interested in social interaction; they are independent and flexible;
- *authority–oriented learning style*—refers to students who prefer the teacher's directions and explanations and are not willing to learn through discovering.

A novel approach to understanding cognitive styles was proposed by Ehrman and Leaver (2003: 395), who commented on their model in the following way, "It originated from our dissatisfaction with what was commonly referred to as the 'global–analytic' distinction, which was leading us to misdiagnoses and confusion about the meanings of terms". The scholars propose the *E&L Construct* which consists of a superordinate construct, named *synopsis–ectasis*, and ten subscales. The main difference between these two poles is that an *ectenic* learner needs conscious control over his/her learning process while a *synoptic* learner leaves more to unconscious processing. The subscales of the *E&L Construct* are as follows:

- *field independent* and *field sensitive*—Ehrman (1996) proposed a model of *field independent* and *field sensitive* that produces the following four types: *FI* and field sensitive, *FI* and field insensitive, *FD* and field sensitive, and *FD* and field insensitivity; according to the *E&L Construct*, *field-sensitive* learners tend to use the full language environment for comprehension and learning, whereas *field-insensitive* learners do not draw their attention to the language environment but rather focus on a particular language element being studied;
- *random (non-linear)* versus *sequential (linear)*—this distinction refers to the way a learner structures information, i.e. *random* learners are usually systematic, follow their own idiosyncratic order of processing, and tolerate ambiguity; whereas *sequential* learners prefer step-by-step learning, for example using a coursebook;
- *global–particular*—the experts define these dimensions in the following way: "global processing attends to gestalts and 'big picture' whereas "particular processing attends to discrete items and details" (Ehrman and Leaver 2003: 404);
- *inductive–deductive*—*inductive* learners start with facts, form hypotheses and, finally, test them, while *deductive* learners start with studying the rules before they practice applying them to specific examples;

- *synthetic–analytic*—the global learning style is often contrasted with the analytical style (e.g. the *Style Analysis Survey*, Oxford 1993); however, as Ehrman and Leaver (2003) claim, these two styles are not in opposition; that is why they propose the distinction between *global–particular* (described earlier) and *synthetic-analytic*, where the *synthetic* learner prefers to use pieces to build new wholes while the *analytic* learner proceeds from construct to insight and likes to disassemble wholes into parts;
- *analogue–digital*—*analogue* students prefer to use parables and metaphors; whereas *digital* students are those who rely mostly on logical understanding of what they can hear or see;
- *concrete–abstract*—the *concrete* learning style, referring to those learners who prefer direct experience and select activities using the language to do something, was first proposed by Willing (1987) and described earlier; *abstract* learners, however, prefer grammar rules and discussions of abstract topics;
- *leveling–sharpening*—refers to how people perceive, store and recall information as well as what they pay attention to and how they retain it in memory; *levelers* often tend to over-generalize and blur memories, whereas *sharpeners* distinguish small differences and easily separate prior and current experiences;
- *impulsive–reflective*—this distinction refers to the speed at which a response is processed to a stimulus; *impulsive* learners have a tendency to respond rapidly, actively participate in classes and learn by trial and error; in contrast, *reflective* learners prefer to think before they respond, which can result in some cases in having difficulty finishing a test on time.

Another division, presented in Figure 1.2., that is widely used in education is that developed by Riding, according to which learners differ in terms of two independent dimensions of cognitive style: the *Wholist–Analytic* dimension and *Verbal–Imagery* dimension (Riding 1991; Riding and Sadler-Smith 1997). The *Wholist–Analytic* style dimension describes the way in which students organize and structure information: *wholists*, as the name suggests, tend to see a situation as a whole while *analytics* prefer to deconstruct information into components. The *Verbal–Imagery* style dimension reflects students' mode of representation of information in memory during thinking: *verbalizers* are better at working with verbal information while *imagers* are superior at working with visual/special information.

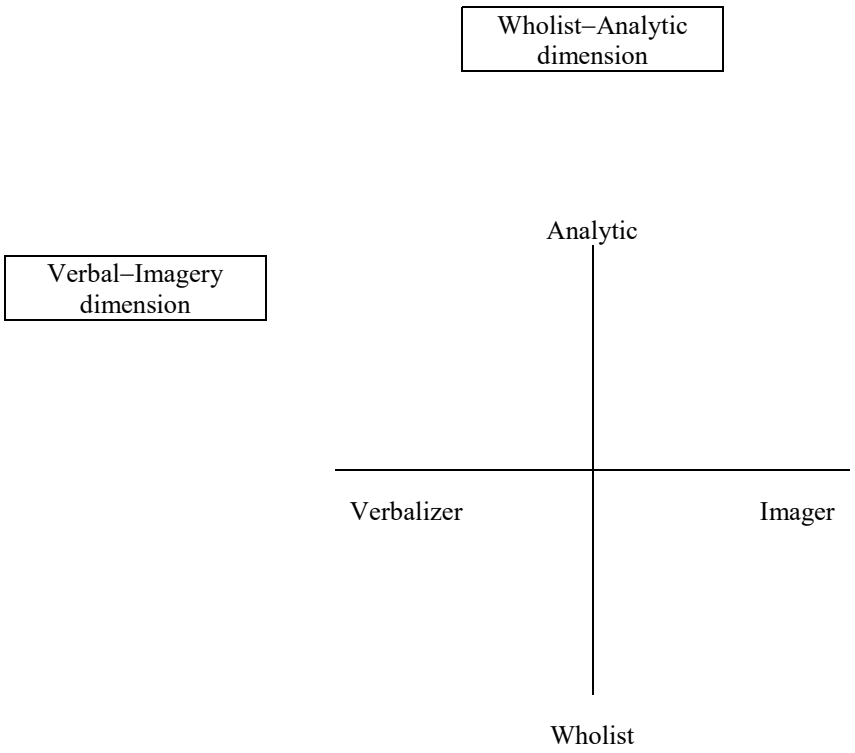

Fig. 1.2. The two dimensions of cognitive style (from Riding and Sadler-Smith 1997).

As is the case with a number of concepts and competing taxonomies, even a brief overview of the literature demonstrates that there is also a proliferation of instruments designed by language researchers to measure learning styles. These include Kolb and Kolb's (2005b) *Learning Style Inventory (LSI)*, Reid's (1987) *Perceptual Learning Style Preference Questionnaire (PLSPQ)*, Oxford's (1993) *Style Analysis Survey (SAS)*, Cohen et al.'s (2002) *Learning Style Survey (LSS)*, Ehrman and Leaver's (2002) *E&L Learning Style Questionnaire*, and Witkin et al.'s (1971) *Embedded Figures Test (EFT)*. However, as Dörnyei (2005a: 131) claims, "The assessment of cognitive and learning styles is undoubtedly the Achilles heel of the concept", which is mainly due to the fact that there is no consensus among researchers on how to measure the constructs. The two ways of assessing cognitive and learning styles that are commonly known in the L2 field are: relying on learners' self-report questionnaires, e.g. Cohen et al.'s (2002) *Learning Style Survey*, or asking students to perform particular tasks in order to make inferences from them, e.g. Witkin et al.'s (1971) *Embedded Figures Test*.

The *Learning Style Inventory* (Kolb and Kolb 2005b) is an improved version of the original *LSI* developed by Kolb and it is based on experiential learning theory proposed by Kolb (1984). Its main purpose is to help individuals identify the way they learn from experience and to increase students' awareness of how to control their learning process. The inventory consists of 12 items, in which respondents are asked to rank four sentence endings that correspond to four learning modes: *Concrete Experience* (experiencing), *Reflective Observation* (reflecting), *Abstract Conceptualization* (thinking) and *Active Conceptualization* (doing). Another assessment tool, i.e. the *Perceptual Learning Style Preference Questionnaire* (Reid 1987), was one of the first learning style measures widely known in the L2 field (Wintergerst et al. 2002). The *PLSPQ* was composed of randomly arranged sets of five statements reflecting on each of the six learning style preferences to be measured: visual, auditory, kinesthetic, tactile, group learning and individual learning and used 5-point Likert scale items ranging from 'strongly agree' to 'strongly disagree'.

Another instrument, the *Style Analysis Survey* (SAS) (Oxford 1993), is used to determine students' general approach to learning. The *SAS* is composed of 110 items, grouped into the following five parts: *using physical senses to study or work* (visual, auditory, and hands-on) *dealing with other people* (extroverted versus introverted), *handling possibilities* (intuitive–random versus concrete–sequential), *approaching tasks* (closure–oriented versus open), and *dealing with ideas* (global versus analytic). Respondents are asked to provide answers on 4-point rating scales, with 'never' to 'always' as the two poles. Cohen et al.'s (2002) *Learning Style Survey* represents further improvement on the SAS, which will be described in detail in Chapter 4 as this survey was used for the purpose of the study described in the present thesis. A very important instrument in the L2 field designed to measure cognitive styles is the *E&L Learning Style Questionnaire*, developed by Ehrman and Leaver (2002), based on the *E&L Construct* (Ehrman and Leaver 2003). The instrument consists of 30 items on a 9-point semantic differential scale. As Ehrman and Leaver (2003: 411) point out, "The E&L Construct offers a rich variety of information about language learners and language learning. It is useful alone, but even more so in tandem with other information, especially that which comes from discussions and interviews with students that add value (…)". The questionnaire adopts Ehrman's (1996) model of *FI* versus *FD* and *field sensitivity* versus *field insensitivity*. An instrument designed by Witkin et al. (1971) to assess the concept of *field-dependence/field-independence* was named the *Embedded Figures Test* in which high scores are taken as a marker of field-independence. This paper-and-

pencil instrument (also considered as a test of performance) requires the participant to spot a simple form within a more complex figure.

There have been a number of interesting studies concerning the role that cognitive styles/learning styles play in the L2 learning. Probably the two dimensions that have been the most widely researched in the field of SLA are field-dependence/field-independence and learning preferences. As far as the first dimension is concerned, Brown (2000: 115) claims that "(…) we could conclude that FI is closely related to classroom learning that involves analysis, attention to details, and mastering of exercises, drills, and other focused activities". In support of this statement one can mention the results of studies conducted by such researchers as Naiman et al. (1978) or Hansen and Stansfield (1981). More recently, Dörnyei and Skehan (2003) have claimed that FI positively correlates with language achievement. Other researchers hold that "(…) field dependence/field independence does not appear to be an important factor in SLA" (Ellis 1985: 115), a claim that is supported by Bialystok and Fröhlich (1978), who attributed a very minor role to FI. Instead, they report a general relationship between FI and aptitude. As far as learning preferences are concerned, Reid's (1987) study investigating learning styles appears to be the most 'promising'. The researcher revealed that learners' preferences differed significantly depending on the participants' nationality and that proficiency level was not related to the subjects' learning style preference.

To conclude, the area of research into cognitive/learning styles appears to be both attractive and challenging for specialists, taking into consideration the fact that different predispositions to process information, solve problems or deal with learning situations may have their own strengths and weaknesses and, as a result, various styles may be equally advantageous. However, the promise of the concept of *cognitive/learning style* may be exaggerated in view of the fact that, as discussed earlier in this subsection, cognitive and learning styles have been described using distinct models and measured by means of sometimes completely different instruments. Unfortunately, there are other puzzles to be dealt with when it comes to research into these cognitive variables. For example, Dörnyei (2006: 55) points out that research in the field of language learning styles "(…) has uncovered at least three areas of ambiguity". One of the problems is the fact that some scholars, for example Ehrman (1996), define learning styles as 'preferences' and equate them with 'comfort zones'. It is unclear, however, how much such preferences determine learners' functioning. What is more, there is a question to what extent learning styles and personality overlap since some experts hold that cognitive styles and personality are related (Larsen-

Freeman and Long 1994; Dörnyei 2005a; Ehrman et al. 2003). Finally, the relationship between learning styles and learning strategies is sometimes unclear. As presented at the beginning of Chapter 1, in many taxonomies learning styles and learning strategies come together (Brown 2000; Ehrman et al. 2003; Dörnyei and Skehan 2003, Dörnyei 2006; Pawlak 2009; Cohen 2010), which is explained by Rossi-Lee (1995), who suggests that there is a relationship between these two concepts. Anderson (2005: 758) is of the same opinion, pointing out that "Strategies are typically linked to a learning style". This assumption is also supported by Ehrman et al. (2003), Oxford (1992), Dörnyei (2006) or Shi (2011), who claim that learning styles and learning strategies are interrelated. However, considerably more research is needed as the link appears to be insufficiently explored (Oxford 1990b). Learning strategies will be described in detail in the following section.

1.2.1.4. Learning strategies

MacIntyre (1994: 185) starts his discussion of language learning strategies (LLS) in the following way: "One of the most fertile areas of research in language learning in recent years is the topic of language learning strategies". However, similarly to learning styles, research into this cognitive variable suffers from theoretical weaknesses, such as a lack of one commonly accepted definition or the existence of rival taxonomies. The definitions and conceptualizations offered in the second language literature have been referred to as 'inconsistent', 'elusive' or 'fuzzy' (Dörnyei and Skehan 2003; Drożdział-Szelest 1997).

It is interesting to note that around the mid-1970s a number of studies sought to determine the characteristics of "an abstract, fictitious, and perhaps even mythological character—the Good Language Learner" (Johnson 2008: 143) and this is typically considered to be the beginning of language learning strategies research (Ellis 2004; Johnson 2008; Brown 2000; Dörnyei and Skehan 2003; Cohen 2010; O'Malley and Chamot 1990; Williams and Burden 1997; Dörnyei 2005a; Littlewood 2004; Griffiths 2004; Macaro 2006). Much of this research concentrated on identifying what (self-defined) good language learners report doing in order to learn a foreign language (Rubin 1987), with the best known studies by Naiman et al. (1978) or Rubin (1975). Considerable effort was expended on investigating a number of 'techniques' that the good language learner uses to acquire knowledge. Rubin (1975), for example, concluded that good language learning depends on at least three varia-

bles: aptitude, motivation, and opportunity, the first of which is the least amenable to manipulation. She also added, "(…) if we knew more about what the 'successful learners' did, we might be able to teach these strategies to poorer learners to enhance their success record" (Rubin 1975: 42). One general assumption is that successful language learners apply more learning strategies than do poor language learners and that these strategies can be described and classified (Naiman et al. 1978; Rubin 1975; Cohen 2010; Griffiths 2008a).

Although much has been accomplished in the area of research into learning strategies and some attempts to define this concept have been made, there is no consensus among researchers on one, universally-accepted definition. As Oxford (2001: 362) points out, the etymology of the word strategy "(…) comes from the ancient Greek word *strategia*, which means steps or actions generals take for the purpose of winning a war". The warlike meaning of *strategia* was borrowed by Brown (2000), who suggests that individuals employ strategies in order to 'attack' particular problems.

Table 1.6. Definitions of learning strategies—an overview.

Source	Definition
Rubin (1975)	"(…) the techniques or devices which a learner may use to acquire knowledge".
Chamot (1987)	"Learning strategies are techniques, approaches, or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information".
Rubin (1987)	"(…) learner strategies include any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval and use of information (…), that is, what learners *do* to learn and *do to regulate* their learning".
Oxford (1990a)	"Learning strategies are steps or actions taken by language learners to enhance any aspect of their learning: accession, storage, retrieval and use of information".
O'Malley and Chamot (1990)	"(…) learning strategies, the special thoughts or behaviours that individuals use to help them comprehend, learn, or retain new information".
Wenden (1991)	"Learning strategies are mental steps or operations that learners use to learn a new language and to regulate their efforts to do so. They are one type of learner training content that should be included in plans to promote learner autonomy".
Cook (1991)	"(…) a choice that the learner makes while learning or using the second language that affects learning".
Ellis (1997)	"Learning strategies are the particular approaches or techniques that learners employ to try to learn an L2. They can be behavioural (…) or they can be mental (…)".
Oxford (2001)	"(…) the specific behaviours or thoughts learners use to enhance their language learning".
Chamot (2004)	"Learning strategies are the conscious thoughts and actions that learners take in order to achieve a learning goal".
Anderson (2005)	"Strategies are the *conscious* actions that learners take to improve their language learning".
Griffiths (2008a)	"(…) activities consciously chosen by learners for the purpose of regulating their own language learning".
Cohen (2011)	"Language learner strategies can be defined as thoughts and actions, consciously selected by learners, to assist them in learning and using language in general, and in

the completion of specific language tasks".

Table 1.6. presents an overview of definitions of learning strategies in chronological order. As can be seen from the above, definitions of this cognitive variable evolved from simple "techniques or devices which a learner may use to acquire knowledge" (Rubin 1975: 43) to more complex "activities consciously chosen by learners for the purpose of regulating their own language learning" (Griffiths 2008a: 87). Such definitions have been subject to considerable criticism in recent years (cf. Pawlak 2011). Ellis (1995: 533), for example, points out that "[d]efinitions of learning strategies have tended to be *ad hoc* and atheoretical" and explains that it is unclear whether learning strategies should be seen as conscious or unconscious as a number of definitions avoid addressing this issue, for example using the term *deliberate actions* (Chamot 1987).

As mentioned at the beginning of this section, the notion of strategy is understood differently by various researchers who view them as problem-oriented and conscious (Ellis 2004), conscious and unconscious (Larsen-Freeman and Long 1994), behavioral and mental (Ellis 1997), amenable to change (Wenden 1987), unobservable (Chamot 2004; Chamot 2008) and related to each other (Anderson 2005). Moreover, a variety of labels have been used by theorists and researchers to refer to strategies, the most commonly used of which include: *learner actions, behaviours, tactics, techniques, problem solving procedures, cognitive processes*, *tricks, potentially conscious plans* or even *moves* (Ellis 2004; Wenden 1987; Larsen-Freeman and Long 1994; Pawlak 2011; Chamot 1987; Drożdział-Szelest 1997; Griffiths 2004; Griffiths 2008a; Cohen 1998).

Another challenge confronting researchers in the area of learning strategies is connected with devising a consistent taxonomy of those actions and thoughts intended to enhance language learning. While a number of such classifications have been proposed, the most widely known are those developed by Oxford (1990a), and O'Malley and Chamot (1990). As can be seen in Figure 1.3., Oxford's (1990a) taxonomy is hierarchical in character and based on a division into *direct* strategies and *indirect* strategies. *Direct* strategies involve mental processing of the target language and are further categorized into *memory strategies* (used for remembering and retrieving new information), *cognitive strategies* (used for understanding and producing the language) and *compensation strategies* (used for overcoming limitations in knowledge of the language). By contrast, *indirect* strategies, as the name suggests, provide indirect but essential support for language learning, very often

without directly involving the target language. This group of learning strategies includes *metacognitive strategies* (used for regulating learning by means of planning, arranging, focusing and evaluating), *affective strategies* (used for lowering the level of anxiety) and *social strategies* (used for interacting with others).

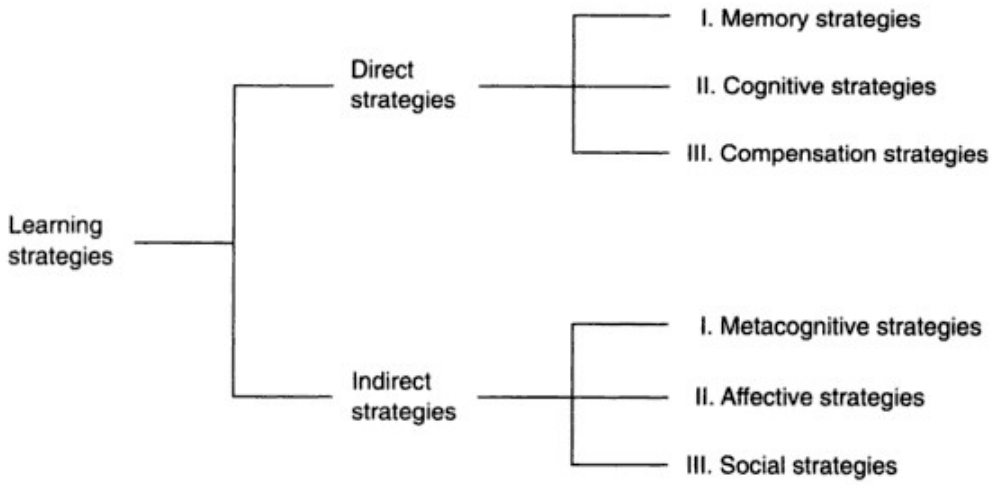

Fig. 1.3. Oxford's (1990a) taxonomy of learning strategies.

As previously highlighted, an alternative taxonomy was offered by O'Malley and Chamot (1990), who made a key distinction between:

- *metacognitive strategies*, which are defined as "(…) higher order executive skills that may entail planning for, monitoring, or evaluating the success of a learning activity" (O'Malley and Chamot 1990: 44); this category of strategies includes the following processes: selective attention, planning, monitoring and evaluating;
- *cognitive strategies*, which are deployed in specific learning tasks to directly manipulate or transform the learning material in ways that enhance learning; typical strategies that belong to this category include rehearsal, organization, inferencing, summarizing, deduction, imagery, transfer and elaboration;
- *social/affective strategies*, which involve interaction with other users of the target language and are further divided into the following representative strategies: cooperation, questioning for clarification and self-talk.

Because of the fact that there is an obvious overlap between these two taxonomies, an assumption has been made that they should be combined. As Dörnyei and Skehan (2003) suggest, the following changes should be made: excluding communication strategies

from the scope of learning strategies (cf. Dörnyei 2005b), combining Oxford's (1990a) memory and cognitive strategies, and separating O'Malley and Chamot's (1990) social strategies from affective strategies. The newly developed taxonomy is composed of the following four main classes:

- *cognitive strategies*, which involve the manipulation or transformation of the learning material/input, for example repetition, summarizing or using images;
- *metacognitive strategies*, which involve higher-order strategies aimed at analyzing, monitoring, evaluating, planning, and organizing one's own learning process;
- *social strategies*, which involve interpersonal behaviours aimed at increasing the amount of L2 communication and practice the student undertakes, for example cooperating with peers;
- *affective strategies*, which involve taking control of the emotional conditions and experiences that shape one's subjective involvement in learning.

Researchers have used various data collection instruments in order to research learning strategies. Jiang and Cohen (2012), for example, enumerate questionnaire surveys or verbal reports. Chamot (2008) talks about retrospective interviews, stimulated recall interviews or written diaries and journals, concluding that "The preponderance of research on language learning strategies has been descriptive (…) (Chamot 2004: 15). Verbal reports are also used to identify learners' strategies (Cohen 2002), which is related to the fact that mental processes are not captured by observation (Chamot 2008; Cohen 1998; O'Malley and Chamot 1990; Rubin 1975; Wenden 1991). However, probably the most convenient method for identifying learning strategies is through questionnaires. One of such instruments that has been widely used in L2 research is the *Strategy Inventory for Language Learning* (SILL), developed by Oxford (1989) and based on the distinction between *direct* and *indirect* strategies, discussed earlier in this subsection. This data collection tool has been translated into other languages, for example Chinese (Shi 2011) or Polish (Olejarczuk 2014b). The *SILL* will be discussed in detail in Chapter 4, taking into consideration the fact that this measurement tool was used in the study described in the current dissertation. Another inventory that is worthy of note is the *English Language Learning Strategy Inventory* (*ELLSI*) (Griffiths 2003), consisting of 32 items, in which learners are asked to rate from 1 (low frequency) to 5 (high frequency) how frequently they use particular learning strategies. An important advantage of this questionnaire is its brevity in comparison to other well-known instruments (Griffiths 2006). Yet another data collection tool that holds out

considerable promise is the *Motivated Strategies for Learning Questionnaire* (*MSLQ*) (VanderStoep and Pintrich 2003). As the name suggests, the items cover two broad areas: that is motivation and learning strategies, and the tool consists of 81 items, each using a 7-point scale anchored by 1 (not at all true of me) and 7 (very true of me). The *learning strategies* part includes 50 items divided into two sections: *cognitive* and *metacognitive* strategies (31 items) and *resource management* strategies (19 items), both further divided into subsections.

As regards the body of research into language learning strategies, it appears to be considerable as literature is replete with studies indicating that better learners use more strategies, for example that conducted by Griffiths (2003). There are also numerous studies indicating that there is a strong link between the use of learning strategies and FL learning outcomes, for example Green and Oxford (1995). Other researchers prefer to discuss the impact of FL proficiency on the use of strategies rather than the other way round. Anderson (2005), for instance, states that strategy use and proficiency are strongly related and proficiency can explain from .30 to .78 of the variance in strategy use. He explains, "Proficient L2 learners have been found to have a wider repertoire of strategies and draw on them to accomplish L2 tasks" (Anderson 2005: 762). The crux of the problem is that correlation analysis, which is used in most of the studies investigating the relationship between language learning strategies and learning outcomes, cannot unambiguously determine causality, which means that caution must be exercised in drawing final conclusions.

Apart from L2 proficiency, there is general consensus among LLS experts that learner strategies can lead to enhanced autonomy (Cohen 2007). Hsiao and Oxford (2002) support this assumption claiming that strategies pave the way toward learner proficiency and autonomy. An alternative approach adopted by researchers has been to study the factors that have the potential to affect strategy use. Chamot (2004) claims that this direction of research appears to be fruitful. Cohen (1998) purports that strategies are tied to learning styles, personality-related variables (anxiety or self-concept), demographic factors (sex and age) or ethnic differences. Pawlak (2011) enumerates a number of studies which prove the existence of positive relationships between learning strategies and age, motivation, gender, personality and beliefs. Ellis (1995) points out that, among many factors, age affects the way strategies are used in such a way that the older learners are, the more complex and sophisticated strategies are used. Other variables that affect strategy use are personality or motivation, the latter having "(…) a causal effect on the quantity of learning strategies" learners employ (Ellis 1995: 542).

To sum up, language learning strategies remain an extremely exciting and promising area of pedagogical research at present, which was aptly summarized by Ellis (2004: 546), who points out: "Learning strategies have proved a golden mine to which many researchers have rushed". Although it is true that considerable accomplishments have been made with respect to describing, classifying, and investigating strategic devices, there are numerous questions that still remain unanswered and many challenges that researchers need to confront. First and foremost, in the face of the controversy connected with the strategy concept, Dörnyei (2005a: 190) suggests that this notion should be discarded in favour of what he considers a more versatile term—*self-regulation*, which he defines as "(…) some sort of trait-like strategic potential that enables some to excel in this area". Self-regulation is a dynamic and multidimensional term emphasizing the degree to which individuals actively participate in their own learning and it is frequently used synonymously with such concepts as *self-control*, *self-directed behavior* or *volition*. Griffiths (2008a: 85) argues, however, that "the self-regulation concept does not remove the need for a strategy concept, neither does it do anything to resolve the battle over definition". Additionally, taking into account the fact that learning strategies can be taught to second language learners (Cohen 1998; Wenden 1987; Hsiao and Oxford 2002), it is clear that teachers are better able to understand strategies or techniques than "(…) somewhat nebulous self-regulatory processes" (Pawlak 2011: 31). When it comes to the areas that deserve special attention, further insights are needed into the relationship between the use of learning strategies and FL attainment or the effectiveness of strategies-based instruction (SBI) in different contexts. Among other things, there is an obvious need to improve the existing measurement tools, develop entirely new instruments, use a combination of quantitative and qualitative approaches in order to ensure greater validity and reliability of the findings, as well as to conduct longitudinal research into learning strategies in view of the fact they may change over time.

1.2.1.5. Age

Another cognitive variable that will be presented in this section is age which, as stated by Lightbown and Spada (2006), is significantly easier to define and measure in comparison to other individual differences and has always been considered a major factor determining success in learning a second/foreign language. Although age has been one of the most intri-

guing issues in SLA research for a long time, this cognitive factor still appears to be the main focus of numerous researchers' interest (Mihaljević Djigunović 2014; Griffiths 2008b). What distinguishes age from other learner characteristics is its complex nature (Muñoz 2014), as signalled, for example, by Ellis (2004), who excludes this factor from his grouping of IDs into abilities, propensities, cognitions, and actions, which was briefly discussed at the beginning of this chapter.

It is widely believed that children acquire a new language more rapidly and effortlessly than adults. For this reason, some educators in the past, for instance Erasmus, Montaigne or Locke, were in favour of starting second language learning early (Stern 1994; Jedynak 2009). The belief that young L2 learners are superior over older students was enshrined in the *Critical Period Hypothesis* (CPH), which was summarized by Birdsong (1999: 1) in the following way: " (…) the CPH states that there is a limited developmental period during which it is possible to acquire a language be it L1 or L2, to normal, nativelike levels. Once this window of opportunity is passed, however, the ability to learn language declines". It should be noted that the CPH was originally formulated by Lenneberg (1967), who argued that language ability diminishes after puberty because of a loss of plasticity and lateralization in the brain. He (Lenneberg) noted that, "(…) automatic acquisition from mere exposure to a given language seems to disappear [after puberty], and foreign languages have to be taught and learned through a conscious and labored effort. Foreign accents cannot be overcome easily after puberty" (1967: 176). Early observations of this phenomenon come from Penfield and Roberts (1959: 236), who claim that the optimum period for language acquisition falls within the first ten years of life when "(…) the human brain becomes (…) stiff and rigid".

Although it is generally believed in psycholinguistics that a critical period for first language acquisition exists, problems arise when the critical period claim is extended to second language learning. While a number of researchers use the term *critical period*, it is crucial to point out that it is considered a misnomer by others (Gass and Selinker 2008). Long (1990), for example, chooses to use the term *sensitive* rather than *critical period*, claiming that there may exist one or more sensitive periods. As Marinova-Todd et al. (2000: 9) state, nowadays both terms *sensitive* and *critical period* are used interchangeably, and the scholars further argue that:

> Researchers (…) have often committed the same blunders as members of the general public: misinterpretation of the facts relating to speed of acquisition, misattribution of age differ-

> ences in language abilities to neurobiological factors, and, most notably, a misemphasis on poor adult learners and an underemphasis on adults who master L2s to nativelike levels.

Long (1990) differentiates between the *strong* version of the CPH, supported by Lenneberg (1967) and Penfield and Roberts (1959), and the *weak* version, which states that learning an L2 would be possible after puberty but native-like abilities would be unattainable.

Muñoz (2007: 240), in turn, states: "The effects of age on L2 learning have usually been studied in relation to the issue of the existence of a critical period in second language acquisition (…)"; however, findings of different studies are not unanimous. Some of them, for example, those undertaken by Patkowski (1980), Johnson and Newport (1989), DeKeyser (2000, 2003), DeKeyser and Larson–Hall (2005), Hakuta et al. (2003), Flege (1999) or Hyltenstam and Abrahamson (2001), confirm that there exists a critical period beyond which it is difficult to master a foreign language. On the other hand, there are studies offering evidence against the existence of the CPH for language acquisition. Basing on the available empirical evidence, Singleton (2007: 48) undermines the role of CPH explaining that "(…) there is a vast variation in the ways in which the critical period (CP) for language acquisition is understood". Examples of studies in which researchers conclude that the critical period does not really exist are as follows: Bialystok (2001), Birdsong (2005), Marinova-Todd et al. (2000) or Moyer (2004).

In recent publications dealing with the age factor, for example DeKeyser (2012) or Muñoz and Singleton (2011), some new trends in viewing this cognitive variable can be discerned. As Singleton and Leśniewska (2012: 103) point out, "much recent research on age-related differences shows a tendency to shift attention from purely neurobiological maturational factors to a combination of social, environmental and affective variables (…) to an approach, in other words, that recognizes the complexity of the language acquisition process". In view of the fact that even in the best of circumstances every student brings to bear a unique set of individual learner differences, it appears that the exploration of these factors that are likely to interact with age may shed more light on foreign language learning. Numerous variables confounding the age factor have been found in recent literature, which include amounts and intensity of input (Jia and Aaronson 2003), high-quality input (Winitz et al. 1995), co-habitation with native speakers (Muñoz and Singleton 2007), range of contexts of L2 use (Moyer 2004), sense of belonging to the target language (TL) community (Kinsella and Singleton 2014), engagement with the TL (Kinsella and Singleton 2014; Muñoz and Singleton 2007), attitudes and motivation (Muñoz and Singleton 2011),

or the quality of L2 experience (Moyer 2004). Certainly, the factors enumerated above do not constitute a comprehensive list of variables which may interact with age and potentially determine the effect of age on the L2 learning process.

All in all, after many years of research focusing on age as one of the major determinants of foreign language learning, this concept is seen as a complex variable that is related to a large number of other individual learner factors. As Moyer (2014: 458) claims, "age effects research has traditionally failed to capture the complexity and dynamism of the experience of language learning, and the myriad factors that influence its course of development". It has been assumed that age is a predictor of L2 proficiency and younger is better (Krashen 1982); however, as Bialystok and Hakuta (1999) claim, observation and empirical research yield exceptions to this rule. Singleton and Ryan (2004) speculate that further research is necessary in a number of areas; in particular, more longitudinal studies are needed apart from some recent exceptions such as, for example Muñoz (2006) or Low et al. (1993). Moreover, taking into consideration the fact that the bulk of research projects conducted under the general aegis of the age factor have been quantitative by nature, it can be argued that the use of qualitative data complementing these studies would allow researchers to collect insights into students' experience with language learning.

1.2.2. Affective variables

The second broad group of individual differences are affective variables, defined by Gardner (1990: 179) in the following way: "This category refers to those emotional or predispositional characteristics of individuals that influence their perceptions and impressions of the language learning context and thus their reactions to it, and their views of the language itself". In this section the following affective variables will be briefly described: motivation, personality, language anxiety, self-esteem together with self-concept as well as willingness to communicate.

1.2.2.1. Motivation

As Dörnyei (2010a: 248) argues, "(…) motivation is the primary affective factor shaping second language acquisition/learning (…)". Thus, it is reasonable to start the discussion of affective variables with this important ID factor. As claimed by Dörnyei, the understanding of motivation has experienced historical changes starting from Sigmund Freud's view of motivation being determined by basic human instincts and drives, conditioning theories related to behaviorists, such as Pavlov or Skinner, humanistic psychologists, such as Maslow and his famous *Hierarchy of Needs*, and the cognitive approach, which "(…) places the focus on how the individual's conscious attitudes, thoughts, beliefs, and interpretation of events influence their behavior; that is how mental processes are transformed into action" (2001a: 8).

As Ushioda (2008: 19) points out, the term *motivation* comes from the Latin word *movere* meaning 'to move', which is in line with the expert's definition of it, according to which, "(…) motivation concerns what moves a person to make certain choices, to engage in action, and to persist in action". Motivation is composed of various factors and thus the discussion of this concept is inevitably complex (Dörnyei 2010a; Ushioda 2008; Williams and Burden 1997). Dörnyei and Ottó (1998: 64) define motivation as "(…) dynamically changing cumulative arousal in a person that initiates, directs, coordinates, amplifies, terminates, and evaluates the cognitive and motor processes whereby initial wishes and desires are selected, prioritized, operationalized, and (successfully or unsuccessfully) acted out". Another definition of motivation was presented by Williams and Burden (1997: 120), who construe this concept as "a state of cognitive and emotional arousal, which leads to a conscious decision to act, and which gives rise to a period of sustained intellectual and/or physical effort in order to attain a previously set goal (or goals)". As Dörnyei (2005a: 65) states, "without sufficient motivation, even individuals with the most remarkable abilities cannot accomplish long-term goals (…)".

As regards the research into the 'thriving' area of motivation, Dörnyei (2005a) provides a division into the following three phases:

- *The social-psychological period (1959–1990)*—the period in which the greatest role was played by the research undertaken by a social psychologist Robert Gardner and his associates in Canada. The most important theories characterizing the *social-psychological period* are Gardner's (1985) *socio-educational model of second language acquisition* and Clément's (1980) *theory of linguistic self-confidence*. The

concepts stemming from the *social-psychological period* are *integrative* and *instrumental orientation* and the *integrative motive*. *Integrative orientation* reflects a positive disposition toward a second language group and readiness to interact with them, whereas *instrumental orientation* refers to a situation in which language learning is connected with potential pragmatic gains of second language proficiency, for instance pursuing a higher level of education in the L2. The *integrative motive* is a complex construct made up of three components: (1) *integrativeness* (comprising integrating orientation, interest in foreign languages, and attitudes toward the L2 community), (2) *attitudes toward the learning situation* (subsuming attitudes toward the teacher and the course) and (3) *motivation* (composed of motivational intensity, desire and attitudes towards learning the language).

- *The cognitive-situated period (during 1990s)*—characterized by empirical work drawing on cognitive theories in educational psychology. The most widely known theories of this period are Deci and Ryan's (1985) *self-determination theory* or Weiner's (1992) *attribution theory*. The best-known concepts of this period are "(…) *intrinsic motivation*, which refers to doing something because it is inherently interesting and enjoyable, and *extrinsic motivation*, which refers to doing something because it leads to a separable outcome" (Ryan and Deci 2000: 55).
- *The process-oriented period*—in which interest in the temporal aspect of motivational changes has been emphasized. As Dörnyei (2001b) highlights, during the first decades of research, motivation was perceived as a relatively stable learner characteristic. Only in the 1990s did researchers start to view this construct as a more dynamic and multifaceted factor (Dörnyei 1998) that fluctuates over time (Shoaib and Dörnyei 2005). Dörnyei (2000: 523) also states that the nature and magnitude of motivation are subject to change over time, maintaining that "(…) even within the duration of a single course, most learners experience a fluctuation of their enthusiasm/commitment, sometimes on a day-to-day basis".

Since describing all of the motivation theories in detail is beyond the scope of the present subsection, it appears warranted to confine the discussion to the major developments of the last two decades, in particular the recognition of the *dynamic nature* and *temporal variation* of motivation, which was first presented in the book of Williams and Burden (1997). These scholars view motivation on a continuum and differentiate between the following three stages of it: *reasons for doing something*, *deciding to do something*, and *sustaining the effort, or persisting*. The distinction proposed by Williams and Burden

(1997) is further explored in the *process model* that describes some aspects of motivational evolution, drawn up by Dörnyei and Ottó (1998), and further elaborated on by Dörnyei (2001a), who views motivation as a process being composed of the following three phases: *preactional stage* (i.e. *choice motivation*), *actional stage* (i.e. *executive motivation*), and *postactional stage* (i.e. *motivational retrospection*).

A very promising research direction is *the Theory of L2 Motivational Self System* (Dörnyei 2005a; Dörnyei 2009a; Dörnyei 2009b; Dörnyei and Ushioda 2009; Dörnyei 2008; Dörnyei 2010b), which has its roots in two theoretical developments. The first one is the field of SLA and the concept of *integrativeness* and *integrative motivation*, introduced by Gardner and Lambert (1959), and the other one is mainstream psychology and the results of research on the 'self', e.g. Markus and Nurius (1986). The main idea of the new theory was the equation of *integrativeness/integrative motivation* with *the ideal L2 self* (Dörnyei 2009b). As Ushioda and Dörnyei (2012: 400) explain, "A basic tenet is that if proficiency in the target language is integral to one's *ideal* or *ought-to* self, this will serve as a powerful motivator to learn the language because of our psychological desire to reduce the discrepancy between current and future self states". The *L2 Motivational Self System* is a broad construct made up of the following three dimensions:

- *Ideal L2 Self*—which refers to L2 specific facet of our *ideal self*. If the individual we would like to become speaks a second language, the *ideal L2 self* is a powerful motivator to learn the second language due to the desire to reduce the discrepancy between our actual and ideal selves.
- *Ought-to L2 Self*—which concerns the characteristics that one believes one *ought to* possess (e.g. duties or responsibilities) in order to avoid possible negative consequences, such as for example failing to live up to parental expectations.
- *L2 Learning Experience*—which refers to situated, 'executive' motives connected with the immediate learning environment and experience, for example the impact of the teacher or the peer group.

As far as instruments for measuring motivation are concerned, Ushioda and Dörnyei (2012: 401) claim that: "(…) motivation research has generally relied on gathering self-report data to access L2 learners' own perspectives (…)". One of the most widely known questionnaires used to measure L2 motivation is the *Attitude/Motivation Test Battery* (*AMTB*) (Gardner 1985), which is a multicomponential motivation questionnaire consisting of 130 items. It operationalizes all the main parts of Gardner's theory of the *integrative*

motive but it also includes other components such as *language anxiety*, *parental encouragement* and *instrumental orientation*. Another well-known measurement tool is the *Language Learning Orientations Scale: Intrinsic Motivation, Extrinsic Motivation*, and *Amotivation* (*LLOS-IEA*), developed by Noels et al. (2000). The instrument was devised to assess the role of various components of the *self-determination theory* in second language learning. The *LLOS-IEA* battery consists of the following seven parts: *amotivation, external regulation, introjected regulation, identified regulation, intrinsic motivation: knowledge, intrinsic motivation: accomplishment* and *intrinsic motivation: stimulation*. Although quantitative methods have been widely used in research of L2 motivation, Ushioda and Dörnyei (2012) claim that qualitative methods should be used to complement the dominant quantitative paradigm, especially in view of growing emphasis on the dynamic nature of motivation.

Dörnyei (1998) and Gardner (2002) provide in-depth overviews of qualitative and quantitative studies and experiments conducted by various researchers in order to investigate the role of motivation in FL learning. Ushioda (2008) claims that research interest in motivation has focused on two broad areas: (1) describing, measuring and classifying this ID and (2) investigating the relationship between motivation and achievement. The researcher states that a substantial body of research has been conducted to explore the hypothesis that integrative motivation leads to success at language learning, especially in the long run. This is supported by research done by Gardner and Lambert (1972), Hernández (2008) or Brown et al. (2002); however, there are findings to the contrary as well, for example those presented by Gardner and MacIntyre (1991). Since *integrative motivation* does not apply in some contexts, another interesting line of enquiry was proposed to test the assumption of the *L2 Motivational Self System* theory. Dörnyei et al. (2006), for example, found that an integrative motivation factor was the most important component of the L2 motivation construct; however, it was underpinned by instrumental motivation and attitudes to target language speakers. Taguchi et al. (2009) replicated the Hungarian study, supporting Dörnyei's (2009b) claim that *integrativeness* can be relabelled as *the ideal L2 self*, which was mentioned earlier.

To sum up, Ellis (1995) claims that motivation is one of the most fully researched areas of IDs; however, the bulk of the research has only focused on integrative and instrumental motivation. Ushioda and Dörnyei (2012) propose the following three future areas of research: (1) How does motivation change over time and what factors drive this change?, (2) How are aspects of one's identity/self-related to facets of one's motivational intentions

or motivated behaviours? and (3) How do environmental influences and contingencies shape motivational dispositions? Clearly, many other questions may be posed such as, for example, "What is the relationship between the motivational characteristics of the FL teacher and the level of his/her students' attainment?" or "Is there any relationship between student motivation to learn a FL and computer use?", a question that is actually posed in the present thesis. Finally, taking into consideration the fact that so far in many cases researching motivation involved using self-report questionnaires only, probably more mixed–research paradigms are needed in order to research motivation thoroughly.

1.2.2.2. Personality

Another affective factor that will be described is personality, which according to Dörnyei (2005a: 10) "(…) is the most individual characteristic of a human being (…)". The study of personality is one of the major themes in psychology; however, as Dörnyei and Skehan (2003) state, progress in the area of personality has been slow when it comes to methodology as well as systematic patters of results in L2 learning. One of the reasons for this might stem from the fact that "(…) personality traits have been consistently neglected in many research studies (…)" (Biedroń 2011b: 468), a claim that is echoed by Gardner (1990), Dewaele and Furnham (1999), or Ellis (1995), who points out that the research in this area is 'scanty' and 'unsatisfactory'.

As regards the term *personality*, it has been used differently by various experts, one example being Dörnyei (2005a), who makes it clear that personality is different from temperament and mood. According to the researcher (Dörnyei 2005a: 11), temperament refers to those IDs that are heritable and thus it partly overlaps with personality, whereas mood "refers to a highly volatile, changing state that is still not completely random". Mayer (2007: 1) provides an overview of personality definitions in the literature and proposes his own definition, according to which, "personality is a system of parts that is organized, developed, and is expressed in a person's actions". The scholar claims that the above-mentioned 'parts' include motives, emotions, mental models, and the self. Another frequently cited standard definition of personality was proposed by Pervin et al. (2005: 6), who support the view that "personality refers to those characteristics of a person that account for consistent patterns of feelings, thinking, and behaving".

When it comes to classifying personality traits, the two taxonomies that have received the greatest attention are Eysenck's three component construct (Eysenck and Eysenck 1985), consisting of *neuroticism*, *psychoticism* and *extraversion*, and the *Big Five* model (McCrae and John 1992), which according to Dörnyei (2005a: 13): "(…) is gaining momentum to the extent that it seems almost ubiquitous in the current literature". According to the *Big Five* model, there are five basic dimensions of personality: *extraversion*, *agreeableness*, *conscientiousness*, *neuroticism*, and *openness to experience*. Each of the five factors constitutes a continuum with two extremes, for example *extraversion–introversion*, which will be described later in this section. There are six specific traits of each domain proposed by Costa and McCrae (1992), which are as follows:

1. Extraversion—warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions;
2. Agreeableness—trust, modesty, compliance, altruism, straightforwardness, and tender-mindedness;
3. Conscientiousness—competence, self-discipline, achievement-striving, dutifulness, order, and deliberation;
4. Neuroticism—anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability;
5. Openness to Experience—fantasy, aesthetics, feelings, actions, ideas, and values.

As regards measuring personality, Ellis (1995) states that the most popular ways of doing so are self-report questionnaires; however, there have also been studies in which researchers used somewhat unconventional methods. For example, in studies conducted by Guiora et al. (1972, 1980) learners were administered low doses of alcohol or valium with a view to reducing their level of inhibition. Surprisingly, alcohol resulted in increased ability to authentically pronounce an L2 whereas valium did not. In more recent SLA studies, two instruments have proved to be the most popular in measuring personality. The first one is the *NEO Personality Inventory* (NEO-PI) (Costa and McCrae 1992), a self-report paper-and-pencil questionnaire covering the five main dimensions of the Big Five Model as well as the six facets that define each domain. The second influential measurement tool used for personality assessment is the *Myers-Briggs Type Indicator* (MBTI) (Myers-Briggs et al. 1998), which is based on Jung's theory of psychological types. The MBTI is a self-report inventory which categorizes personality according to four dichotomous scales: *extraversion–introversion*, *sensing–intuition*, *thinking–feeling* and *judging–perceiving*, and has

often been used in second language studies as a learning style measure. There are also other instruments measuring personality and overviews thereof have been presented by different scholars, for example Ellis (1995) or McCrae and John (1992).

As Ackerman et al. (2011: 30) hold, a plethora of personality factors have been identified by different researchers, concluding that, "modern differential psychology has made great strides in describing the kinds of variables upon which individuals differ—far beyond the four humours/temperament types described by Hippocrates and later by Galen (…) as Choleric, Melancholic, Sanguine, and Phlegmatic". The divergent approaches to the classification of personality factors that specifically relate to FL learning have been presented by various scholars, for example Stern (1994), Larsen-Freeman and Long (1994), Brown (2000), Ellis (2004), Lightbown and Spada (2006) or Johnson (2008), with Ellis (1995: 517) pointing out that "(…) personality factors constitute a mixed bag". Some of them, such as e.g. extraversion–introversion, are related to theories of personality described earlier, whereas others are based on general psychology constructs, e.g. risk-taking. It is generally agreed that certain personality characteristics are helpful whereas others are detrimental to successful language learning (Stern 1994; Biedroń 2012) and that the relationship is intricate (Lightbown and Spada 2006).

As mentioned earlier, the dimension that has received much attention in L2 learning studies as it seems to hold considerable promise (Ellis 1995; Ellis 2004; Dörnyei 2005a) is extroversion–introversion. Extraverts and introverts have been described by Eysenck and Chan (1982: 154) in the following way: "extraverts are sociable, like parties, have many friends and need excitement; they are sensation-seekers and risk-takers, like practical jokes and are lively and active. Conversely, introverts are quiet, prefer reading to meeting people, have few but close friends and usually avoid excitement". At first glance, it seems that extraverts learn at a faster rate and are more successful than introverts (Ellis 1985); however, empirical research results are inconclusive (Larsen-Freeman and Long 1994). Although there are studies which report a relationship between extraversion and FL achievement, for example Strong (1983) or Dewaele and Furnham (2000), there are findings to the contrary, for instance Busch (1982) or Ehrman (2008).

All things considered, it appears that there is a relationship between some personality traits, in particular the extroversion–introversion dimension, and FL attainment. As Brown (2000: 156) suggests, research findings "(…) clouded our stereotype of the extraverted language learner as a frequent and willing participant in class activities. But more

appropriately, it suggested that introverts have the patience and focus to attend to clear articulation in a foreign language". When it comes to future research directions, probably it would be useful to look at the relationship between personality and other individual learner variables, such as learning strategies, which may yield meaningful insights.

1.2.2.3. Anxiety

Another important variable falling within the broader group of factors affecting learning (Gass and Selinker 2008) is *anxiety*. Dörnyei (2005a) states that it is a complex construct and draws our attention to two anxiety dimensions: (1) *beneficial/facilitating* versus *inhibitory/debilitating* anxiety and (2) *trait* (stable predisposition) versus *state* (moment-to-moment experience) anxiety. Horwitz et al. (1986: 125) define this affective factor in the following way: "Anxiety is the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the automatic nervous system". The same experts (Horwitz et al. 1986: 128) conceptualized a situation-specific anxiety construct, which was named foreign language anxiety (FLA), defined as: "(…) a distinct complex of self-perceptions, beliefs, feelings, and behaviours related to classroom language learning arising from the uniqueness of the language learning process". MacIntyre (1999: 27) claims that language anxiety involves "the worry and negative emotional reaction aroused when learning or using a second language".

In order to make anxiety a researchable construct, several instruments have been used to measure it (Dörnyei 2005a; Gardner 1990; Oxford 1992). Certainly, one of the most widely used measurement tools is the *Foreign Language Classroom Anxiety Scale* (FLCAS) developed by Horwitz et al. (1986), which is a 33-item questionnaire containing Likert-type scales to measure responses to stressors. The items relate to communication apprehension, test-anxiety, and fear of negative evaluation in the foreign language classroom, which refer to three components of foreign language anxiety identified by Horwitz et al. (1986). Research conducted to date has mainly focused on the following areas: pinpointing the sources of anxiety (e.g. Gregersen and Horwitz 2002), examining the impact of language anxiety on the process of learning (e.g. MacIntyre and Gardner 1994), establishing the relationship between anxiety and learning outcomes (e.g. Horwitz 2001) or investigating the characteristics of students with high levels of language anxiety (e.g. Piechurska-

Kuciel 2008). Although there is prima facie evidence that anxiety affects L2 performance (Dörnyei 2005a), there has been disagreement if anxiety is the cause (Horwitz 2001; MacIntyre 1999; Dewaele 2013) or the result (Sparks et al. 2000) of poor achievement. There are also researchers who believe that anxiety is not always a negative factor in language learning (Lightbown and Spada 2006; Oxford 1992; Allwright and Bailey 1994; Brown 2000). It is generally believed that students with low anxiety levels will learn better; however, the outcomes of research in this area has not been straightforward (Horwitz 2001). As Ellis (1995: 482) states, "There are several reasons for these mixed results. One of them is that the relationship between anxiety and achievement is probably not a linear one", a claim that is supported by Gass and Selinker (2008: 400), who suggest that "In general, anxiety (…) has a curvilinear effect on performance: low levels help, whereas high levels hurt".

All in all, foreign language anxiety is a critical factor with regard to second language acquisition. Empirical research has shown it is a dynamic factor (Pawlak 2009; Ellis 2004), which interacts with other variables, for example with tolerance of ambiguity (Dewaele and Ip 2013). Undoubtedly, further research is needed in order to resolve some of the issues related to this ID variable. As MacIntyre (1995: 96) states, "anxious students (…) will not learn as quickly as relaxed students". Therefore, probably teaching learners how to become less anxious and instructing teachers how to create a low-anxiety classroom atmosphere is a particular direction of research that should be developed.

1.2.2.4. Self-esteem

As Brown (2000: 150) posits, anxiety is "intricately intertwined with self-esteem (…)", which he perceives as: "(…) the most pervasive aspect of any human behavior" (Brown 2000: 145). Despite his claims, the amount of L2 research in this area does not reflect its importance, which may stem from the fact that this affective variable "(…) is closely related to the notion of self-confidence, which has a vigorous research tradition in applied linguistics" (Dörnyei 2005a: 211). Coopersmith (1967: 4) proposed the following classical definition of self-esteem:

> The evaluation which the individual makes and customarily maintains with regard to himself: it expresses an attitude of approval and indicates the extent to which an individual believes himself to be capable, significant, successful and worthy. In short, self-esteem is a personal

> judgement of the worthiness that is expressed in the attitudes the individual holds towards himself.

Oxford (1999b: 62) provides a similar, but shorter definition which states that, "self-esteem is a self-judgement of worth or value, based on feelings of efficacy, a sense of interacting effectively with one's own environment". Three general levels of self-esteem have been indicated in the literature to account for its multidimensional character (Larsen-Freeman and Long 1994; Brown 2000; Oxford 1992): *general*, or *global* self-esteem (relatively stable and resistant to change), *situational*, or *specific* self-esteem (referring to particular life situations, e.g. work, or personality traits, e.g. empathy), and *task* self-esteem (relating to particular tasks within specific situations).

When it comes to research conducted to date, it has mainly focused on investigating the relationship between self-esteem and L2 performance, as illustrated by Heyde (1979) or Gardner and Lambert (1972), and on examining the difference between people with high self-esteem and low self-esteem with reference to language learning, for instance Baumeister (1999). Although positive correlation was found between self-esteem and FL learning outcomes, as Allwright and Bailey (1994) suggest, one cannot easily state whether high self-esteem is the cause or the product of success, a claim that is supported by Brown (2000: 146), who argues, "what we do not know at this time is the answer to the classic chicken-or-egg question: Does high self-esteem cause language success, or does language success cause high self-esteem?". What is clear, however, is the belief that teachers can enhance learners' self-esteem in the language classroom.

It is interesting to note that self-esteem should be distinguished from a more general term *self-concept* as the terms are mistakenly used interchangeably. As claimed by Heatherton and Wyland (2003: 220), self-concept "(…) refers to the totality of cognitive beliefs that people have about themselves; it is everything that is known about the self, and includes things such as name, race, likes, dislikes, beliefs, values, and appearance descriptions, such as height or weight". In other words, a learner may, for example, like himself/herself, having high level of self-esteem despite his/her lacking any objective indicators that would support such a view. All in all, it is difficult to unanimously decide whether self-esteem is a factor that needs to be included in research paradigms. On the one hand, examining the role of this ID variable appears to be a promising line of enquiry as it is important to be concerned about how learners perceive themselves. On the other hand,

other concepts, such as for example *possible selves* seem to capture self-based ID variation more appropriately.

1.2.2.5. Willingness to communicate

A relatively new affective variable that appears to have a great potential is *willingness to communicate* (*WTC*) (Dörnyei 2005a), which has been characterized as fairly stable in the first language but influenced by a number of variables in an L2 (MacIntyre et al. 1998; Dörnyei 2003a) and related to the concept of anxiety (Mystkowska-Wiertelak and Pietrzykowska 2011; Dörnyei 2005a). MacIntyre et al. (1998: 547) defined the concept of WTC as the individual's "(…) readiness to enter into discourse at a particular time with a specific person or persons, using a L2".

Specialists (e.g. MacIntyre et al. 1998) have conceptualized second language WTC as a six-layered pyramid model that subsumes a host of linguistic and psychological variables in which *Layers IV-VI* are believed to have stable influences on WTC, whereas *Layers I-III* are considered to have situation-specific influences (Yashima 2002). The following layers have been distinguished, starting from the bottom:

- Layer VI (*social and individual context*) represents features the learner has little control of, namely *intergroup climate* and *personality*;
- Layer V (*affective–cognitive context*) addresses such factors as: *intergroup attitudes*, *social situation*, and *communicative competence*;
- Layer IV (*motivation propensities*) comprises the following parts: *interpersonal motivation*, *intergroup motivation*, and *self-confidence*;
- Layer III (*situated antecedents*) is hypothesized to comprise two main groups of factors: *desire to communicate with a specific person*, and *state communicative self-confidence*;
- Layer II (*behavioural intention*) is described by MacIntyre (2007: 568) as the most proximal factor, which "(…) represents the final psychological step in preparation for l2 communication";
- Layer I (*communication behaviour*) is the pinnacle of the pyramid and constitutes actual communication comprising such activities as speaking in class, reading l2 newspapers or watching TV.

It is interesting to note that various aspects of WTC have been examined by different scholars but an overview of research that has been very rich is beyond the scope of the present chapter. There is no doubt, however, that more research would need to be conducted in order to develop methodologies that would allow gaining insight into what processes take place at the moment communication begins. In sum, WTC constitutes a composite ID variable (Dörnyei 2005a) that varies over time and across situations (MacIntyre et al. 1998). Ellis (2004: 542) claims that learners' WTC can be enhanced by teachers by ensuring that the learners "(…) hold positive attitudes to the tasks they are asked to perform".

1.2.3. Social variables

As discussed earlier, individual differences can be explained by reference to cognitive factors, such as aptitude, or affective factors, for instance anxiety, but in part such differences are also socially determined. As Ellis (1995: 197) observes, "Social factors have a major impact on L2 proficiency but probably do not influence it directly. Rather, their effect is mediated by a number of variables". The scholar (Ellis 1995) enumerates such social factors as sex, social class, ethnic identity, and age, the last one of which was described from a cognitive perspective earlier in this chapter. This section will consider two variables which have received a large amount of attention in SLA research, namely *gender* and *beliefs*.

1.2.3.1. Gender

The differences between male and female students in relation to FL attainment appear to be both fascinating and controversial; therefore a decision was made to start the discussion of social ID variables with this issue. Although some scholars use the term *sex*, which constitutes a biological distinction (e.g. Oxford 1992; Ellis 1995), a more appropriate notion that emphasizes the social construction of men and women is *gender* (e.g. Piechurska-Kuciel 2011; Nyikos 2008), which is employed in this thesis. Nyikos (2008: 73) provides a definition of this concept and claims that:

> Gender as a broad term is often used to denote not only the biologically based, dichotomous variable of sex (that is, male or female) but also the socially constructed roles (i.e. gender) which are created by the different ways in which the sexes are raised from birth and socialized within a certain culture.

In spite of the fact that gender is inherently interesting, this social ID variable has often been neglected by researchers in the field of SLA, which is reflected by Sunderland (1994: 211), who writes: "the effects of gender roles, relations and identities are everywhere. Ironically, because of this, in much writing and thinking on English language teaching, gender appears nowhere".

As Komorowska (2009) believes, it is not entirely obvious what accounts for the differences between boys and girls. One the one hand, these differences are in-born. For instance, women have more nerve cells in the left brain hemisphere where language is centered (Legato 2005), and manifest stronger connections between the two hemispheres (Tyre 2005). On the other hand, research findings suggest that parents bring up girls and boys in different ways, which is supported by Nyikos (2008: 75), who holds that, "parents talk more to baby girls than boys, responding more to girls early attempts to use language", concluding that, "in the crucial early years of life, female brains may be better stimulated due to subconscious expectations of adults". Another point of view is presented by Newman et al. (2008), who claim that men and women use language in different ways, which stems from the fact that language is an inherently social phenomenon. As some scholars (e.g. Newman et al. 2008) suggest, men use language more for instrumental purposes, for example conveying information, whereas women tend to use verbal interaction for social purposes.

As far as the relationship between gender and FL learning is concerned, the following research directions can be distinguished: comparing male and female students as regards learning outcomes (e.g. Burstall 1975; Boyle 1987), investigating gender with respect to other individual learner differences, such as motivation (e.g. Gardner and Lambert 1972), language learning strategies (e.g. Griffiths 2003), anxiety (e.g. Piechurska-Kuciel 2011) or personality (e.g. Ehrman and Oxford 1990). A general assumption is that, as Ellis (1995) claims, female learners outperform males, a point of view that is supported by López Rúa (2006: 100), who argues, "(…) girls are regularly superior to boys in terms of overall achievement in languages in general (and foreign languages in particular)". In addition to this, females tend to be more motivated than males, generally have more positive attitudes towards learning a L2 and employ more learning strategies. Piechurska-Kuciel

(2011: 142) claims that gender plays an important role in experiencing emotions and reports results of a study in which females' level of anxiety was higher compared with males, a phenomenon attributed to "(…) socialization processes, due to which females are more sensitive to anxiety (…) and their greater concern over their schoolwork and teacher expectations". As Ehrlich (2001: 105) concludes, "hypotheses concerning female superiority in second language learning are derived from research in L1 acquisition (…) that has established girls' superiority over boys".

As Oxford (1992) points out, gender has received scant attention in research on the development of foreign language skills; therefore significantly more empirical studies on the nature and existence of differences between males and females are needed. Although at first glance it seems that females surpass males in FL learning, research evidence for this view has proved elusive, which may be partly due to the fact that gender interacts with other individual learners variables, such as age, ethnicity or social class (Ellis 1995). Therefore, it would be reasonable to conclude that both male and female students can become good language learners. As regards future research directions into gender, it would be useful to search for ways of teaching which would enable both male and female students to feel comfortable in the FL classroom to achieve success.

1.2.3.2. Beliefs

The final individual learner variable discussed in this chapter are beliefs, which, in the opinion of Dörnyei (2005a: 214), should be distinguished from attitudes, the main difference being the fact that attitudes have a stronger factual support whereas beliefs "(…) are more deeply embedded in our minds and can be rooted back in our past or in the influence of the modelling example of some significant person around us". It should be noted that, similarly to gender that is "(…) often neglected as a variable in language learning" (Nyikos 2008: 74), beliefs are another area where research is relatively scarce (Manchón 2009). However, it is assumed that virtually all learners have strong beliefs about language learning (Lightbown and Spada 2006) and such beliefs may impact students' ultimate success in a L2 (Horwitz 1987); therefore they appear to be an important area of enquiry. As is the case with many other individual variables, e.g. motivation, it has been argued that beliefs are subject to considerable evolution over time (White 2008) although some researchers,

such as, for example, Mori (1999), have raised questions about the malleability of this ID variable. As regards the definition of beliefs, Kalaja and Ferreira Barcelos (2006: 1) define this social learner factor in the following way:

> Beliefs are considered one area of individual learner differences that may influence the processes and outcomes of second/foreign language learning/acquisition (SLA). Their significance has been related, first of all, to mismatches between teachers' and learners' agendas in the classroom; secondly, to students' use of language learning strategies; thirdly, to learners' anxiety; and fourthly, to autonomous learning.

Various types of beliefs have been identified so far. For example, Wenden (1999) linked them with *metacognitive knowledge*, claiming that these two terms can be used interchangeably. Another distinction was made by Benson and Lor (1999), who divided beliefs into *higher-order conceptions* (quantitative/analytic versus qualitative/experiential) and *lower-order beliefs*, pertaining to the nature of language and language learning. Yet another division was proposed by Mori (1999), who identified the following three dimensions: (1) *perception of the difficulty of language learning*, (2) *the effectiveness of approaches to or strategies for language learning*, and (3) *the source of linguistic knowledge*.

When it comes to measurement tools, probably the most widely known instrument used to assess learner beliefs has been Horwitz's (1987) questionnaire, the *Beliefs about Language Learning Inventory* (*BALLI*). This 34 Likert-scale-item instrument was developed to assess students' opinions on a variety of issues related to language learning. Five major areas of the questionnaire can be distinguished: *foreign language aptitude*, *difficulty of language learning*, *nature of language learning*, *learning and communication strategies*, and *motivation*s. Research into beliefs has primarily been focused on the following broad areas: investigating the relationship between beliefs and FL success (e.g. Mori 1999), establishing the set of beliefs that FL learners hold and the nature of these beliefs (Tanaka 2004), as well as looking at the relationship between beliefs and other individual factors, for example learning strategies (Yang 1999).

To sum up, learners enter foreign/second language classrooms with a number of preconceived ideas about themselves or about language learning. Making an attempt to measure and understand students' beliefs about language learning is essential to planning language instruction. Although studies that have specifically dealt with investigating the relationship between beliefs and learning outcomes have been inconclusive, this social variable appears to be highly useful for practical purposes. For example, assessing beliefs that various learners hold may raise their awareness of the nature of FL learning. There is no

doubt that more longitudinal studies are needed in order to investigate the interplay among the different beliefs and their relationship with other ID variables such as, for example, diaries as a means of reflecting on learning.

Conclusion

The aim of this chapter was to provide an overview of the role of individual learner differences in foreign language learning, some of which will be investigated with reference to CALL in the empirical part of this dissertation. Firstly, an attempt was made to define the notion of individual differences and to outline different approaches to classify these individual learner factors. This was followed by a discussion of selected individual differences, divided into three sections: cognitive variables, affective variables, and social variables. Each of these sections has described the most significant developments in the area of research into particular IDs, taking into account their definitions, classifications, the most recent theories, issues in research methodology such as, for example, well-known instruments used for measuring them as well as possible future research directions. It has also presented the results of relevant studies concerning individual variables and L2 proficiency/achievement. Although research findings are sometimes ambiguous and inconclusive, there is no doubt that the individual variables interact with one another, affect both learners and teachers and, in general, impact foreign language learning.

All things considered, there are numerous areas of individual learner variables which need to be investigated, such as for example establishing stronger links with psychology or exploring interactions between different IDs. With the advent of new technologies, a very promising line of enquiry is determining whether various individual learner factors are related to Computer Assisted Language Learning. Moreover, it would be even more challenging to identify variables that have the potential to influence the use of the computer to learn a FL to a great extent. The following two chapters of the current thesis are an attempt to describe and define the Computer Assisted Language Learning environment as well as provide an overview of different studies which have tapped into the relationship between various IDs, their relationship between one another, and their possible impact on FL learning outcomes in this environment.

Chapter 2: Computer Assisted Language Learning

Introduction

In the area of ubiquitous computing and increased opportunities of Internet access, assisting foreign language learning and teaching with technology is a fact that needs to be taken for granted. Although Computer Assisted Language Learning is certainly not a new phenomenon, there are still some teachers who are resistant to integrate technology into the FL teaching process probably because of the fact that CALL appears to be exciting and frustrating at the same time, considering that, as a field of research, it is relatively complex and prone to changes. The perennial issue in CALL has been to develop new ways of learning and teaching a FL in order to help students learn faster, most effectively and in a more convenient way. This chapter introduces the main developments in the area of Computer Assisted Language Learning, providing an examination of some current research interests in CALL, and it is divided into five main parts. Section 2.1. presents various definitions of CALL introduced by different experts and outlines numerous terms related to using the computer in the FL learning, whereas section 2.2. focuses on a brief history of CALL, as proposed by different scholars. Section 2.3. outlines diverse CALL environments, such as face-to-face, blended learning, distance learning or virtual environments. In section 2.4., a number of applications of information and computer technology are enumerated and discussed, such as the Internet, Computer Mediated Communication, concordances, online dictionaries and computer-aided testing. These four sections are followed by the discussion of the most important research directions and the main findings of studies on the use of CALL.

2.1. A definition of CALL

"Technology will never replace teachers, but teachers using technology in their instruction will replace those who do not". This motto has been frequently used by many scholars, such as Krajka (2012) or Fotos and Browne (2011b), to refer to the need for finding opportunities to possess CALL expertise, as nowadays computers are widely used in teaching and learning, with language instruction being no exception. Thus, it is imperative for FL teachers and instructors to develop their computer skills and thorough understanding of *Information and Communications Technology* (ICT).

Computer Assisted Language Learning (CALL) is a vast area that has evolved dramatically in the last 50+ years and is now a crucial component of second and foreign language learning pedagogy. Originally viewed as a supplement to classroom instruction, at present CALL is used to promote learners autonomy and encourage involvement in the target language inside and outside the FL classroom (Fotos and Browne 2011a). Various attempts have been made to produce a comprehensive definition of CALL. Garrett (2009: 719), for example, defines CALL as "(…) the full integration of technology into language learning". A definition of CALL that is commonly cited by other authors (Fotos and Browne 2011b; Chapelle 2010a; Gruba 2004) has been proposed by Levy (1997: 1), who claims that Computer Assisted Language Learning is "(…) the search for and study of applications of the computer in language teaching and learning". Although Levy's (1997) definition appears to be very succinct, Davies (2006: 460) states that it is very broad and proposes what he sees as a more precise way of describing CALL, suggesting that it "(…) is an approach to language teaching and learning in which computer technology is used as an aid to the presentation, reinforcement, an assessment of material to be learned, usually including a substantial interactive element". In a similar vein, Chapelle (2010a: 66) states that CALL "(…) refers to a variety of technology uses for language learning including CD-ROMs containing interactive multimedia and other language exercises, electronic reference materials such as online dictionaries and grammar checkers, and electronic communication in the target language through email, blogs and wikis".

Beatty (2010), in turn, emphasizes that CALL is an 'amorphous' discipline due to changes triggered by technological advances in hardware and software as well as advances in computer literacy among teachers and learners. He (Beatty) states that CALL is "(…) any process in which a learner uses a computer and, as a result, improves his or her learning" (2010: 7), a definition that is challenged by Hubbard (2009), who states that it gives

rise to two questions: *What do we mean by a 'computer'?* and *What do we mean by 'improve'?*. Hubbard (2009) further claims that CALL does not refer only to desktops and laptops but also the networks connecting them, peripheral devices, and a variety of other appliances, such as *Personal Digital Assistants* (PDAs), mp3 players, mobile phones, electronic whiteboards or even DVD players. As regards the second question, Hubbard (2009) argues that it can be answered with reference to the following perspectives:

- *learning efficiency*—learners develop language knowledge and skills more rapidly or with less effort throughout;
- *learning effectiveness*—learners retain language knowledge or skills for a longer time and learn more of what they need;
- *access*—learners can receive materials or interact with other participants that would otherwise be bothersome;
- *convenience*—learners can study and practice effectively across a wider range of times and places;
- *motivation*—learners enjoy the language learning process, which leads to deeper engagement;
- *institutional efficiency*—learners require less teacher attention or less expensive resources.

It is interesting to note that in some of the cases enumerated above, for example *access* or *convenience*, CALL does not necessarily lead to direct language improvement but it can rather improve the learning conditions.

Table 2.1. Selected terms related to CALL, based on: Ahmad et al. (1985), Beatty (2010), Stockwell (2012), and Gruba (2004).

Acronym	Meaning
CAI	Computer Aided Instruction Computer Assisted Instruction
CBI	Computer Based Instruction
CDI	Computer Directed Instruction
CMI	Computer Managed Instruction
CAL	Computer Assisted Learning
CALI	Computer Assisted Language Instruction
CALT	Computer Assisted Language Testing Computer Assisted Language Teaching
CAT	Computer Adaptive Testing Computer Assisted Teaching

CBT	Computer Based Training
CMC	Computer Mediated Communication
CMI	Computer Mediated Instruction
ICALL	Intelligent Computer Assisted Language Learning
TELL	Technology Enhanced Language Learning
WELL	Web Enhanced Language Learning
CELL	Computer Enhanced Language Learning
NBLT	Networked Based Language Teaching
CASLA	Computer Applications in Second language Acquisition
CASLR	Computer Assisted Second Language Research
TALL	Technology Assisted Language Learning
MALL	Mobile Assisted Language Learning

It should be emphasized that various practitioners have relied on different acronyms used to refer to CALL, some of which overlap, whereas others differ. Due to the fact that it is impossible to list all of the existing acronyms, Table 2.1. presents an overview of terms 'peripheral' to CALL, based on four scholars, among them: Ahmad et al. (1985), Beatty (2010), Stockwell (2012), and Gruba (2004). As Ahmad et al. (1985: 2) aptly observe, "The computer is a tool, of itself incapable of action. It has no inborn wisdom, no mind of its own, no initiative, and no inherent ability to learn or teach. It will perform, with remarkable speed, the instructions exactly given to it by a human user". In accordance with this statement, Ahmad et al. (1985) aptly point out that such acronyms as *Computer Aided Instruction* or *Computer Assisted Instruction* (*CAI*) emphasize the subservient or auxiliary role of the computer. On the other hand, the term *Computer Based Instruction* suggests that the computer plays a significant role in the education, compared to CAI. Beatty (2010) also argues that such acronyms as *CAI*, *CAL* or *CAT* refer to learning with the help of the computer but it does not necessarily need to be focused on a language. Moreover, he emphasizes that in contrast to *Computer Aided Learning*, *Computer Aided Instruction* or *Computer Assisted Instruction* assume a more passive role for the learner.

As Gruba (2004) states, it was Chappelle (2001) who employed the *CASLA* acronym as an umbrella term embracing research in *CALL*, *Computer Assisted Language Assessment*, and *Computer Assisted Second Language Research*. Gruba (2004) also points out that nowadays the acronym *CALL* is widely regarded as a central term referring to research concerned with second language and computer technology. In a more recent article, Stock-

well (2012: 11) agrees with Gruba and argues that the term CALL "(…) has been the most enduring of all the other terms which have been used". Some of the terms, for example *Computer Mediated Communication*, *Intelligent Computer Assisted Language Learning* or *Mobile Assisted Language Learning* will be described in more detail in the subsequent sections of this chapter with reference to specific applications of computer technology.

2.2. A brief history of CALL

According to some experts, CALL's origins can be traced back to the early 1960s (Warschauer and Healey 1998; Davies 2006) while others suggest that the first simple CALL programmes appeared as early as the 1950s (Beatty 2010; Fotos and Browne 2011b). However, Higgins (1983: 102) argues that "until 1979, computer assisted language learning was virtually the exclusive preserve of universities and a few industrial concerns, mainly because they were the only institutions which could afford it", and this statement appears to be the most convincing of all. Warschauer (1996a) and Warschauer and Healey (1998) discuss CALL in terms of three main periods: *behaviourist CALL*, *communicative CALL*, and *integrative CALL*. Each of these stages refers to a particular level of technology development and a certain pedagogical approach. The scholars' description of historical development has been highly influential and frequently cited by other researchers, such as, e.g. Davies (2006) or Krajka (2012).

As Warschauer and Healey (1998) state, *behaviouristic CALL* was conceived in the 1950s and implemented in the 1960s and 1970s and, as the name suggests, it was informed by the behaviouristic learning model based on habit formation. This model of CALL consisted mainly of drill-and-practice, or pejoratively 'drill-and-kill' programmes, and was seen as a supplement to classroom instruction, not its replacement (Fotos and Browne 2011b). As Warschauer (1996a) points out, the rationale for the use of drills in the *behaviouristic CALL* was as follows:

- repeated exposure to the same material beneficial for learners;
- the computer is helpful at carrying out repeated drills as the device does not become bored with presenting the same exercises and can provide immediate, unbiased feedback;

- the computer can present the material individually for each learner, which facilities working at learners' own pace.

It should be noted that the first CALL programmes were developed on mainframe computers, which served as a vehicle for delivering instructional materials to learners. The best-known tutorial system that emerged at the time was the *Programmed Logic for Automated Teaching Operations* (PLATO), developed in 1959 at the University of Illinois in conjunction with Control Data Corporation (Beatty 2010). The PLATO system ran on its own special hardware including central computers and terminals (Ahmad et al. 1985) and involved vocabulary drills, grammar explanations as well as translation tests (Warschauer and Healey 1998). Curtin et al. (1972) were one of the first teachers who used the PLATO system to teach students to translate written Russian into English. The system was developed with time and included numerous foreign languages, such as Chinese, Esperanto, French, English, Hindi or Latin (Ahmad et al. 1985), offering students opportunities to learn in more sophisticated ways.

The second phase, *communicative CALL*, emerged in the late 1970s and early 1980s (Warschauer and Healey 1998) and was ignited by the fact that the behaviourist approaches to language learning by means of the computer were challenged by communicative approaches. While *grammar-translation* and *audio-lingual* methods, grounded in *behaviourism* which was widely criticized by prominent linguists, such as Chomsky (1967), a new trend of CALL paved its way into the FL classroom. As Warschauer and Healey (1998: 57) state, *communicative CALL* was intended to reflect cognitive theories which "(…) stressed that learning was a process of discovery, expression, and development". Furthermore, with the advent of the microcomputer, learners were given a greater degree of choice, control and interaction. The programmes used language games, reading and writing practice, text reconstruction as well as puzzles (Davies 2006) and the main focus was on what learners did with one another while working at the computer rather than what they did with the device. One of the main proponents of *communicative CALL*, Underwood (1984), described this approach in the following way:

- the computer use focused more on using forms rather than on the forms themselves;
- grammar was taught implicitly rather than explicitly;
- learners were allowed and encouraged to generate original utterances rather than manipulated prefabricated language;

- the system did not judge and evaluate everything the learners did, nor rewarded them;
- the computer avoided telling students they were wrong and was flexible to different learners' responses;
- the target language was used exclusively and an environment was created in which using the target language felt natural.

Warschauer (2006a) suggests that several types of programmes were developed in the course of *communicative CALL* and he enumerates the following three models: *computer as tutor*, *computer as stimulus*, and *computer as workhorse*. The first model, *computer as tutor*, was an extension of the 'drill-and-kill' programmes; however, in this case, learners had a greater opportunity to choose, control, and interact with other participants. The main objective of the second model, i.e. *computer as stimulus*, was to stimulate learners' discussion, writing, or critical thinking. Finally, the third model of computer use in the *communicative CALL*, called *computer as workhorse*, was employed to enable the learner to use and understand the language. As Fotos and Browne (2011b) state, the software used in the *communicative* CALL period, e.g. word processors, spelling and grammar checkers or concordances, facilitated learners' understanding and manipulation of the target language. Nevertheless, similarly to *behaviouristic CALL*, *communicative CALL* also came under criticism as "(…) the computer was still being used in an *ad hoc* and disconnected fashion" (Warschauer and Healey 1998: 57) and a number of teachers wished to make it possible for students to use language in more authentic and social contexts.

As regards the third phase, *integrative CALL*, it arose in the mid-1990s and, according to Warschauer and Healey (1998), this perspective aimed to involve different language skills, that is listening, speaking, reading, and writing as well as to integrate technology into the language learning process to a greater extent. Warschauer (1996a) claims that *integrative CALL* was based on two technological developments. The first one, *multimedia technology*, allowed a variety of media, e.g. text, graphics, sound, animation, and video to be available on a single device and entailed the use of hypermedia which "(…) involves linking various media, such as sound, images, animation, and/or video" (Beatty 2010: 43). The second development, that is the *Internet*, enabled language learners to communicate directly, inexpensively, and conveniently and was perceived as a movement away from language learning software to Internet-based activities which enabled learners to access information in a more flexible way (Fotos and Browne 2011b). Undoubtedly, the emergence and wide-

spread access to the Internet gave rise to crucial changes in FL learning. Table 2.2. presents the three stages of CALL briefly characterized above. As can be seen, in a later publication Warschauer (2011) changed the name of the first phase of CALL from *behaviouristic* to *structural*, and modified the dates of the phases. All of this shows that CALL has undergone a major transformation when it comes to location and time.

Table 2.2. The three stages of CALL (adapted from Warschauer 2011).

Stage	*1970s–1980s* *Structural CALL*	*1980s–1990s* *Communicative CALL*	*21st Century* *Integrative CALL*
Technology	Mainframe	PCs	Multimedia and Internet
English teaching paradigm	Grammar translation and audio-lingual	Communicative language teaching	Content based, English for Specific Purposes/ English for Academic Purposes
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Sociocognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	Fluency	Agency

Although Warschauer and Healey's (1998) classification has been for many years the main systematic conceptualization of the development of CALL, other scholars have also made attempts to provide a typology of CALL. Beatty (2010), for example, divided CALL according to the following historical frames: CALL in the 1950s and 1960s, CALL in the 1970s and 1980s, CALL in the 1990s, and CALL in the 21st century, which was in fact a similar distinction to that proposed by Warschauer and Healey (1998). A different point of view was presented by Bax (2003), who criticized the CALL phases proposed by Warschauer (1996a), Warschauer and Healey (1998), and Warschauer (2011) for the following reasons:

- it is not clear whether the phases represent clearly defined historical periods or even whether they should;
- the validity of the characterization of the 1980s as part of 'Communicative CALL' requires more support, tighter reference to mainstream CLT methodology and clarification as to whether it is the *aims* or *use of software* or *software* itself, or some combination, that is evaluated;

- the rationale for identifying a third phase, and then calling it 'integrative', requires more support as it has not been clearly distinguished from communicative approaches.

For these responses, Bax (2003) made an attempt to formulate an alternative vision of the history of CALL which is presented in Table 2.3. As can be seen from the table, the scholar distinguished three *approaches* rather than *phases*, that is *restricted CALL*, *open CALL*, and *integrated CALL* (Bax 2003).

Table 2.3. Restricted, Open and Integrated CALL: an outline (from Bax 2003).

Content	*Restricted CALL* Language system	*Open CALL* System and skills	*Integrated CALL* Integrated language skills work Mixed skills and system
Type of task	Closed drills Quizzes	Simulations Games CMC	CMC WP e-mail any as appropriate to the immediate needs
Type of student activity	Text reconstruction Answering closed questions Minimal interaction with other students	Interacting with the computer Occasional interactions with other students	Frequent interaction with other students Some interaction with computer through the lesson
Type of feedback	Correct/incorrect	Focus on linguistic skills development Open, flexible	Interpreting, evaluating, commenting, stimulating, thought
Teacher roles	Monitor	Monitor/facilitator	Facilitator, manager
Teacher attitudes	Exaggerated fear and/or awe	Exaggerated fear and/or awe	Normal part of teaching—normalised
Position in curriculum	Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Toy Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Tool for learning Normalised Integrated into syllabus, adapted to learners' needs *Analysis of needs and context precedes decisions about technology*
Position in lesson	Whole CALL lesson	Whole CALL lesson	Smaller part of every lesson
Physical position of computer	Separate computer lab	Separate lab—perhaps devoted to languages	In every classroom, on every desk, in every bag

According to Bax (2003), the first approach is close to *behaviouristic CALL*, with the caveat that it refers not only to the underlying learning theory but also to such aspects as teachers' roles, activity types or feedback. More specifically, in *restricted CALL* the teacher's role was limited to monitoring, and feedback was restricted to 'correct' or 'incorrect'

responses. As the name suggests, *open CALL*, was flexible in the feedback students received, types of software, and teachers' roles, which means that learners were given the opportunity to interact with the computer by means of simulations, games or Computer-Mediated Communication (CMC) and, occasionally, with other students. When it comes to the role of the teacher, he/she was no longer the monitor only but a facilitator as well. Finally, as for *integrated CALL*, learners mainly interacted with other students and, only to some extent, with the computer. The role of the teacher changed from 'monitor' and 'facilitator' into 'facilitator' and 'manager', who perceived the computer as a 'normal' tool used for teaching and learning purposes.

All in all, the role of computers in FL teaching and learning has changed dramatically in the last 50+ years. While in the beginning CALL was associated with repetitive language drills, with the advent of technological and pedagogical developments it is now possible to integrate recent computer technologies into the FL learning process to a greater extent. It is undeniable that the two classifications of the CALL history that were described earlier (Warschauer and Healey 1998; Bax 2003) have become highly influential. However, there is some concern that the ordering of particular phases of CALL should be altered and defining some key terms should be reconsidered, especially in light of the development of numerous state-of-the-art technologies that were not known several years ago.

2.3. CALL—diversity of environments

The environments in which computer technology is used nowadays have changed significantly over the years. As discussed in Section 2.2. of the present chapter, at first students completed tasks in the form of drills in fixed computer rooms, whereas nowadays, there is a variety of environments in which students can learn a foreign language. However, firstly it seems warranted to provide a definition of the word *environment* with reference to CALL. A definition of this concept has been presented by Stockwell and Tanaka-Ellis (2012: 71), who state: "The term 'environment' when it comes to CALL is extremely broad, and it includes not only the technological artifacts, but also, among other things, the curriculum, the classroom (or lack thereof), the learners and teachers, and the skills and backgrounds that they bring with them". These two specialists divide the CALL environments into the following four categories: *face-to-face* (FtF) environments, *blended* environments, *distance*

environments, and *virtual* environments. These will be described in separate subsections with particular emphasis on the *blended learning* environment as it is the focus of the research project reported in the present thesis.

2.3.1. Face-to-face environments

According to Stockwell and Tanaka-Ellis (2012), learners interact directly with the computer in face-to-face environments. They can work individually as well as cooperate with other students in pairs or small groups by means of this medium. They can also orally discuss information they read from the computer or input into the device. When students work individually with the computer, their work is controlled by software to a great extent and the role of the teacher is confined to providing support. In a situation when learners work in pairs or groups, the teacher provides assistance if required. One of the advantages of face-to-face environments is the fact that interactions between learners are easily observable and the teacher that is present in the classroom is able to judge from the learners' behaviour when assistance is necessary and to provide some help. There are many examples of how CALL may be used in the face-to-face environment. The teacher can, for example, conduct classes in a computer laboratory and divide learners into small groups so that the participants can perform a number of tasks, such as prepare and deliver a scientific presentation, write an abstract of an article in a FL language, do online research to choose the best university where subjects are taught in English, read online jokes and tell them to the group, write a curriculum vitae (CV) in English, and many others. Another way of practicing FL skills in the computer room is to let learners complete different tasks using various existing multimedia programmes, such as, for example, *Professor Henry* in English, *Professor Klaus* in German or *Professor Pedro* in Spanish, and answer any questions that may arise.

Nevertheless, most frequently, the term *face-to-face* learning refers to the so-called *traditional* learning that takes place in the classroom with the teacher without the use of computers. This standpoint is clearly explained by Neumeier (2005: 164), who states: "(…) CAL can be seen as learning with the help of computers and, in contrast, we can think of FtF learning and teaching as an instructional environment that works in a classroom-based or other setting, without the help of computers". It is true, however, that "as technology is increasingly integrated in language teaching and learning (as well as in our every lives), the frontier between the face-to-face classroom and CALL becomes more and more blurred"

(Arnó-Marcià 2012: 94). There are numerous ways in which computers can be used in the FL learning classroom without the need to arrange a computer room. It is more and more common that students have advanced devices and gadgets that they can bring to the FL learning classroom, starting with smartphones, electronic translators/dictionaries, tablets, laptops, and finishing with wearable technology that refers to computers incorporated into e.g. watches. Because of the advent of ubiquitous computing, it has become possible to develop FL skills without leaving the classroom. Learners may, for instance, use their smartphones to interview each other, record their voices and correct mistakes they made, or simply use electronic dictionaries to check the meaning of a given word in the target language.

All in all, using Computer Assisted Language Learning in face-to-face environments is relatively complex and depends on many factors, such as learners' preferences, selecting appropriate software, choosing interesting activities, and it is also dependent upon the teacher. It needs to be emphasized that the face-to-face environment is the only environment where the teacher is present in the FL learning classroom all the time, assisting students, monitoring their work, and correcting mistakes when necessary.

2.3.2. Blended environments

Although the term *blended learning* (BL) has gained considerable attention in recent years (Oliver and Trigwell 2005; Marsh 2012), a clear definition of what it refers to remains elusive (Stockwell and Tanaka-Ellis 2012). Neumeier (2005) claims that blended learning is as old as CALL itself; however, it seems more reasonable to agree with Stracke (2007a), who argues that it is a recent term, and with Marsh (2012), who states that this relatively new concept first appeared around 2000. Maciaszczyk (2009) claims that blended learning is a combination of classroom learning with electronic learning (e-learning) and is often referred to as *hybrid*, *mixed* or *b-learning*. Sharma and Barrett (2007: 7) provide a more extensive definition according to which:

> Blended learning refers to a language course which combines a face-to-face (F2F) classroom component with an appropriate use of technology. The term *technology* covers a wide range of recent technologies, such as the Internet, CD-ROMs and interactive whiteboards. It also includes the use of computers as a means of communication, such as chat and email, and a number of environments which enable teachers to enrich their courses, such as VLEs (virtual learning environments), blogs and wikis.

Allen et al. (2007), in turn, provide a useful classification of various courses presented in Table 2.4. As can be seen, the scholars suggest that a course should be called *traditional* if no online content is used whatsoever; instead, the content is delivered to students in the written or oral form. The second type of a course proposed by the experts is named *web facilitated*, in which the proportion of content delivered online is between 1 and 29 percent, which means that in such a course, the teacher can use different web-based technologies, for example web pages, in order to facilitate the face-to-face component. A course is considered as being *blended* or *hybrid*, on the other hand, if technology makes up to 30 to 79 percent of the course content delivery and is provided in different forms, for example using online discussions. It needs to be emphasized that in a *blended* or *hybrid* course, the face-to-face component constitutes an inseparable part of the whole course; whereas in an *online* course most or all of the content, i.e. 80+ percent, is delivered online and usually there are no classroom meetings.

Table 2.4. Course classifications (adapted from Allen et al. 2007).

Proportion of Content Delivered Online	Type of Course	Typical description
0%	Traditional	Course with no online technology used—content is delivered in writing or orally.
1 to 29%	Web facilitated	Course which uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.
30 to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically has no face-to-face meetings.

In the same vein, Olejarczuk (2014a) suggests a distinction between *traditional learning*, *e-learning* and *blended learning* in terms of similarities and differences between these learning environments. As can be seen from Table 2.5., the three environments can be compared with one another taking into consideration at least six criteria, such as place, ways of communicating with other students, time, materials and resources, ways of partici-

pating in classes, and feedback. One general conclusion that can be drawn is that the blended learning approach gives the learner a number of additional opportunities to practice and develop foreign language skills, comparing with traditional ways of learning. It is interesting to note that the distinction proposed by the present researcher (Olejarczuk 2014a) was the outcome of designing an e-learning course named *Perfecting Soft Skills* (*PerfectSS*) that is available at *http://fomalhaut.clc.put.poznan.pl/moodle22/*. The course was developed within the European Union project *Era Inżyniera* (Engineer's Era) in 2012 and was used later on to conduct blended learning courses for university students. Because of the fact that *blended learning* is one of the most crucial aspects of the present thesis, an example of such a course will be described in more detail in Chapter 4.

Table 2.5. Similarities and differences between traditional learning, e-learning, and blended learning, adapted from Olejarczuk (2014a).

	Traditional learning	E-learning	Blended learning
place	classroom	e-learning platform, Web 2.0 tools	classroom, e-learning platform, Web 2.0 tools
communicating with students	direct and limited by time	not limited	indirect, direct, not limited
time	limited by the timetable of classroom meetings	unlimited online meetings	limited classroom meetings and unlimited online meetings
materials and resources	traditional coursebook	e-learning resources	traditional coursebook and e-learning resources
participation in classes	face-to-face	online	face-to-face and online
feedback	direct, oral, immediate, real time	written, real time, or delayed	direct, oral, immediate, real time, written, delayed

As it has been discussed what blended learning is, it seems appropriate at this juncture to present different possibilities of incorporating technology into a foreign language course. Figure 2.1. illustrates some of the ways in which technology can complement the face-to-face component of foreign language instruction. As Bath and Bourke (2010) argue, we can 'blend' time (e.g. face-to-face versus recorded lectures), place (e.g. small group tutorial on-campus versus online discussion forum), people (e.g. virtual classroom which includes both on-campus and off-campus learners) or resources and activities (e.g. textbook versus online readings or in-class versus online quizzes). In fact, what we can infer from

the figure is that there are the following six areas in which face-to-face and virtual learning and teaching experiences can be linked with each other:

- student collaboration—F2F small group work, discussion or debate versus the same activities using a discussion forum, virtual classroom or a wiki;
- assessment—on-site exams, essays or projects versus online tests or electronic submission of student work;
- student resources—textbooks, lecture notes versus online self-paced activities or web links;
- learning/teaching places—on-site lectures, seminars/workshops, tutorials versus recorded lectures, webcasts or online virtual classrooms;
- teacher/student communication—formal letters or teacher-student consultation versus emails, online chats or discussion forums;
- individual student activities—classroom reading or practice questions versus E-portfolio or online practice quiz.

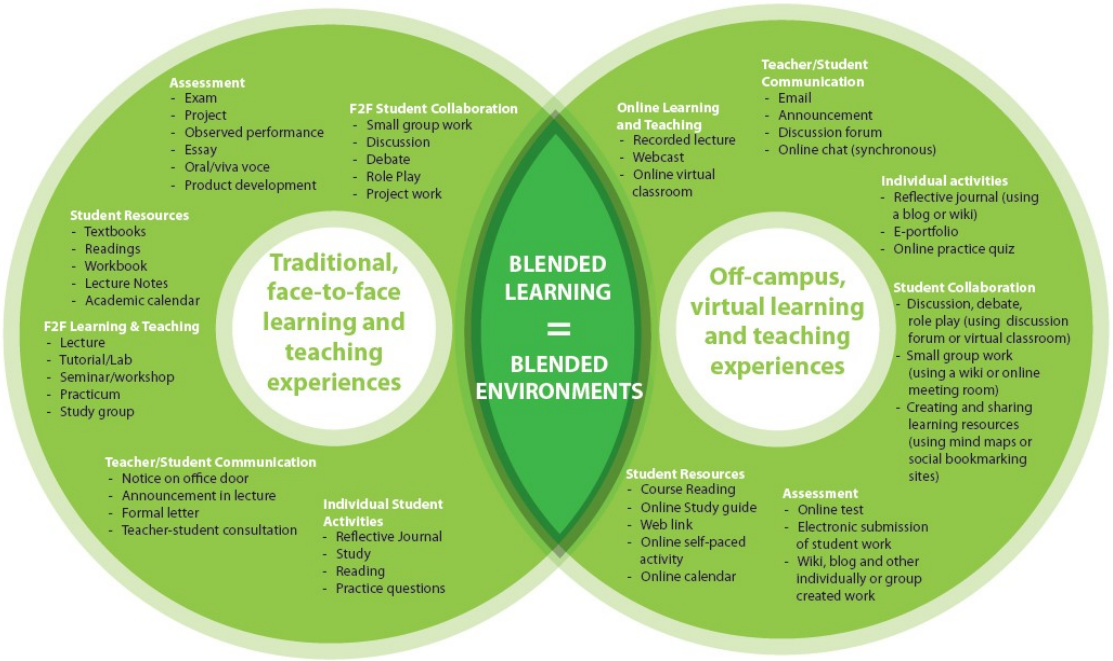

Fig. 2.1. Blended learning possibilities (adapted from Bath and Bourke 2010).

Certainly, there are followers and opponents of blended learning courses and, as discussed earlier in this chapter, nowadays many FL teachers still appear to be reluctant to

integrate technology in FL courses for some reasons. First of all, using modern technologies in some cases may appear to be too novel and complicated for an average user. Secondly, it is commonly believed that some students may have problems with planning and fighting procrastination, which means that for some of them it is difficult to find 'appropriate' time for learning if they have too much flexibility. Another drawback is that in the e-learning component of the course we are dependent on technology use, which may result in some problems, such as, for example, if the Internet connection fails, we are unable to work. However, there are solutions to the problems enumerated above. For example, those teachers who are 'digital immigrants' (cf. Dudeney and Hockly 2007) can enrol in various teacher development courses that would introduce them to the main aspects of using new technologies in the FL classroom. As regards combating procrastination, it is imperative to provide students with effective ways of time management and, at least, basic knowledge of *soft skills* which are useful in everyday life. Apart from disadvantages, there are certainly positive sides of blended learning. For example, Marsh (2012) claims that this instructional approach:

- provides a more individualized learning experience and more personalized learning support;
- supports and encourages independent and collaborative language learning;
- enhances students' engagement in learning;
- accommodates a number of learning styles;
- provides a place to practice a foreign language beyond the classroom;
- provides a less stressful practice environment for the target language;
- provides flexible study, anytime or anywhere, to meet students' needs;
- enables students to develop valuable and necessary 21st century learning skills.

To sum up, blended learning is an area that has received a great deal of attention recently as provides a fresh approach to foreign language learning, representing a great number of advantages, such as flexibility. Although the concept of BL itself is considered a relatively new term in foreign language learning, it seems that the idea of using different delivery methods, for example combining F2F and computer instruction, is certainly not new. The real challenge is to find the balance between face-to-face learning and the use of technology which seems to be the *sine qua non* for FL learning.

2.3.3. Distance environments

As discussed earlier in this chapter, in both *face-to-face* and *blended* learning environments the FtF component is a crucial part of the whole course, compared with distance environments, which is described by White (2003: 8) in the following way:

> (…) the traditional model of education is that learning and teaching take place in close proximity, at a particular point in time. However, in distance education the focal point of learning is no longer the classroom but has shifted to the home, or the workplace, or a study context. Learning may take place according to each learner's schedule and in different time zones, or it may take place at set times.

As Blake (2009: 822) explains, interest in teaching foreign languages through distance learning "(…) has grown markedly as a direct result of expanded Internet use and a veritable explosion in social computing or computer-mediated communication (CMC)".

A definition of *distance learning* has evolved with time thanks to significant technology developments. Fleming and Hiple (2004), for instance, state that the conservative definition of this concept refers to a separation between the teacher and the learner and the use of some means of communication between them. Samson (2003: 104), in turn, claims that "distance learning refers mainly to a mode of delivery (independent learning at a distance through the means of self-study texts and non-contiguous communication) (…)". White (2003) provides an overview of definitions of *distance education* and *distance learning*, and emphasizes that these two terms are often used as synonyms and usually refer to distance in space and/or time between the teacher and the learner. Finally, Dudeney and Hockly (2007) hold that in the past, distance learning referred to traditional paper-based distance courses delivered by mail, whereas at present distance learning comprises learning with the use of various modern technologies such as the Internet, CD-ROMs or mobile technologies. The scholars also point out that distance learning and e-learning (includes learning with technology using e.g. portable devices such as mobile phones) are often used as umbrella terms for *open learning* or *online learning*.

It is interesting to note that in order to deliver meaningful content and ensure opportunities for providing teacher-student as well as student-student communication in distance learning, appropriate tools are required. Distance learning content is frequently delivered via a web-based platform or *Virtual Learning Environment* (VLE) also known as *Learner Management System* (LMS) or a *virtual classroom* (Dudeney and Hockly 2007). There are various types of LMSs, such as *Blackboard*, available at http://uki.blackboard.com/sites/ -

international/globalmaster/. However, one of the best known manifestations of VLEs is *Modular Object-Oriented Dynamic Learning Environment* (*Moodle*), an *open source software* (OSS) which includes various classroom management and assessment tools (Johnson and Brine 2012). Apart from the fact that learners have access to course content, for example in the form of documents, audio and video lectures, Moodle provides a plethora of useful tools that can be employed to enhance traditional classroom instruction (Brandl 2005). It contains activities such as quizzes, questionnaires, structured lessons or tests as well as communication tools, including, among others, forums, chats, blogs or wikis (Warth-Sontheimer 2011). It is also possible to install various applets, e.g. *NanoGong*, that enable the user to record, playback, and save their voice on the platform. One example of useful activities available on Moodle is a *Hot Potatoes* quiz which is made with free software/shareware named *Hot Potatoes*. The programme allows the teacher to design six different types of self-test exercises which are as follows: Multiple-choice or Short answer (JQuiz), Jumbled sentence (JMix), Crossword (JCross), Matching (JMatch) and Gap-fill (JCloze) (Dudeney and Hockly 2007).

A full description of all the possibilities which a LMS can bring is beyond the scope of the present chapter but the most important advantages of a web-based platform are that a LMS:

- helps teachers and practitioners to make web-based learning content more interactive, for example, by means of multimedia, video or text;
- provides feedback automatically in quantitative form, using points, or in qualitative form, using teacher's written response;
- allows both teachers and learners flexibility of access from any place and any time;
- offers learners a wide range of activities and individualized learning programmes;
- enables the teacher to update information and materials with the possibility for learners to see the changes immediately.

Although distance learning can be beneficial for foreign language learning, there are several challenges connected with the provision of instruction of this kind by means of technology. It can be argued that it is difficult to sustain students' positive attitude and motivation in an environment where face-to-face interaction is limited. In addition to this, teachers may find it difficult to have a clear image of their learners' needs and, as a consequence, this may lead to a decrease in motivation among students. Additionally, it is challenging for many inexperienced teachers to design a combination of learning activities that

are suitable for students' needs and various learning styles. Last but not least, learners may experience technical problems with the equipment, an obstacle that may be difficult to overcome working at a distance.

2.3.4. Virtual environments

There has been a dramatic development in virtual environments for language learning over the past years (Stockwell and Tanaka-Ellis 2012), which is due to their potential for teaching, training, and learning. Virtual environments are referred to as *Multi-User Dimension Object Oriented* (MOOs), *Multi-User Dimension/Dungeon/Dialogue* (MUDs) or *Multi-User Virtual Environments* (MUVEs), and are defined as "(…) networked environments which allow interaction between several people, and also interaction with virtual objects" (Dudeney and Hockly 2007: 154). One of the most well-known virtual environments currently used in second language learning are *Active Worlds*, developed by ActiveWorlds Inc. in 1995, available at http://www.activeworlds.com and *Second Life* (SL), created by Linden Lab in 2003, which can be found at http://secondlife.com (Peterson 2005; Stockwell and Tanaka-Ellis 2012; Reis et al. 2011; Dalgarno and Lee 2010). Although, at first glance, these two virtual worlds manifest striking similarities, *Second Life* appears to be taking over the role that *Active Worlds* once played (Stevens 2006). It should be emphasized that early MOOs were text-based, whereas recent developments in technology and easier access to the Internet with high data transmission have allowed the application of richer, graphically-based environments that enable socialization, a trend which has been summarized by Rymaszewski et al. (2007: 318) in the following way:

> We live in a world that is becoming more networked every day, and the internet has grown into an essential medium for communication, socialization, and creative expression. Virtual worlds like Second Life represent the future of human interaction in a globally networked world, and students who have grown up with the Internet naturally swim in these waters.

As mentioned earlier, *Second Life* is a 3D virtual world that has the potential to be used for foreign language learning. Undoubtedly, an in-depth discussion of what SL is goes beyond the scope of the current chapter, since it is difficult to define. As Sobkowiak (2012: 14) aptly suggests, "after a rather short period of my own Second Life I came to realize that it is just like First Life (except a little better), which means, among other things, that to try

to define Second Life is almost equally futile as to try to define (First) Life". He then goes on to say:

> (…) because Second Life is so many things to so many people, it is not surprising to find different answers to the 'what is' question. The big divide, and this hardly seems surprising, is between those who have Second Life, and those who have not. The former, known as 'residents' in SL parlance, have first-hand experience of living in this virtual world, so their definitions are bound to differ from those of non-residents.

It is interesting to point out that the creators of SL provide their own explanation of what it actually is, presenting the following description on the company's website at http://secondlife.com/whatis: "Second Life is a 3D world where everyone you see is a real person and every place you visit is built by people just like you". According to the website, *Second Life* offers the following opportunities for its users:

- exploration and discovery—it is possible to travel with friends to a myriad of beautiful and exciting places;
- meeting with friends—millions of people from around the world have already joined Second Life to chat for free using voice or text;
- self-expression—everyone in Second Life has the possibility to design new themselves in 3D;
- entertainment—every day thousands of new experiences and events are created;
- artistic bliss—everyone can discover their artistic talents and share them with friends.

Although the original aim of SL was to encourage social networking and entertainment (Stockwell and Tanaka-Ellis 2012; Czepielewski 2011; Silva and Larsen 2009), this 3D virtual environment brings with it many affordances, or benefits (Dalgarno and Lee 2010) for education in general, and for foreign language learning in particular. Sobkowiak (2012), on the basis of an extensive literature review, states that *Second Life* affords:

- distance, flexible, anytime/anyplace learning;
- situated/collaborative/constructivist/dialogic/democratic learning;
- project/discovery/exploratory/data-driven/inquiry-based learning;
- treasure/scavenger hunts, quests, edutainment;
- replicas of FL objects/places, simulations, holodecks;
- 3-dimensionality, immersion/presence/embodiment/engagement, 'flow';
- virtual identity creation, educational role-playing;

- authentic and spontaneous communication;
- social networking/bonding, community spirit;
- visualization/reification of FL concepts/symbols;
- augmentation of objects/places with additional information.

It should be stated that some of the educational affordances enumerated above, such as role-playing or spontaneous communication using voice, text chat or gestures, are of particular relevance to foreign language teachers and learners. However, the affordance of visiting various places, for example *London City*, is probably one of the most widely emphasized by different theorists and practitioners, one of them being Hundsberger (2009: 13), who claims:

> A typical real life traditional language travel package implies that one goes to a particular country where the accommodation is in a home-stay situation associated with a language school so that there are language lessons in the morning and field trips in the afternoon. This can be replicated with the help of virtual classrooms and SL in that the lessons take place in the virtual classroom (similar to face-to-face teaching as it involves a whiteboard, text readings, grammar, vocabulary, pronunciation) and then SL can be used as the immersive environment for the equivalent of field trips. The real potential of SL is seen in taking the students to meet other nationalities in their natural surroundings which makes it a complete language learning experience. The social aspect of SL can't be rated highly enough.

The same scholar states that the idealized world of *Second Life* has the potential to reduce anxiety, the reason being that learners, hiding 'behind avatars' tend to be much more open and uninhibited when practising a foreign language in SL (Hundsberger 2009). Furthermore, it appears that using avatars in SL enables the participants to maintain anonymity, which encourages taking risks in communication in comparison with real life situations where actual identity is known. This is shown in Figure 2.2. that illustrates a virtual seabed in SL where the present researcher's avatar under the name of *edith000* ventures in order to encounter friends. All of the possibilities that SL offers make learners feel more comfortable about using the target language and increase opportunities to communicate. Other researchers, such as, for instance Dalgarno and Lee (2010) claim that some activities available in SL, for example simulations, can be intrinsically motivating and engaging. According to Mihaly Csikszentmihalyi (1990), a well-known psychologist, some activities of those can be so engaging that the learner can experience deep enjoyment and creativity, allowing to focus entirely on a particular task, which refers to the term *flow* that was mentioned earlier.

Fig. 2.2. A virtual seabed in Second Life.

To sum up, virtual environments hold considerable promise, offering entirely new opportunities for foreign language learning, promoting meaningful interactions with FL speakers, and stimulating the creativity of its users. It is likely that in the future the educational process, and FL learning in particular, will be moved to different 3D environments. Therefore, it would be interesting to explore what factors can motivate teachers and learners to use virtual worlds in order to learn explicitly and implicitly. Furthermore, it would be useful to search for new, far more interactive ways of FL learning using virtual worlds, taking into consideration the fact that a new generation of computer-savvy students use different language learning strategies and have various learning styles preferences.

2.4. Web 2.0 applications in foreign language learning

As Krajka (2012) states, the phases in the development of the Internet can be divided into two broad categories, that is *Web 1.0* and *Web 2.0*, together with some predictions for a third generation to come. The current section will be devoted to a description of several state-of-the-art *Web 2.0* applications in foreign language learning, starting with a definition of the concept which, according to Aharony (2008: para. 8), was first coined and conceptu-

alised by Tim O'Reilly and Dale Dougherty in 2004 to refer to "the terms and business models that survived the technology sector market crash in the 1990s". Two years later, O'Reilly (2006) formulated a compact definition of Web 2.0, according to which "Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform". Alexander (2006: 33) adds that Web 2.0 is an umbrella term frequently applied to "a heterogeneous mix of relatively familiar and also very emergent technologies".

When it comes to identifying the key characteristics of Web 2.0 applications, Molina (2006: 114) states that:

- "they are collaborative", with sharing/tagging collectives, such as *Facebook*, or blogs and wikis, which will be described later in this section, regarding collaboration as a central theme;
- "they use thin, cross-platform technology on the client side", with the only requirement for a user being a Web browser;
- "they think big", providing office and computer desktop functionality accessible online;
- "they are free", providing the freedom to choose and freedom to change, tailored to the learner needs;
- "they are constantly upgraded", with continual improvements in small increments, often conducted unnoticeably in the interface;
- "they are highly interwoven", drawing on other Web 2.0 applications in order to create entirely new applications and tools.

Taking into consideration a rapid expansion of Web 2.0 applications, it needs to be emphasized that contemporary learners are the first generation that has grown up with computers and other tools of the digital age. Prensky (2001: 1) states that present-day students can be called *digital natives*, or people who grow up using technology and feel comfortable or confident with it, stating that they are "*native speakers* of the digital language of computers, video games and the Internet". By contrast, their teachers who were not born in the digital world but have become fascinated by recent technologies have been labelled by Prensky (2001) as *digital immigrants*. The expert continues that, "the single biggest problem facing education today is that our Digital Immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language and outlines how contemporary learners approach different opera-

tions involved in the learning process" (2001: 2). Prensky (2004) points out that *digital natives* tend to perform many activities in a different way, compared with e.g. their parents, and these activities include:

- communicating differently (e-mail, chat);
- sharing differently (blogs, webcams, and camera phones);
- buying and selling differently (*eBay*, schoolwork);
- exchanging differently (music, movies, and humour);
- creating differently (sites, avatars, and mods);
- coordinating differently (projects, workgroups, MMORPGs);
- evaluating differently (reputation systems—*Epinions*, *Amazon*, and *Slashdot*);
- gaming differently (multiplayer, online mode);
- learning differently (exploring in-depth what interests them);
- searching differently (preferring raw information so that they can filter for themselves);
- analysing differently (volunteering in screen saver projects like *SETI*);
- reporting differently (moblogs—mobile blogging, digital photos);
- programming differently (using Open Source systems, programming using *Flash*);
- socializing differently, evolving differently, and growing up differently.

All of these examples indicate that the boundary between foreign language learning and using a FL for other purposes has become blurred. For example, while writing or receiving emails in a FL students may not be aware of the fact that they not only communicate but also learn. In addition to this, Krajka (2012: 38) claims that one of the characteristics of contemporary learners is *multitasking*, which refers to "(…) using multiple media simultaneously, not only in terms of switching to and from the computer, the internet, print, music and the phone, but also manipulating program windows and browser tabs, conducting a number of operations at the same time and absorbing information from various sources".

It should be noted that different professionals have attempted to list the possible applications of the computer in second language learning. Beatty (2010) enumerates eight 'generic' applications such as: word processing, games, literature, corpus linguistics, computer-mediated communication (CMC), WWW resources, adapting other materials for CALL, Personal Digital Assistants (PDAs) and mobile telephones. Fotos and Browne (2011b) discuss seven 'types of activity' which include writing, communicating, multimedia, the Internet, concordancing, distance learning, and test taking. Chapelle (2001), in turn,

opts for a discussion of the following five possible CALL activities: computer-assisted classroom discussion, microworld, text analysis, storyboard, and concordancing. Another distinction is proposed by Krajka (2012), who zooms in on those Web 2.0 applications that are particularly of interest to the language teacher and divides them into the following six categories:

- multimedia 2.0—audio, images, imaging, mapping, videos, podcasts, drawing, and Internet TV;
- authoring 2.0—online office and PowerPoint, publishing, blogs, wikis, and spreadsheets;
- search 2.0—search engines, RSS, tagging, bookmarking, visual search tools, metasearches, and browsers;
- collaboration 2.0—chat, collaboration, whiteboarding, voicemail, mail, videoconferencing, group notetaking;
- socializing 2.0—file sharing, social bookmarking, social networks, polls and voting booths;
- e–learning 2.0—virtual learning environments, holding meetings online, project management, presence monitoring and assessment.

Because of the fact that the scope of this section is limited, it is not possible to describe all the ways in which the computer can be applied to enhance foreign language learning. Therefore, a decision has been made to focus on such areas as: the Internet, Computer Mediated Communication (CMC), concordances, electronic dictionaries, or computer aided testing, all of which are discussed in more detail below.

2.4.1. The Internet

Since its creation the Internet has been considered a promising tool as "the advent of the Internet has changed the way we look at Computer Assisted Language Learning" (Sokolik 2001: 486) and nowadays it has become ubiquitous and powerful. The appearance of the World Wide Web (WWW), nowadays known simply as the Web, is one of the most crucial developments in ICT which opened up new possibilities in CALL. Although the Internet and the WWW are intertwined with each other and the terms are often used interchangeably, the term *Internet* refers to "(…) the interconnected hardware that stores and carries the

web and other information"; whereas the *WWW* is composed of a "(…) network of electronic 'pages' which hold information in the form of text, pictures, audio and video" (Sharma and Barrett 2007: 16). As Teeler and Gray (2000) claim, the following metaphors have been used to describe the Internet (alias the *Net*): *cyberspace*, *the information superhighway*, *the online community*, *the electronic library* and *the digital revolution*.

As mentioned earlier, the Internet provides a myriad of opportunities for language learning and teaching which allow learners to discover their own ways of learning and offer easy access to an online database of resources. As Kern (2014: 340) points out, "the Internet offers a vast array of texts, films, music, news, information, pedagogical resources, sounds, and images from around the world as well as unprecedented opportunities for direct communication with native speakers in real time". It cannot be denied that Internet activities vary considerably and range from simple websites to advanced applications that combine various ways of learning a FL. Although it is beyond the scope of this section to enumerate all Internet activities, several of them will be outlined in order to present their diversity. Firstly, one of the possibilities of learning a FL are *search engines*, or software programmes available on the Internet that look for information by keyword when they receive a search request. One of the most widely known search engines is *Google* available at www.google.com and *Yahoo* that can be found at http://search.yahoo.com/. Secondly, there are a number of websites that can be used to assist learning a foreign language which range from simple webpages with content only to highly interactive websites that can be classified according to age group, interests, proficiency level, skills development, types of resources, i.e. *General English* or *English for Specific Purposes*, or preferred ways of learning, e.g. aural or visual learners. Due to the fact that the scope of this section is limited and describing all websites is impossible, a decision has been made to divide them into six main parts which are discussed below.

(1) Websites containing links to FL learning and teaching resources—one of such multilingual online resource centres that deserves particular attention is *Lingu@net WorldWide* that is available at http://www.linguanet-worldwide.org/ and its interface has been presented in Figure 2.3. In the period 2013–2014, the project *Lingu@network*, funded by the EU Commission's *Lifelong Learning Programme*, created a dynamic and interactive website in which users can participate actively by contributing to the resources and creating communities to exchange ideas and experiences about language teaching or particular areas of pedagogy across languages. The *Lingu@network* project was being carried out by a consortium of more than 30

partners, among them Poznan University of Technology. The *Lingu@net World-Wide* website contains teaching and learning materials e.g. exercises, games, lesson plans, quizzes or songs as well as links to different resources divided into three broad groups: *journalistic*, *vocational*, and *literature*.

Fig. 2.3. Lingu@network website.

(2) Websites specifically designed for learning EFL—one of the example webpages is the BBC Learning English available at http://www.bbc.co.uk/worldservice/learningenglish, which is a part of the *BBC World Service*, the leading radio international broadcaster. The *BBC Learning English* is a site designed to help students to improve their learning of the English language and contains short courses, quizzes, grammar, vocabulary, audio and video. The materials available on the website are delivered as full length courses, with the caveat that each component of the course is standalone and can be studied on its own, which means that each learner can choose the most appropriate and effective way to study for him/her. Another useful website is *LearnEnglish* by *British Council* available at http://learnenglish.-british council.org/en, which offers games, stories, listening and writing activities as well as grammar exercises. According to information posted to the website, the site is used by 500,000 learners, over 2,000 teachers, and 80+ teaching centres in 49 countries.

(3) Websites providing EFL learning magazines—there are professional online magazines, e.g. *ScienceDaily* available at http://www.sciencedaily.com or *NewScientist*

that can be found at http://www.newscientist.com. The first one, *ScienceDaily*, is one of the most popular science news websites on the Internet that offers information about the latest scientific discoveries in all fields of the physical, biological, earth and applied sciences and contains not only articles but also links to journals and academic studies, photographs, illustrations and videos. As the founders of *ScienceDaily* claim on their website at http://www.sciencedaily.com/about.htm,

> No other web site offers readers the depth and breadth of breaking news about the latest scientific discoveries that ScienceDaily does in such a user-friendly format—all freely accessible with no subscription fees. With over 65,000 research articles, 15,000 images, 2,500 encyclopedia entries, 1,500 book reviews, and hundreds of educational videos, there is something for everyone on ScienceDaily.

The other one, *NewScientist*, established in 1956, is an international science magazine and website that covers recent developments in science and technology for a general English-speaking audience. The magazine offers the latest news, ideas and opinions, inspiring innovation and learners' imagination, and providing a link between science, industry, culture and art. It cannot be denied that both of these websites are extremely helpful when it comes to EFL vocabulary development and searching for state-of-the-art information.

(4) Websites providing up-to-date information and online books—there are websites that are specifically devised to offer information about daily news or reading books online, such as *CNN.com* available at http://edition.cnn.com/, which is among the world's leaders in online news and information delivery, and contains programmes and services that not only inform or educate but also entertain. A news website that can be strongly recommended for learners of English at different proficiency levels is *News in Levels*, established in 2011, to be found at http://www.newsinlevels.-com/. The website offers not only up-to-date information provided in the form of text and audio recordings but it also offers access to *Skype*, chat, games, an electronic dictionary, downloadable exercises and tips on how to improve one's learning English. As can be seen from Figure 2.4., which presents a screenshot of the *News in Levels* website, each piece of news is written in three ways, depending on what proficiency level a given learner represents. After reading a particular text, the learner can participate in discussions or add a comment. As regards websites which provide access to online books, one of the most useful ones is *Google Books* available at http://books.google.com, which works like a search engine, that is if a partic-

ular book of interest is out of copyright, or the publisher has given us permission, it is possible to see a preview of the book, and in some cases the entire text. Moreover, if it is in the public domain, it is also possible to download a Portable Document Format (PDF) copy for free.

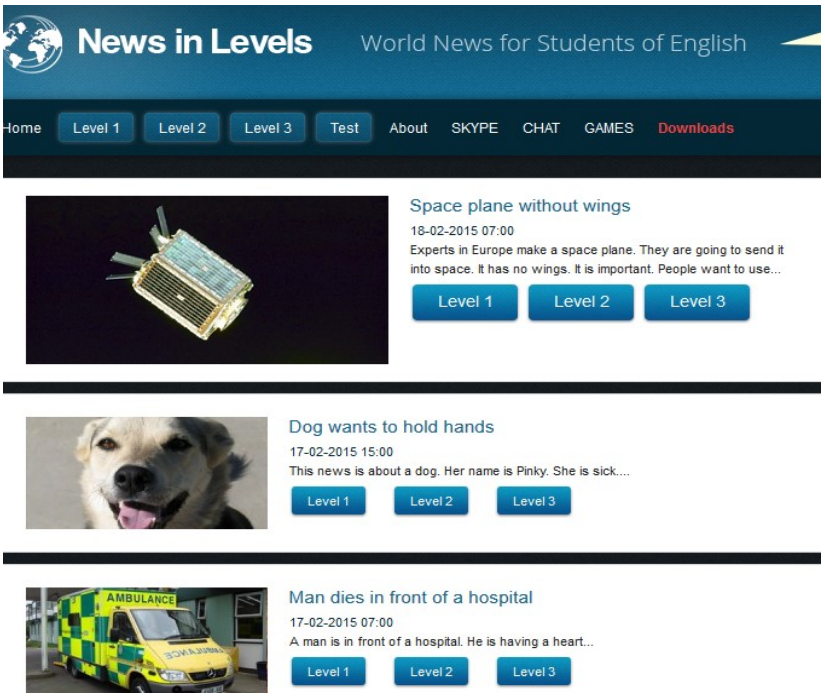

Fig. 2.4. *News in Levels* website.

(5) Websites devoted to finding answers and explanations of various questions—one example is *HowStuffWorks* available at http://www.howstuffworks.com/, which contains videos, photographs, audio podcasts, and short articles from everyday life in various categories, ranging from culture to science. It is also necessary to mention *Video Sharing Services* or *Video Holding Services* (VSS), such as *YouTube* that is available at https://www.youtube.com, a webpage that allows billions of people to discover, watch and share originally-created videos. It also acts as a distribution platform for original content creators who inform and inspire other people. Using *YouTube*, it is possible to watch movies, online lessons or listen to music but also to find some educational content.

(6) Websites offering ELT materials—there are also webpages that are specifically designed for FL teachers, such as those offered by leading ELT publishers or other websites available online that provide downloadable materials and ideas for lesson

plans. When it comes to the first group, a number of different resources can be found using the websites of *Cambridge University Press* at http://www.cambridge.-org/pl/cambridgeenglish/resources or *Oxford University Press* at https://elt.oup.-com/teachersclub/. The one that deserves special attention is *Macmillan*'s *onestopenglish* website at http://www.onestopenglish.com/, with over 700,000 registered users in more than 100 countries around the world, which contains over 9,000 different resources, including lesson plans, worksheets, audio, video and flashcards. All available materials are written and edited by a team of experts and teachers and are organized into core subject areas such as methodology, skills, grammar, vocabulary, Business English and English for Specific Purposes, exams, teaching children/teenagers, games, Content and Language Integrated Learning (CLIL), and community. As regards other websites containing downloadable materials for teachers, there is a number of them, e.g. *EnglishClub* available at https://www.englishclub.com/, which is a free website divided into several sections that are easy to navigate and provide lessons, tutorials and grammar, vocabulary, as well as pronunciation explanations and tips. It also presents various opportunities for teachers and learners to become a part of the EFL community, such as playing games online, participating in conversations using forums, chats, finding penpals, or even starting a personal webpage. Finally, it is necessary to mention *TED-Ed Lessons Worth Sharing* at http://ed.ted.com/lessons that is a free educational website for teachers and learners containing a growing library of lessons divided into two groups. The first group comprises *TED-Ed*'s original lessons designed by expert educators, screenwriters and animators, whereas the second group of lessons can be created by any website visitor, and involves adding questions, discussion topics and other additional materials, e.g. educational videos on *YouTube*. *TED-Ed*'s lessons can be filtered by content, student's level of education, and duration on over ten distinct categories, starting from *teaching and education*, and finishing with *the arts*.

Last but not least, a range of applications are available on the Internet which provide innovative forms of learning a foreign language such as *Bliu Bliu* available at http://bliubliu.com, which is an online method of learning a FL using jokes, quotes, songs, movies, news, stories and other authentic content adjusted to the learner's level.

All in all, the Internet appears to be a powerful tool that can be beneficial for FL learning and teaching thanks to the fact that it increases the range of resources available

online and provides both learners and teachers with multiple ways of presenting their ideas and opinions. Certainly, there are other applications of computer technology based on using the Internet such as CMC, concordances, online dictionaries or computer aided testing. However, these will be discussed in the following subsections as they deserve more attention.

2.4.2. Computer Mediated Communication

Computer Mediated Communication (CMC) is a broad term that refers to communicating using the computer and, as Beatty (2010) points out, it is one of the most popular activities associated with CALL. It encompasses such situations as communicating with pen friends, sending emails or making telephone conversations across the Internet, using such systems as e.g. *Skype* (Sharma and Barrett 2007). There is a wide range of ways in which CMC can take place, including, among others: chat, email, forums, video-conferencing, Virtual Learning Environments, discussion boards, wikis, blogs, or MOOs (Krajka 2012; Sokolik 2001, Sharma and Barrett 2007). Warschauer (1997) enumerates the following five features that distinguish CMC from other communication media:

- text-based and computer-mediated interaction magnified by many-to-many and place-independent communication, unlike paper-based dialogue journals or free writing that appear to be relatively clumsy ways of expressing ideas;
- many-to-many communication, which means that each member of a group may initiate interaction with any of the other participants;
- time and place independence, which is featured in *electronic mail* that enables users to write and receive messages at any time of the day from any computer, with the caveat that Internet connection needs to be provided, and the *World Wide Web* that allows for the creation of sophisticated hypermedia-based pages which can be accessed by anyone at any time;
- long distance exchanges enabling communication at a distance with one-to-one or many-to-many exchange possibilities;
- hypermedia links, which, as mentioned earlier, are a particular feature of the *World Wide Web* that allow multimedia documents to be published and distributed via links between computers all over the world.

According to Hubbard (2009), Computer Mediated Communication can be divided along two dimensions, that is *time* and *modality*, which are further subdivided into *synchronous* and *asynchronous*, and into *text*, *audio*, and *video*, respectively. However, the most widely cited division is connected with the *time dimension*, where *synchronous* communication refers to a situation in which interaction is done in real time, e.g. chat, whereas *asynchronous* communication takes place when there is some delay, e.g. email (Krajka 2012). When it comes to synchronous tools, the most commonly cited ones in the literature are *chat* and *video-conferencing*. *Chat* is a real-time, instantaneous communication used to facilitate discussions inside and outside the EFL classroom, between students, or between students and teachers. Chat logs can be employed for research purposes or future classroom work (Sokolik 2001). As Blake (2011: 25) states, *chat* is a "(…) slippery term that is often used to refer to just textual exchanges, but it is also used to refer to more elaborate audio and video exchanges", video-conferencing among them, which allows learners to communicate via video and audio links. The most recent forms of video-conferencing in use today operate via *Voice over Internet Protocol* (VoIP), for example *Skype*, available at http://www.skype.com/en/, with a broad array of applications, ranging from talking to friends from another country, holding a business meeting or learning a foreign language, to plenary sessions at conferences where the audience can watch a transmission of a lecture remotely. It is also possible to participate in *webinars* for FL teachers, for example available at http://www.britishcouncil.pl/en/teach/webinars-teachers or http://www.actfl.org/-webinars-language-professionals, which are online seminars usually conducted by language teaching experts, offering possibilities to learn something new, access valuable resources, and share opinions with other teachers from all over the world. Webinars usually cover a number of topics such as methodology, exam preparation, assessment, motivating students or classroom management.

As Stockwell and Tanaka-Ellis (2012) point out, the term *chat* can also be used to refer to social networks such as *Facebook* available at https://www.facebook.com/ or *Twitter* that can be found at https://twitter.com/ and which have rapidly gained popularity because of their potential usefulness for foreign language learning. The reason for this is that using *social networking sites* (SNSs) students can select people they are willing to interact with and discuss topics of interest, share opinions, photos and videos. Additionally, one of the characteristics of SNSs that are promising for FL learning is that "(…) every user (even one without expert ICT knowledge and skills) can author and publish a text or a multimedia artefact on the Internet" (Krajka and Maciaszczyk 2011: 115). Although describing all pos-

sibilities that social networks offer for FL learners is certainly beyond the scope of the current subsection, it is useful to cite McBride (2009: 35), who concludes that:

> Self-expression and social interaction are some of the most important contexts for language use that we try to create, or at least imitate, in our foreign language (FL) classrooms to encourage language acquisition. SNSs are also increasingly popular and induce in some of their users a sense of 'flow' (…)—the experience of losing track of time as a result of being fully engaged in an activity (…). This makes SNSs attractive possible sites for FL practice. If language learners become similarly involved with SNS activities containing pedagogically useful FL experiences, they might become more motivated and spend more time on the FL tasks. Also, if students gain skills in communicating and connecting with others through SNSs in the second language (L2) through a class, they will be well poised to establish relationships with other speakers of the L2 via SNSs in the future and to become autonomous, lifelong learners.

As far as asynchronous CMC tools are concerned, these include, among others, email, forums or blogs. *Email* (electronic mail) is one of the most established forms of CMC that is certainly ubiquitous nowadays and considered to be a more formal communication tool in comparison to chat, for instance. *Forums* allow students to discuss issues of interest, ask and answer questions or to obtain opinions from a number of people all over the world. One of the most widely used forums in learning a foreign language is *WordReference* available at http://forum.wordreference.com with threads, or conversations on a topic made up of individual posts and enables participants to ask questions. After a registration process, participants can perform a variety of activities, among them posting new threads, replying to other participants' threads, editing posts, receiving email notification of replies to posts and threads, sending private messages to other members, creating albums of photos and comment on others' photos, adding events to the forum calendar or setting up a *contact list* to quickly see which of their friends are online. Other Web 2.0 tools are *blogs* (also known as web logs) which usually serve as publicly accessible personal journals typically updated daily. One of the blogs used for learning English is http://www.bbc.co.uk/-blogs/legacy/learningenglish, where blog visitors have access to information about the English culture.

White (2003) states that CMC has been viewed as one of the most crucial developments in distance learning as it provides a means of support for learners who can share their experiences, concerns and reactions to the course, and reduces a sense of isolation. What is more, it is a way of learning from others' questions, a source of alternative perspectives, opportunities to have time to formulate a question or reply, access to earlier discussions as well as motivation and variety. Although CMC presents a number of advantages for FL

learners, it also poses some challenges. For example, in order to use CMC tools effectively both students and teachers, frequently referred to as *Digital Natives* and *Digital Immigrants* respectively, need to possess advanced computer skills, which requires self-discipline and patience because of dependence on technology.

2.4.3. Concordances

Undoubtedly, computers can store large amounts of information and sort it by user-determined categories (Sokolik 2001). In the area of ubiquitous computing and round-the-clock access to the Internet, language teachers have become interested in using corpora and concordancing programmes in the foreign language classroom to develop materials and design tasks for students. According to Krajka (2007: 36), "contrary to the pre-Internet era, when corpus consultation procedures were largely restricted to linguistics and lexicographers due to technological, financial and logistical considerations, the language teachers of the Web 2.0 age will find it much easier to access, compile and consult corpora for language teaching".

At the beginning, it would be useful to devote some space to the explanation of what the term *corpus* actually means. According to Crystal (2008: 117), a corpus is "a collection of linguistic data, either written texts or a transcription of recorded speech, which can be used as a starting point of linguistic description or as a means of verifying hypotheses about a language". In a similar vein, Sharma and Barrett (2007: 58) add that "a concordancer is a tool which can be used to search, access and analyse language from a corpus. A corpus is a collection of written and spoken language stored on a computer, used for language research and writing dictionaries". Sinclair (1996) enumerates four crucial characteristics of a corpus, each of them containing the following *default* values:

- *quantity* with its default value being *large*, which means that a corpus should contain a great number of words;
- *quality* with its default value being *authentic*, that is, all material that is gathered comes from genuine communications of people;
- *simplicity* with its default value being *plain text*, meaning that the user can expect an unbroken string of ASCII characters, which stands for *American Standard Code*

for Information Interchange, with any mark-up clearly identified and separated from the text;

- *documented*, with the default value of the same name, which means that all details about the constituents of a component should be kept separately from the component itself.

There are large numbers of corpora available for foreign language learners and teachers, containing both written and spoken texts, frequently tailored to the users' needs. Krajka (2007) divides them into seven broad categories, which are as follows:

(1) full versions of specialist corpora with unlimited access, e.g. *MICASE Michigan Corpus of Academic Spoken English* at http://quod.lib.umich.edu/m/micase/;

(2) official demonstration versions of renowned corpora, usually with only basic keyword search facilities, e.g. *Collins COBUILD Bank of English* at http://www.-mycobuild.com/about-collins-corpus.aspx;

(3) full access custom-made interfaces to renowned corpora developed by different researchers, e.g. *British National Corpus* (BNC) at http://corpus.byu.edu/bnc/;

(4) corpora composed of selected works of the English literature, such as *Alice in Wonderland* or *the Lord of the Rings* at http://www.lextutor.ca/conc/;

(5) corpora composed of newspaper articles and television news transcripts, e.g. *Reuters Corpora* at http://trec.nist.gov/data/reuters/reuters.html;

(6) learner corpora, e.g. *PICLE Polish International Corpus of Learner English* at http://ifa.amu.edu.pl/~ifaconc/;

(7) thematic corpora, such as *Europarl*, the European Parliament session transcripts at http://www.statmt.org/europarl/.

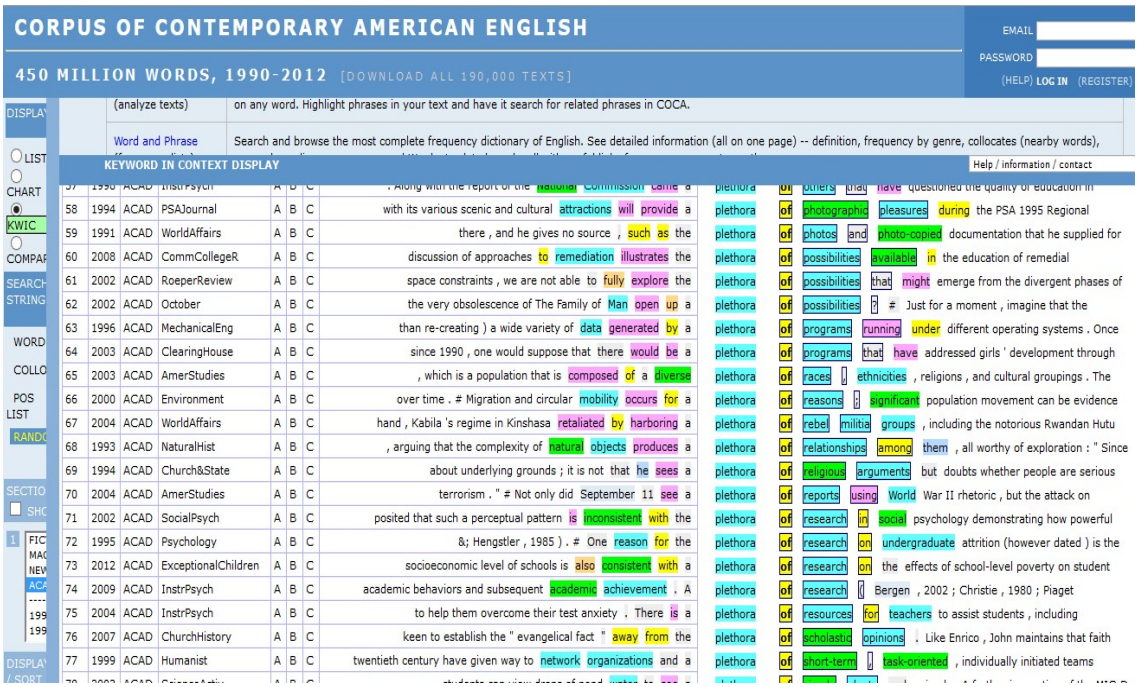

Fig. 2.5. Corpus of Contemporary American English (COCA).

Undoubtedly, other corpora are available apart from those enumerated above that deserve special attention, one of them being the *Corpus of Contemporary American English* (COCA) at http://corpus.byu.edu/coca/, which is the largest freely-available corpus of English and the only large and balanced corpus of American English used by linguists, teachers, translators, and researchers. It consists of more than 450 million words of text and contains spoken, fiction, popular magazines, newspapers, and academic texts. Figure 2.5. presents an example of a concordance line for the word *plethora* retrieved from the COCA and, as can be seen from the image, a particular word is shown together with the context in which it appears, with the caveat that the context usually consists of seven or eight words to the left and right of the given word, which is called *the node* (Sharma and Barrett 2007). This common type of display is known as *key word in context* (KWIC).

It should be emphasized that there are some arguments for implementing corpora and concordances in FL learning and teaching. Sokolik (2001), for example, states that the output from a concordance can be used to create grammar or vocabulary exercises for students or to create lists of collocations that are commonly used together. In a similar vein, Krajka (2007) presents some areas where concordance-based tasks can be of most immediate use, such as *grammar*, e.g. matching expressions with speakers from different geographical or social backgrounds, *vocabulary*, e.g. building new dictionaries by learners who wish to become lexicographers, *reading comprehension*, e.g. making predictions about the

content of the text, or *writing*, e.g. checking the register of particular words in a writing piece. Other important contributions of corpora are outlined by Gabrielatos (2005), who claims that they lead to the enhancement of discovery approaches to learning, regarding students as language researchers, and by Cobb (1998), who suggests that noticing a word in numerous varied contexts promotes successful learning. On the other hand, Godwin-Jones (2001) enumerates significant impediments in the use of corpora in teaching and learning, such as the proliferation of various formats for accessing corpora and the bewildering array of tools available or the fact that the interfaces of Web tools are often poorly designed. At the same time, Cobb (1998) points out that students, particularly low-level learners, need to be aware of several difficulties when it comes to corpora use, one of them being the fact that although the contexts are rich, varied and plentiful, they are also short, incomplete, and do not form a coherent whole.

All in all, it can be stated that corpus-based procedures are worth being implemented in foreign language instruction as they can lead to the development of grammar, vocabulary, reading comprehension, and writing skills at different proficiency levels. At the same time, careful reflection on the problems with the use of concordances calls for the need for greater consideration of teaching needs in corpus design. Additionally, computer user training should be taken into consideration as, in order to formulate more advanced searches, both students and novice teachers should undergo hands-on training. Therefore, it is essential for teachers to encourage learners to use corpora in the FL learning process.

2.4.4. Online dictionaries

As mentioned in Section 2.4.3. of this chapter, contemporary dictionaries are based on corpora. Many of them can be accessed free of charge and it is also common that they are supported by additional resources or interactive games. It is indisputable that dictionaries play a vital role in foreign language learning and teaching (Sobkowiak 2002) as they are present in the instruction of all language skills; however, the most prominent role is played by dictionaries when it comes to learning vocabulary. As Krajka (2004: 30) points out, students need dictionaries for "(…) decoding, encoding, storing, retrieving, practicing and testing vocabulary". It is clear that the advent of the Internet has revolutionized the way online dictionaries look and the number of functionalities they have. It has also significantly influenced the way students learn a foreign language, as confirmed by Krajka (2002: 31), who

states that machine-readable dictionaries (MRDs) "(…) facilitate learning a foreign language by providing much faster access to definitions, hyperlinking words in a definition, advanced searching techniques".

There are a number of contemporary FL learning dictionaries available online that can be divided into the following several broad categories:

- *General dictionaries* providing meanings and examples of use, created by prominent publishers, e.g. *Cambridge Free English Dictionary and Thesaurus* online, available at http://dictionary.cambridge.org. Figure 2.6. illustrates a screenshot of this online tool which, apart from the possibility of searching several dictionaries, includes the pronunciation of selected examples of words and sentences in British and American English. Other widely known dictionaries online are *Longman Dictionary of Contemporary English* available at http://www.ldoceonline.com, *Macmillan English Dictionary online* at http://www.macmillandictionary.com or *Oxford Advanced Learner's Dictionary online* at http://www.oxfordlearnersdictionaries.-com.

Fig. 2.6. Cambridge Free English Dictionary and Thesaurus online.

- *Thesauruses*, which help students to find synonyms and antonyms related to a particular topic, e.g. *Merriam-Webster Thesaurus* at http://www.merriamwebster.-

com/thesaurus/provide or *Thesaurus.com* at http://www.thesaurus.com/. As Dudeney and Hockly (2007) state, a thesaurus can encourage students to be more creative in their writing and analyse their output more critically at the same time.

- *Specialist dictionaries*, which are mainly used by native speakers and advanced-level learners, and cover such areas as law, marketing, agriculture, medicine, architecture, finance or music. A searchable database of specialist dictionaries is available, for example, at http://www.proz.com/references, which is aimed at a community of translators, interpreters, translation companies, and their clients. The *proz.com* community uses the Internet technology to facilitate cooperation among translators and highlight their expertise.
- *Websites providing links to online dictionary directories*, e.g. *AllWords.com* available at http://www.allwords.com/, which not only contains links to different dictionaries and thesauruses, but also provides access to translation tools and various pedagogical materials, such as rhymes, jokes, slang, speeches, glossaries or crosswords. Another function of this website is, for example, *word of the week*, in which a different word is displayed weekly in order to draw the user's attention to new or less commonly used words.
- *Visual dictionaries* with pictures and animations, e.g. *Visual Dictionary Online* at http://www.visualdictionaryonline.com/, which contains over 20,000 terms with contextual definitions developed by terminology experts, over 6,000 full-colour images and illustrations of a wide variety of objects, and fifteen main themes ranging from astronomy to society. As was the case with *the word of the week* function mentioned earlier, this visual dictionary provides an *image of the week* option connected with *game of the week* function, the main aim of which is to associate words with images. Figure 2.7. illustrates a screenshot of a sample picture presenting a nacelle cross-section, which can be an invaluable aid for students of technical universities, for example those who study Electrical Engineering, as well as ESP teachers.

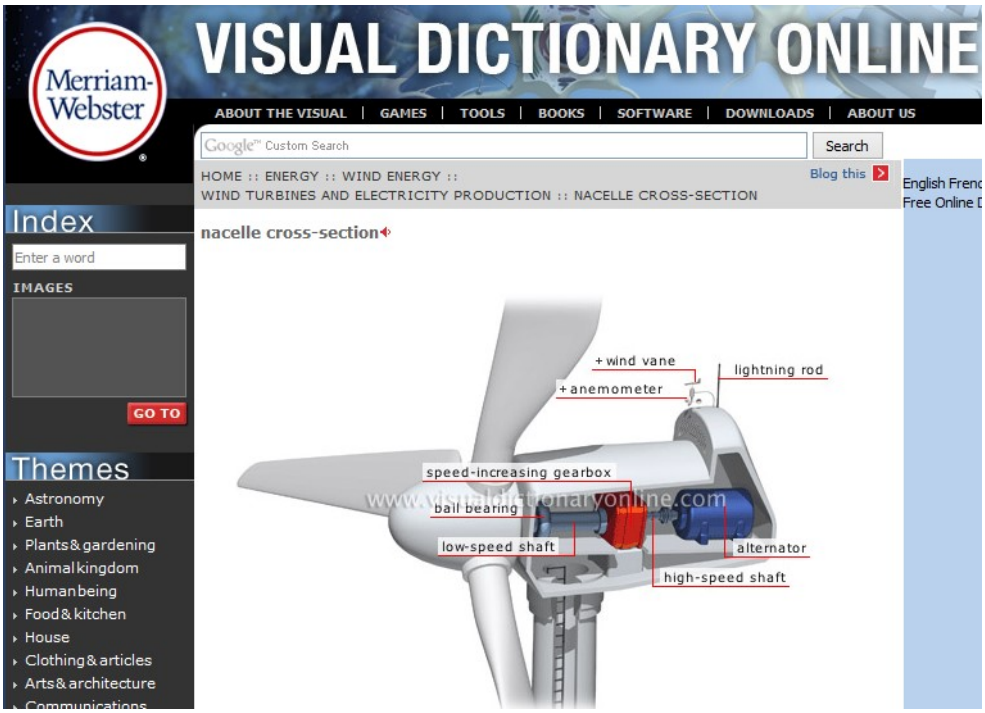

Fig. 2.7. Visual Dictionary Online.

- *Online translators*, e.g. *Google Translate* at https://translate.google.com/, which is a multilingual service provided by *Google Inc*. that instantly translates written text, even a whole page, into one of 90 languages of the dictionary. Another online translator, designed by a leading Polish publisher, i.e. *Wydawnictwo Naukowe PWN*, is available at http://translatica.pl/. Apart from translation, it offers other functions, such as proverbs, useful phrases, word of the day, first names in different languages, or a newsletter presenting interesting facts about a FL.
- *Other*, online dictionaries that are less commonly used such as *collocation dictionaries*, e.g. *Online Oxford Collocation Dictionary of English* at http://oxforddictionary.so8848.com/, *slang dictionaries*, e.g. *The Online Slang Dictionary (American, English, and Urban slang)* at http://onlineslangdictionary.com/ or *idiom dictionaries*, e.g. *The Free Dictionary* at http://idioms.thefreedictionary.com/.

Although it is certainly not possible to enumerate and describe all the existing online dictionaries given the current explosion of web 2.0 content, it appears that the online tools presented above outline the spectrum of different possibilities for FL learners and teachers. It should be emphasized that one of the most important advantages of online dictionaries is instant translation, a coverage of specialized topics and the fact that in many cases the dictionaries are free of charge. It is also worth stating that some websites "(…)

offer the opportunity to simultaneously search general and specialised dictionaries at the same time" (Campoy Cubillo 2002: 42). Moreover, online dictionaries can automatically check the spelling of words while writing, listen to the pronunciation of a given word or phrase by American and British native speakers, and encourage learning new words by adding them to personal lists. Another important feature of contemporary online dictionaries is that they are frequently used on mobile devices such as tablets or smartphones. As regards drawbacks of online dictionaries, it can be stated that online translators, in particular, are relatively imprecise tools that certainly cannot be used by inexperienced learners for translating the whole text. Therefore, it seems that it is the teacher's role not only to present learners with available online translation tools but also to show different ways in which such aids can be used the most effectively.

2.4.5. Computer Aided Testing

Another important application of CALL, or a rapidly developing subset of computer-aided language learning that has become increasingly popular recently is computer-aided testing. As Dudeney and Hockly (2007) suggest, the terms *computer-based testing*, *online testing* or *e-assessment* all refer to the same phenomenon, which is testing via the computer rather than on paper. The scholars enumerate some of the possible tests and examinations which can be administered via the computer such as diagnostic tests, progress tests or even internationally recognized examinations. When it comes to *diagnostic tests*, they assess learners' language skills before they start a FL course in order to place them in more homogenous groups or point students to their equivalent tests scores in well-known examinations such as the *Test of English for International Communication* (TOEIC). The tests in the second group, i.e. *progress tests*, as the name suggests, are used to examine learners' current attainment in learning a FL within a certain period of time. Finally, certain internationally accepted examinations are administered through the medium of the computer, e.g. the *Test of English as a Foreign Language* (TOEFL) or the *Business Language Testing Service* (BULATS), the latter of which will be looked at in detail in Chapter 4 as it was used in the research project described in the current thesis.

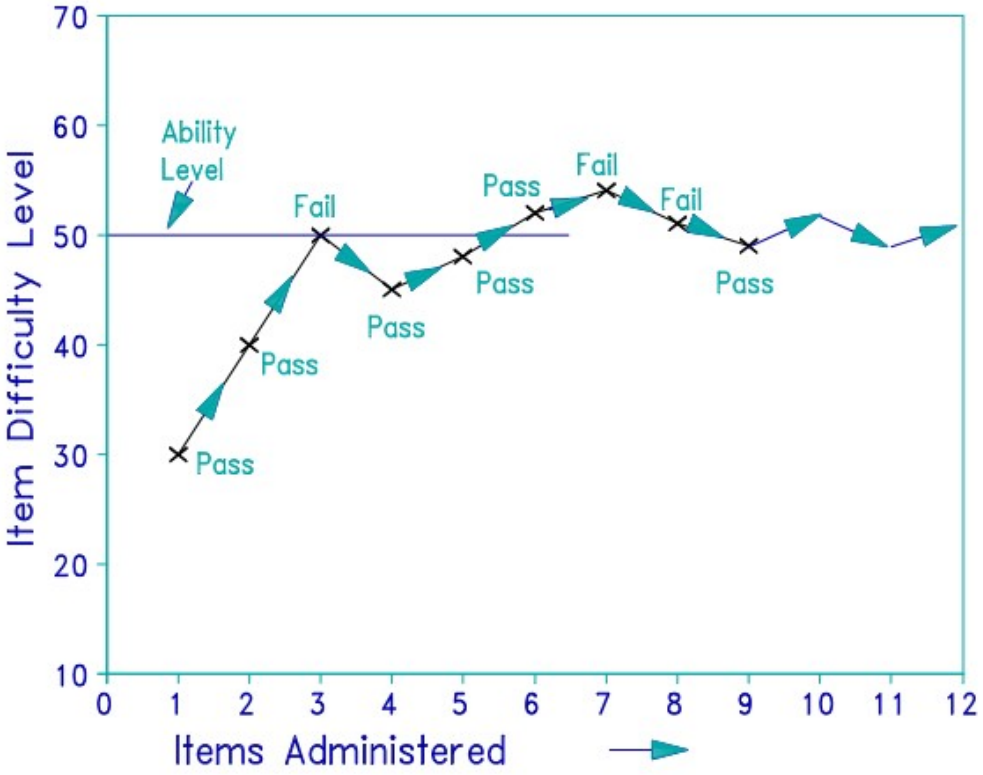

Fig. 2.8. Computer adaptive testing procedure (adapted from Linacre 2000).

An important type of computer-based testing (CBT) is *computer adaptive testing* (CAT), in which the term *adaptive* means that "(…) the test adapts itself to each user by choosing subsequent test items based on the test taker's performance on preceding items" (Sokolik 2001: 481). As can be seen from Figure 2.8., which presents the procedure of CAT, a computer test includes a large bank of test questions, covering all levels of ability from elementary to advanced; for example, if a student performs well in a set of items at the beginner level, the computer programme will display questions at a higher level, e.g. pre-intermediate. On the other hand, if a participant performs poorly on the pre-intermediate-level questions, the computer displays lower-level items. As Linacre (2000) states, the more test items are administered, the more precise the test outcomes become.

Undoubtedly, there are numerous advantages of using computer adaptive tests, which have been summarized by Maycock (2007) in the following way:

- examinees are able to work at their own pace;
- test takers are challenged at an appropriate level, rather than being bored or frustrated by items that are too easy or too difficult for them;

- the results of the test are instantly available, with the caveat that this advantage is not restricted to CATs but it can also refer to other computer-based assessments;
- security of materials is vastly improved because of the fact that each test taker is provided with a different selection of tasks.

Other experts, for example Fotos and Browne (2011b: 11), claim that extensive research in computer assisted language testing suggests that "(…) computer-based tests, particularly those that respond to learners' choices by presenting subsequent items at varying levels of difficulty, are effective in building language skills because they provide immediate feedback and multimedia support by access to dictionaries, grammatical explanations, and audio and video material for study of test items". At the same time, Linacre (2000) points out that CATs pose problems, or 'cautions', some of which are as follows:

- unlike paper-and-pencil tests, computerized tests constrain test takers as they are unable to underline text or scratch out eliminated choices, which are commonly used strategies by respondents;
- many computer aided tests display only one item on the screen at a time, preventing test takers from easily checking previous items and the pattern of their responses.

In addition to this, Dudeney and Hockly (2007) claim that CAT has other disadvantages, such as the initial investment costs that tend to be high, especially at the beginning of conducting such examinations.

To sum up, computer aided testing shows considerable promise in becoming a regular component of foreign language assessment in the future, taking into consideration the fact that there are several important assets of it, such as flexibility in location (tests can be delivered remotely), timing (tests can be offered more frequently), or feedback (results are available more quickly than with paper-and-pencil tests). Moreover, such tests are frequently tailored to the test takers' level of FL ability. On the other hand, bearing in mind that the level of computer literacy may vary from student to student, it is advisable to train examinees in computer skills prior to exposing them to computer aided tests.

As can be seen from the foregoing discussion, the use of computers has evolved tremendously over the past several years. It appears that there are some future directions that are worth being explored, such as *Intelligent CALL* (ICALL) or *Mobile Assisted Language Learning* (MALL). As Blake (2011: 24) states, "(…) the use of natural language processing and a modicum of artificial intelligence in order to enhance the type of feedback provided to the student working alone online" is known as *intelligent CALL* or *iCALL*. Un-

doubtedly, the main idea of iCALL is not to provide software that could be intelligent to the same extent as a human being. Rather, the main objective is to deliver software that offers interaction with the material to be learnt, comprehensible information designed to fit the learning style of individuals as well as opportunities for learners to carry out communication (Warschauer and Healey 1998). However, it appears that the extent to which the computer can effectively analyse learners' errors has been a matter of controversy from the beginning of CALL (Davies 2006). Another area of CALL that is undergoing rapid evolution is *Mobile Assisted Language Learning* (MALL) (Kukulska-Hulme 2009), which differs from CALL "(…) in its use of personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access and interaction across different contexts of use" (Kukulska-Hulme and Shield 2008: 273). Jarvis and Achilleos (2013: 9) criticize the term CALL and suggest replacing it with a more versatile term *Mobile Assisted Language Use* (MALU), which they define as "(…) non-native speakers using of a variety of mobile devices in order to access and/or communicate information on an anywhere/anytime basis and for a range of social and/or academic purposes in an L2". According to the scholars, this definition encompasses both CALL and MALL.

Mobile devices that can be used for FL learning purposes include, for example, smartphones, personal digital assistants (PDAs), tablets, e-readers (such as Amazon's *Kindle*), handheld computers, wearable computers, MP3 players or digital voice recorders. Teachers can use these appliances in a number of different ways, e.g. to communicate with their students in English, deliver presentations in a FL or record their lessons and send them to students who were absent. Apart from the mobile tools enumerated above, there are also the most recent technologies, such as *Google Glass*, that has recently been implemented by the Google company. This wearable technology device that works like a smartphone and is worn on the face like a pair of glasses can provide learners with a number of possible applications when it comes to learning a FL. At present, there are two apps for *Google Glass* that can, for example, translate in real-time, one of which is *Words Lens* used for translating written texts, and the other one called *Unispeech*, which provides speech translation. Undeniably, new technologies can allow students to cross the boundaries between formal face-to-face learning and informal learning outside the walls of the FL classroom. It appears that it is the role of the teachers to motivate their learners to explore new ways of learning and let students discover new possibilities of managing learning tasks or communicating effectively.

2.5. Research directions into CALL

As Beatty (2010: 187) points out, "the discipline of CALL is relatively new and differs from other fields of study within applied linguistics for the basic reason that the rate of change of the technological aspects deeply influences theory, practice and research". Although there is a vast diversity of empirical research in Computer Assisted Language Learning, frequently equivocal results are produced due to some problems. First of all, it should be stated that the wide range of designs and measures "(…) do not lend themselves to reproduction or generalizability" (Basena and Jamieson 1996: 19). Secondly, it appears that nowadays researchers "(…) take technology use so much for granted that they do not use technological terminology in their titles, publish in language technology journals, or consider themselves to be CALL specialists" (Garrett 2009: 733), which is one of the consequences of *normalisation*, defined as the stage when technology is "(…) invisible, hardly even recognised as a technology, taken for granted in everyday life" (Bax 2003: 23).

Taking into consideration the fact that the amount of literature on different aspects of CALL has grown exponentially recently and it is beyond the scope of the current section to provide its exhaustive overview, the discussion will only highlight the research directions that are directly concerned with the topic of the current thesis. Namely, it will mainly focus on learners' attitudes to CALL, and the comparison between computer-enhanced classes with traditional FL learning. As previously mentioned, a growing body of research looks at how CALL is perceived by learners and, for this reason, different instruments have been applied, such as questionnaires. One example of such a tool is the *Student Survey: Attitudes toward Using Computers* (Warschauer 1996b), which is an instrument written in English, consisting of two parts. The first part includes personal information about participants, e.g. age or sex, and the second part comprises 30 questions on a Likert scale (1-strongly disagree, 5-strongly agree) related to learners' feelings about using computers, for example "I can write better essays when I do them on computer". The first five questions are concerned with the use of computers for word processing, the next 11 deal with the use of computers for interpersonal communication, and the final 14 questions are related to respondents' general feelings about using computers. Eight of the 30 questions are reverse coded. Other questionnaires that have recently been published are, among all*, the Beliefs about CALL Questionnaire* (Olejarczuk 2013b), which will be described in detail in Chapter 4 as it was used in the present study, or the *Attitude toward Computer-Assisted Lan-*

guage Learning Questionnaire (Talebinezhad and Branch 2013), which mainly concerns receptive skills, i.e. reading and listening, the *Survey of Factors Affecting Teachers Teaching with Technology* (SFA-T3) constructed by Papanastasiou and Angeli (2008), consisting of 7 sections including demographic data, used to assess teachers' attitudes to ICT, or the *Internet Use and Attitude towards the Internet Survey*, developed by Luan et al. (2005), which is a self-report measurement tool with 3 sections, employed to assess pre-service teachers' Internet use and attitudes towards the Internet.

It should be noted that CALL has also been investigated using qualitative methods such as interviews. Okan and Torun (2007), for example, used semi-structured interviews consisting of ten questions for learners in order to triangulate the data gathered from questionnaires on the subjects' perceptions according to the use of CALL applications. It should be emphasized that in the field of CALL interviews were not only used with students but also with experts, professionals and teacher trainers. Such instruments were developed, for example, by Krajka (2012), who held face-to-face and electronic interview sessions via *Skype* in order to reflect upon the most suitable procedure of teacher education in CALL, or by Jianli (2012), who aimed at finding out what kind of roles language teachers should play in the teaching process.

Interestingly, a number of quantitative studies proved that students' attitudes to CALL, especially to blended learning, were positive. Warschauer (1996b), for example, investigated the attitude toward using computers of over 160 ESL and EFL students in university academic writing courses in Hong Kong, Taiwan, and the United States. He found out that the students' positive perceptions of computer-aided writing and communication in both second and foreign language classes were influenced by other factors, such as benefits of CMC, a feeling of personal empowerment or an enhancement of learning opportunities. Warschauer's study was replicated by Akbulut (2008), whose research involved over 150 students from Turkey, speaking English at an advanced level. Akbulut's (2008) findings suggest that the subjects manifested positive attitudes towards CALL, which was caused by computers' potential to sustain independence, learning, collaboration, instrumental benefits, empowerment, as well as comfort and communication. Another study was conducted by Liu (2013), who revealed that learners showed positive attitudes towards a blended learning course of Academic English Writing. The participants stated that the course helped them to increase student-student and student-teacher interactions, reduce communication anxiety, become more autonomous, and enhanced their academic English writing ability. There are

also studies which pertain to learners' attitudes to CALL when it comes to specific language subsystems. One example is the research carried out by Sagarra and Zapata (2008), who investigated attitudes to an online component among 245 learners of Spanish as a second language. As the researchers suggest, the participants praised the usefulness of the online component for FL learning, in particular when it comes to grammar and vocabulary acquisition. The study also confirms that the students benefited from easy access to the material learned, user-friendliness, and instant error correction.

Apart from quantitative research, there have also been studies addressing students' beliefs about CALL using a combination of questionnaires and follow-up interviews. Okan and Torun (2007), for instance, conducted a study which involved 188 students and found that, although the computer was perceived as a useful tool in FL learning, the role of the teacher as facilitator was viewed as crucial according to the subjects. As the researchers claim, the findings indicate that the students did not consider technological resources alone as tools leading to effective lessons; rather they seemed "(…) to favour the existence of a human touch in the learning environment integrated with other resources for their learning experiences" (Okan and Torun 2007: 175). Another mixed methods research project was carried out by Stracke (2007b), the main objective of which was to understand the motives behind some learners' decision to leave a blended learning course. The analysis showed that there were three reasons for this phenomenon: (1) a perceived lack of support and complementarity between the face-to-face and computer-assisted components, (2) lack of print materials, and (3) dislike of the computer medium.

It should also be noted that programme directors, syllabus creators as well as teachers also wish to assess the effectiveness of instruction provided by means of the computer and the success of technological innovations brought into the FL classroom (Chapelle 2010b). Recently, the CALL field has witnessed a veritable explosion in the number of studies examining the effectiveness of blended learning versus traditional learning. Research in this area usually involves experimental and control groups, and findings of such studies can be divided into two categories, according to the outcomes. Firstly, there are researchers who found that there was no difference between blended learning and traditional learning instruction when it comes to FL achievement. Blake et al. (2008), for example, compared oral proficiency in Spanish in three groups of classroom, hybrid, and distance L2 learners and found that the levels of attainment the participants achieved were comparable. Secondly, some studies on the effect of CALL have proved that computer-aided way of

learning was superior in comparison with traditional instruction. Sullivan and Pratt (1996: 500), for example, compared students in two ESL writing environments: a networked computer-assisted classroom and a traditional classroom, offering evidence that "(…) students in the computer-assisted classroom showed a significant gain in writing due to the networked computers". Additionally, learners in the computer-assisted classroom showed more interest in discussions and were more focused on the task at hand when compared with students in traditional classroom. Similarly, Jafarian et al. (2012) investigated the effect of CALL on EFL students' writing achievement in Iran and demonstrated that CALL users achieved higher scores on a writing test than nonusers. The researchers speculate that such findings may stem from the fact that the students in the experimental group studied in a more relaxed atmosphere or had access to facilities such as grammar and spelling checkers. Naba'h et al. (2009), in turn, investigated the effect of using an instructional software programme of English as a foreign language on the achievement of grammar, passive voice in particular. It was revealed that there were statistically significant differences in the participants' achievement mean scores with respect to grammar and the difference was in favour of the experimental group where FL was taught via computer.

Apart from those discussed above, there are also other research directions with respect to CALL that have been followed by different researchers, such as computer-mediated error correction or the benefits of CMC. As far as the former is concerned, Pawlak (2012c) presents an overview of research into this issue and states that the contributions of synchronous computer-mediated communication (SCMC) to error correction have frequently been investigated with respect to text-based interactions in real time. He (Pawlak 2012c) points out studies conducted by means of various types of software, such as *Chat-Net* used by Smith (2005) or *MSN Messenger* applied by Yilmaz (2011). Computer-mediated corrective feedback has also been researched with respect to asynchronous communication, using such tools as the *Track Changes* feature of Microsoft Word (AbuSeileek and Abualsha'r 2014) or computer conferencing employed by Hyland and Hyland (2006). As regards the latter, namely the benefits of CMC, it may facilitate processes beneficial to FL learning, which was summarized by Smith (2003: 39) in the following way: "(…) CMC may provide an ideal medium for students to benefit from interaction primarily because the written nature of computer-based discussions allows a greater opportunity to attend to and reflect upon the form and content of the message, while retaining the conversational feel and flow as well as the interactional nature of verbal discussions". Benefits of CMC have

also been confirmed by various researchers who found that CMC supports active learning (Lee 2005), enhances learner autonomy (Payne and Whitney 2002), or fosters collaborative learning (Abrams 2005) (cf. Smith 2005; Abrams 2013; Lee 2005).

To summarize, research into CALL and FL learning has been conducted by different experts, in various countries, applying numerous measurement tools, involving entirely different participants and using diversified software. Therefore, as previously suggested, the outcomes of such research are difficult to compare, in particular in light of the fact that "the continuing growth of the Internet will inevitably challenge and frustrate teachers as more and more new technologies come online, which will continue the nature of literacy and how it is taught" (Bloch 2013: 5). Consequently, it appears that the question concerning the effectiveness of CALL is not as simple to answer as it may appear.

Conclusion

The present chapter has been devoted to the discussion of the most important developments in the area of Computer Assisted Language Learning. At the outset, definitions and terms related to CALL were considered and the most important developments in the area of CALL with respect to its history were outlined. Subsequently, emphasis was shifted to the diversity of CALL environments such as face-to-face, distance, or virtual learning, with particular attention being given to blended learning, which is the main focus of the current thesis. The core of the chapter, however, was devoted to the discussion of various web 2.0 applications in FL learning, such as the Internet, CMC, concordances, online dictionaries, and computer aided testing. In this section, some comments were offered on the possibilities provided by the different computer applications that hold considerable promise for FL teachers and researchers but also bring many pitfalls that should be avoided. Finally, research directions into CALL and FL learning were presented with special attention being paid to students' attitudes to CALL and the effectiveness of computer-aided instruction, which lies at the very heart of the current research project.

One conclusion that emerges from this overview is that, although it is frequently stressed that technology is an indispensable part of learning, numerous teachers still harbour deep-seated doubts as to whether CALL can contribute to success in FL learning (Blake et al. 2008). It is true that technology used by different learners may bring various

effects depending on a particular person's skills, knowledge as well as individual differences. Numerous studies have been conducted to date; however, due to the fact that CALL is a relatively new field of study, research needs to be conducted in a wider variety of schools, universities, and other institutions, with more students, by a greater number of teachers, and over longer periods of time. It is also crucial to explore the effectiveness of CALL using various research methods and by means of different, technologically advanced tools. An important way in which more insights can be gained into the value of computer-aided instruction is by conducting empirical investigations of various learner factors that account for differential success in FL learning. An overview of the main findings of such research projects will be the focus of the following chapter of this dissertation with particular emphasis being placed on such individual learner factors as learning strategies, learning styles, aptitude, and motivation, which are the main focus of the study described in Chapters 4 and 5 of the current thesis.

Chapter 3: Empirical investigations of IDs and CALL in FL learning

Introduction

As presented earlier in this dissertation, Chapter 1 described Individual Differences in foreign language learning, whereas Chapter 2 provided an overview of Computer Assisted Language Learning. The main objective of the current chapter is to present empirical research concerning the relationship between individual learner differences and Computer Assisted Language Learning, which is the main topic of the current thesis. Unfortunately, the relationship between IDs and CALL suffers from a remarkable scarcity of studies and is still unexplored, which will be further discussed in Section 3.1. of the present chapter. Although a number of research projects on the relationship between IDs and FL learning as well as CALL and FL learning have been carried out, only a handful of empirical studies have been conducted to date which have dealt with the impact that certain IDs can have on FL learners' performance in the CALL environment. The present chapter is divided into three main sections. In the first section, the importance of individual differences in Computer Assisted Language Learning is discussed. The following two sections, as is the case of the discussion presented in Chapter 1, focus on particular categories of individual learner factors, which are as follows: cognitive variables, affective variables, and social variables. It should be noted that the last group of IDs, i.e. social variables, such as age or gender, are usually described in the literature together with other individual learner differences, e.g. language learning strategies; therefore, a decision was made not to devote the whole section to this ID category. All in all, taking into account the fact that there have been relatively few empirical studies directly connected with the topic of the present chapter, it seems warranted to describe research into the relationship between IDs and CALL in more detail. To

be more precise, Section 3.2. deals with intelligence, aptitude, language learning strategies, and cognitive/learning styles, whereas Section 3.3. discusses motivation, foreign language anxiety, and personality.

3.1. The importance of IDs in CALL

As discussed in Chapter 1, there has been a vast diversity of research into individual learner differences, their relationship with one another, and their impact on foreign language learning. It is beyond doubt that individual learner differences such as language learning strategies or cognitive styles affect learners' processes and success (Chapelle and Heift 2009). As presented in Chapter 2, the conducted studies have shown that the use of computer technology presents an opportunity to enhance the FL learning process. Several attempts have also been made to explore the relationship between CALL and a variety of individual learner differences. As Chapelle and Heift (2009: 246) aptly suggest, "(…) an important area for computer-assisted language learning (CALL) research is to attempt to better understand the ways in which individual differences affect learners' use of CALL and the benefits different types of learners may obtain from the use of such materials".

On the other hand, carrying out research in the Computer Assisted Language Learning environment is extremely complex for many reasons, one of which are individual learner differences. This has been described by Blake (2009: 829) with reference to one of the CALL environments, i.e. distance learning (DL), in the following way:

> (…) the myriad of DL formats and environment circumstances differ from course to course and institution to institution, along with other confounding factors such as different DL teacher styles, attitudes, and individual learner variables (i.e. learner attitudes and aptitudes). Trying to isolate and discretely control for these independent variables, to be able to compare student outcomes for different modalities—such as F2F classrooms versus DL courses—seems doubtful, if not doomed from the start.

When it comes to the relationship between individual learner variables in the CALL environment, even a quick look at the studies exploring the link reveals that there is a plethora of research instruments, instruction methods, IDs researched, not to mention the research results, which are sometimes contradictory. Table 3.1. presents an overview of selected studies on individual learner factors and CALL in chronological order. As can be seen from

the table, various researchers chose to explore the role of single learner factors, e.g. motivation (Beauvois 1995) or learning strategies (Saito 2005) or a combination of different IDs, for example motivation and anxiety (Liu 2013), or personality and gender (Meunier 1996). It is also clear that, as earlier discussed in Chapter 2, CALL means something different for various scholars starting with Local Area Networks (Beauvois and Eledge 1996) and finishing with Computer Mediated Communication (Tallon 2009). Therefore, looking at what factors affect CALL is still interesting and challenging at the same time.

Table 3.1. Review of selected studies on IDs and CALL presented chronologically.

Study	*IDs investigated*	*Findings*
Liu and Reed (1994)	learning strategies and learning styles	Different learning style groups employed different learning strategies in accomplishing the same task; hypermedia technology has the potential to accommodate learners with different needs.
Beauvois (1995)	motivation	The use of Local Area Network (LAN) communication can be an effective motivating force.
Beauvois and Eledge (1996)	personality	Extroversion and introversion personality types perceived their communication on a LAN as beneficial linguistically, effectively, and interpersonally.
Warschauer (1996b)	motivation	Self-reported knowledge of computers and amount of experience using electronic mail correlated positively with student motivation.
Meunier (1996)	personality and gender	Learning achievement and interaction patterns at the computer are more strongly related to personality differences than to gender differences.
Payne and Whitney (2002)	working memory	The chatroom environment may be especially beneficial for students with lower ability to maintain verbal information in the Phonological Loop.
Felix (2004)	learning styles and gender	The analysis did not support the hypothesis that certain learning style preferences will impact the way students perceive Web learning; more females than males demonstrated an auditory learning style preference.
Saito (2005)	learning strategies	Social strategies are an important part of participating in online chat sessions in order to effectively interact and successfully complete a task.
Chang (2005)	learning strategies and motivation	Students learning in a web-based environment with self-regulated learning strategies became more responsible for their own learning and more intrinsically orientated.
Ushida (2005)	motivation	Motivated students can benefit from online instruction which can motivate students.
Akbulut (2007)	learning styles	Learning styles are important variables contributing to reading comprehension in a hypermedia environment.
Tallon (2009)	anxiety	The use of CMC can reduce learners' anxiety levels.
Kim (2009)	intelligence	CALL instruction helped students to improve their listening skills as well as their Multiple Intelligences (MI) quotients.
Chapelle and Heift (2009)	cognitive styles	The Field Independence/Dependence (FID)–CALL survey failed to find reliable individual differences among the participants of the study.
Liu (2013)	motivation and anxiety	Blended learning helped students to reduce or even eliminate communication anxiety and motivated them to become autonomous learners.

Huang and Hwang (2013)	anxiety	The multimedia environment can reduce student anxiety and provide a less stressful classroom environment.
White (2014)	anxiety	The use of CALL in the form of CMC and listening to authentic video materials can reduce students' anxiety.

The subsequent sections provide a detailed overview of selected studies which have attempted to tap into the relationship between Computer Assisted Language Learning and different individual differences such as intelligence, aptitude, cognitive/learning styles, language learning strategies, motivation, foreign language anxiety, personality, age, and gender. It should be noted, however, that more emphasis is placed on the factors that have received greater attention among various researchers, with the caveat that the variables that appear to suffer from a paucity of research have also been touched upon.

3.2. Cognitive variables and CALL

This section provides an overview of studies devoted to the relationship between cognitive variables and CALL. To be more precise, it mainly focuses on such individual learner factors as cognitive/learning styles or language learning strategies, and also on two of the leading cognitive variables such as intelligence and aptitude which, despite their importance, suffer from a scarcity of empirical research.

To begin with, a study on the relevance of Multiple Intelligences to CALL instruction, conducted by Kim (2009) will be presented. The scholar carried out research, the main objective of which was two-fold, namely, it was designed to examine whether CALL instruction had the potential to improve students' MI inventory scores and, if so, which type of MI quotients would increase to the greatest extent, as well as to explore which type of intelligence correlated most highly with listening ability. The learners that participated in the study were 39 students majoring in English who enrolled in a multimedia technology-assisted language course. The instruments used in the research were the *Test of English for International Communication* (TOEIC)—listening part, and a *Korean MI questionnaire*, both of which were used twice, at the beginning and at the end of the course. In order to address the research questions, the researcher provided an overview of the ways in which MI may be enhanced by computer-assisted instruction, which is summarized in Table 3.2., and referred to as "(…) symbiotic interdependency" (Kim 2009: 6).

Table 3.2. MI enhanced by CALL activities (adapted from Kim 2009).

Intelligence	*CALL activities*
Linguistic	keyboarding, practicing language skills with interactive software or on Websites, using word processors, using spelling and grammar checkers, creating multimedia reports, writing and reading email, text and videoconferencing, using speech recognition devices, using a concordancer, using translation software or Websites, using the Web for research
Logical-mathematical	using software or Websites with brain teasers, puzzles, games of logic, etc.
Spatial	playing card games, using graphics programmes, learning with pictures on CD or DVD or with video clips on the Web, using presentation software, creating videos or digital storytelling products
Bodily-Kinesthetic	playing computer games, using TPR-based instructional software, using simulation software or virtual reality environments on the Web
Musical	listening to and interacting with songs on software or on the Web, composing digital music live or on interactive Websites
Interpersonal	using email, text or voice chatting, using cell phones and PDAs, engaging in computer-supported collaborative learning (e.g. e-pals or the GLOBE project)
Intrapersonal	using intelligent tutoring systems, using speech recognition devices, using news groups, meta-cognitive journaling or blogging, using mind-mapping software or Websites, learning about computers using software or Websites

As regards the results of the study, it was discovered that the learners' listening scores improved; however, on the basis of the outcomes, it was not possible to argue that this was due to the CALL instruction as no control group was used to compare the results. In addition, it was found out that the mean scores of the seven MI types improved, albeit to varying degrees. The highest score was noted in the case of Spatial, Linguistics, and Logical-Mathematical types, which could be attributed to the CALL instruction as it heavily relied on visual materials containing pictures, sounds or animated figures, intensive linguistic practice, e.g. repetition, role-play or pronunciation practice, and thinking skills development in the form of guessing games or word problems. The second group of MI types, in the case of which the highest mean scores were observed, consists of Interpersonal and Intrapersonal intelligence. It was speculated by the researcher that the result stemmed from the fact that the learners were provided with ample opportunities for practicing language in groups and through role-play, or individually, which was done with limited access to the computer or even without the use of computer assistance. One general conclusion that can be drawn from the study is that MI-based technology-assisted foreign language learning can be a powerful help for teachers and course instructors at designing learning materials that would be suitable for learners with different individual needs.

As discussed in section 1.2. of Chapter 1, closely connected to intelligence is language aptitude which has not been explored thoroughly with respect to CALL, taking into consideration its importance in the FL learning process. To be more precise, to the best knowledge of the present researcher, no study has been conducted to directly explore the relationship between foreign language aptitude, CALL, and FL learning outcomes. There are, however, studies dealing with Working Memory, a variable which is treated as a crucial component of FL aptitude (Biedroń 2012) or even as a cognitive ability that is just as important in FL learning as aptitude itself (Kormos 2013). An investigation by Payne and Whitney (2002), for example, tested the hypothesis that synchronous computer-mediated communication (SCMC) can indirectly improve L2 oral proficiency by developing the same cognitive mechanisms underlying spontaneous conversational speech. To be more precise, the researchers tried to determine whether individual differences in working memory capacity can effectively predict the rate of L2 oral proficiency development for different types of learners in a chatroom setting. The participants were 58 students, attending a Spanish course, and divided into an experimental group that spent half of the instructional time in a synchronous online environment and a control group that received no such treatment. The subjects took an oral test that was designed for the purpose of the study and two tests, i.e. a recognition-based nonword repetition task and a reading span measure for measuring the working memory component. Apart from the fact that the mean gain score on the L2 oral proficiency test in the experimental group was higher, it was found that the chatroom environment may be particularly beneficial for learners with lower ability to maintain verbal information in the Phonological Loop. More specifically, the decreased speed of conversational exchange and the non-ephemeral nature of the chatroom discourse can reduce the memory load, which is usually imposed by synchronous communication. This view has been clearly presented by Payne and Whitney (2002: 25), who claim that:

> It may be most useful to view the chatroom as analogous to the flight simulators used by pilots in training; the chatroom sessions may well serve as a *conversation simulator* for foreign language learners. The notion that learners can practice 'speaking' in an environment where affect and rate of speech are minimized is very appealing.

Payne and Ross (2005), in turn, conducted a study which extended the psycholinguistic framework reported by Payne and Whitney (2002) with a view to examining the patterns of language use, as evidenced in chat transcripts and better understanding the interplay between IDs in working memory capacity, SCMC, and cross-modality transfer of

skill from chatting to oral proficiency development. The participants were 24 students learning Spanish as a L2 whose oral proficiency was measured with a speaking task and, as was the case of the study conducted by Payne and Whitney (2002), two working memory measures included a nonword repetition task and a reading span test. The main finding of the study was that the repetition and relexicalization, the latter defined by Payne and Ross (2005: 40) as "(…) the re-casting of content with near-synonymous words", by Spanish learners as a strategy to facilitate communication in L2 chatroom discourse declined in frequency over time and was not related to working memory capacity. Furthermore, it was found out that there were differences in chatting style among low phonological working memory learners characterized by a greater number of words per utterance on average, comparing with high-span students. Finally, it was observed that it is lower phonological working memory capacity individuals that benefited from the chatroom setting more than the higher PWMC learners, and that there exists an interaction between the reading span and nonword repetition as measures of working memory capacity and their impact on L2 performance. As the researchers assert, "the findings of the study lend further support to the notion that the chatroom may provide a unique form of support to certain types of learners in developing L2 oral proficiency" (Payne and Ross 2005: 50).

When compared with intelligence or language aptitude, cognitive/learning style is a variable that has been frequently cited as an ID factor which plays a crucial role in computer–assisted foreign language learning (Chapelle 2008). A study that deserves particular attention when it comes to this cognitive variable and CALL was conducted by Chapelle and Heift (2009), who mainly focused on the relationship between the construct of *field independence/dependence* (FI/D) and CALL, since, in the view of the researchers, the measurement of FI/D and CALL has been 'less-than-satisfactory'. The study attempted to constitute a follow up of the investigation of the *FID-CALL* assessment developed by Cárdenas-Claros (2005). It relied on a self-report survey and computer logs representing learners' behaviours while participating in an *E-Tutor* course over the period of 15 weeks. There were three main objectives of the study, namely the scholars tried to establish if the FID–CALL scale developed by Cárdenas-Claros (2005) was a reliable measure of individual differences when used to assess FID in CALL for first-year university students. Secondly, the researchers wished to examine whether there were any aspects of CALL design covered on the scale about which students had unanimous opinions and if there were individual differences in the way the students interacted with the *E-Tu*tor CALL programme.

The participants of the study were 50 first-year students of German as a foreign language studying at Simon Fraser University in British Columbia. As mentioned earlier, the instrument used in the research was *FID–CALL* scale developed by Cárdenas-Claros (2005), consisting of 30 items divided into the following six sections: *General (GE)*, *Listening (L)*, *Reading (R)*, *Writing (W)*, *Vocabulary (V)*, and *Grammar (G)*. As the researchers suggest, the FID–CALL survey that was used in this research project "(…) failed to find reliable individual differences among the participants in the study, but the examination of individual items revealed some areas of agreement on CALL design among students" (Chapelle and Heift 2009: 251). First of all, several items were identified on which virtually no individual differences were detected; more specifically, the students almost unanimously agreed that they preferred working with CALL programmes that comprised help aids, e.g. transcripts. Additionally, the learners stated that they chose to look up new words in the dictionary. The participants also agreed that when working with software intended for language learning, they preferred working alone to cooperating with a human tutor. When it comes to grammar instruction, the subjects reported preferring graded exercises that proceeded from easy to difficult ones and exercises in which new content was related to previously learnt material.

Secondly, five items were identified, on the basis of which individual differences among the participants could be distinguished when it comes to the use of help, and four types of help aids were chosen. At one end of the spectrum, the learners had the possibility of accessing the correct answer (peek) in the computer programme by clicking on a button, which was the most explicit form of help. On the other end of the spectrum, the subjects could abandon doing an exercise (skip). The remaining two types of help aids were requesting vocabulary help (dictionary) and grammar help (grammar aid). Negative correlations between the five-item *FID–CALL* survey indicated that the FD learners had a tendency to use the help when they made mistakes. As the researchers claim, the learners perceived the computer as taking on a similar role as a teacher or peer. Figure 3.1. presents computer help possibilities from the perspectives of FD and FI students. As can be seen from the figure, the FI student tends to feel uninclined to seek assistance from the computer, whereas the FD student would apply the computer as a source of help as provided by the instructor or other learners.

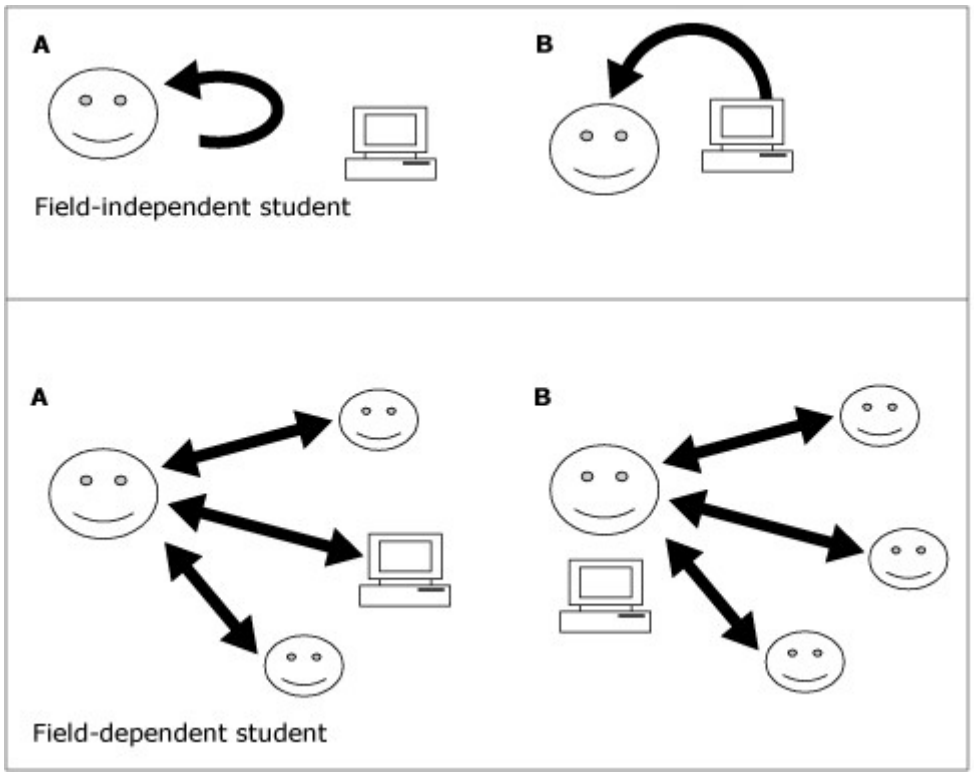

Fig. 3.1. Perspectives of computer help seen as similar to that from another person (A) or as distinct from the help of another person (B) (adapted from Chapelle and Heift 2009).

Another interesting study in the area of learning styles and CALL was carried out by Akbulut (2007), who investigated variables predicting foreign language reading comprehension and vocabulary acquisition in a linear hypermedia environment. The research was conducted in a group of 69 EFL learners (22 males and 47 females) studying at a university in Turkey. The participants were divided into three homogenous groups and provided with several tests measuring their vocabulary knowledge and reading comprehension skills. They also completed Rebecca Oxford's (1993) *Style Analysis Survey (SAS)*, which was used to assess their learning style preference. Results of the study were reported separately for vocabulary learning, and reading comprehension. As regards the results of the vocabulary learning part, predictor variables that correlated at a statistically significant level with gained vocabulary post-test scores were language proficiency and prior topical knowledge. Such variables as language proficiency scores, annotation type, and prior knowledge score, were entered into the analysis successively and the regression model accounted for 31% of variance in the criterion variable. When it comes to the results of the reading comprehension part, potential explanatory variables that correlated with the criterion variable at a statistically significant level were reading ability and learning styles, in particular the *SAS* visual score. A hierarchical regression analysis was conducted with the

reading comprehension as the criterion variable, and reading ability, learning styles, as well as annotation type as predictor variables. Results of the analysis revealed that language proficiency and the *SAS* visual score explained 21% of variability in reading comprehension scores, whereas annotation type did not have a significant R^2 value in the analysis. To sum up, the findings of the study prove that predictors of vocabulary learning in hypermedia reading environments among advanced EFL learners are annotation type, reading ability, and prior topical knowledge; while predictors of reading comprehension are reading ability and the *SAS* visual score.

As was the case of Akbulut (2007), Wu (2011) also focused on the link between learning styles and computer-assisted vocabulary learning. The researcher conducted a study in order to discover whether the application of learning paths addressing different learning styles in the CALL environment could significantly improve learners' self-directed vocabulary learning. Two learning environments were created for the purpose of the research. In the first one, a vocabulary learning system embedding different learning paths with matched learning tasks (S1) was used; whereas in the other one, the same tasks were applied without indicating any learning paths (S2). The participants of the study were 65 non-English major freshmen in China who took three vocabulary tests; namely, a pretest, a posttest, and a delayed posttest, all of which were mainly concerned with three aspects of target vocabulary knowledge that the subjects acquired in the process of learning, i.e. word form, word meaning, and word usage. Based on the data analyses, it was found that, in the end, the S1 group achieved significantly higher scores in comparison to group S2, which according to Wu (2011) means that the S1 learning environment was more effective in helping to maintain the students' long-term retention of the target word knowledge when compared to the S2 learning system.

Felix (2004) is another researcher who concentrated on learning styles and their relationship with CALL and conducted a study, the purpose of which was to investigate how comfortable secondary students felt about working in a Web-based environment and whether their perceptions changed over time. The scholar also tried to determine whether students found it useful to work with Web-based materials, which elements they found most helpful for language learning, what advantages and disadvantages this form of instruction offered in comparison with traditional methods, and which mode of delivery they preferred. There were five research questions posed by the researcher; however, when it comes to individual differences, the following objectives were pursued: (1) to discover which learning style strengths might typify good Web-based language learners, and whether study

preference (working individually or with others) made a difference to perceptions, and (2) to investigate potential differences relating to gender in the way variables were perceived. The participants were learners from five schools in different countries: one in Poland teaching English as a FL, three in Melbourne teaching Japanese, Spanish, and French, and one in Brisbane teaching French and German. The respondents were at the age of 13–20 and the prevailing number of the learners were females (60%). There were three major language backgrounds: English (44%), Spanish (34%), and Polish (21%). Three data collection instruments were used, namely: (1) the *Perceptual Learning Style Preference Questionnaire* (Reid 1987), which was applied to determine which of the six perceptual learning styles (visual, auditory, tactile, group, kinesthetic, individual) were favoured by the students, (2) the *Web Experience/Perception Questionnaire,* which was employed with a view to ascertaining student perceptions of the usefulness of Web-based learning, and (3) the *Resource Evaluation* survey, which was used to gauge the learners' perceptions of the quality of the materials.

As regards the participants' learning style preferences, the majority of the students demonstrated more than one style preference but the most common major style preference was kinesthetic (62.2%), whereas the least common one was visual (19.5%). The analysis did not confirm that certain learning style preference would affect the way in which students perceive Web learning. Only one statistically significant ($p<.05$) relationship was found between larning style preference and usefulness. More precisely, the respondents whose major learning style preference was auditory perceived Web-based learning as more useful for learning vocabulary in comparison with other students. In addition to this, the following three learning style preferences manifested a significant ($p<.05$) correlation with the respondents' preferred modes of delivery:

- individual learning style correlated with using the Web materials alone in addition to face-to-face teaching;
- group learning style correlated with using the Web materials for distance education with access to a tutor;
- kinesthetic learning style correlated with using the Web materials in class in addition to face-to-face teaching as well as with the Web materials for distance education with access to a tutor.

It was also found that there were several significant differences between males and females. Firstly, male students rated clarity of objectives more highly than females. Secondly,

females found the Web materials more helpful for writing, speaking, and pronunciation. Finally, more female students (38.8%) than the male ones (18.2%) indicated the auditory learning style preference as one of their majors.

As presented earlier in Section 3.1. of the current chapter, some studies were also carried out to explore the link between learning styles and other ID variables, such as learning strategies. An example of such research is that conducted by Liu and Reed (1994), who investigated the relationship between students' learning styles and their patterns of learning as reflected in a hypermedia-assisted instructional setting, types of media, tools, and learning aids that were most preferred by the different style groups. The participants of the study were 63 college, international students learning English who had no experience with hypermedia. When it comes to the treatment, the Hypermedia-Assisted-Vocabulary-Learning-Courseware (HAVLC) was used, which is an environment designed for nonnative English speakers to learn vocabulary. As regards the instruments used in the study, the *Group Embedded Figures Test* (GEFT) (Witkin et al. 1971) was applied to classify the subjects into field-dependent and field-independent groups, whereas the patterns of learning were measured by means of the following seven variables: the total amount of time using the courseware, the total number of times using the courseware, the total number of times accessing different media, the total number of times accessing the tools, the total number of times using the different learning aids, the total number of times using the minidictionary option, and the total number of times looking at the background information included in the software.

On the basis of the outcomes of the study, several differences between FD and FI students were observed. Firstly, FD learners spent more time using the courseware and they did it with greater frequency than FI learners. They also used more video options, for example video clips, than the FI participants. On the other hand, FI subjects employed more index tools in order to move freely around the courseware, whereas the FD participants tended to follow the sequence of the visual materials from the beginning to the end. Generally speaking, in the hypermedia environment, the two learning style groups chose different media, different tools, and different learning aids to accomplish their learning tasks, with the caveat that all of the participants of the study performed equally well on the vocabulary achievement. Therefore, it appears that the hypermedia technology "(…) possesses four major advantages: nonlinearness, associativity, flexibility, and efficiency" (Liu and Reed 1994: 429).

Apart from learning styles, another cognitive individual learner factor, i.e. language learning strategies, deserves particular attention with reference to CALL. This has been clearly explained by Chapelle (2008: 588), who writes:

> A larger issue that extends beyond a language course and CALL materials is the need to develop the learners' strategies to help them make use of the extensive language and linguistic resources available on the Internet. If learners become more accustomed to using electronic resources in their language classes, they should ultimately be able to draw upon the enormous resources of the Internet. Ideally, learners would develop the metalinguistic sophistication that takes them to linguistic examples on the Internet as a means of answering their questions. For example, the learner who stops mid-sentence in an email because he doesn't know how to ask for advice about the best course to take should immediately think of the Internet, where a search for the British National Corpus for the word "advice" will turn up examples of "advice on" and "advice about" something but not "advice in" or "advice for" something.

However, as is the case of learning styles, the scope of research into language learning strategies and CALL is not satisfactory. One of such studies was conducted by Ganjooei and Rahimi (2008), who investigated two groups of 200 Iranian undergraduate EFL students: e-learners and traditional learners (t-learners). The main aim of the study was to find out how language learning strategies are applied in two different contexts (electronic versus traditional), determine what is the relationship between learners' English language proficiency level in each group and their preferences for subcategories of language learning strategies as well as whether language learning strategy use can predict proficiency level of the learners and the other way round. The following instruments were used for the purpose of the research: the *Oxford Placement Test* (*OPT*), adopted from Allen (1985), employed to assess the general English language proficiency of the subjects, and the *Strategy Inventory for Language Learning* (Oxford 1990a), which was applied to assess the frequency with which foreign language learners use language learning strategies.

As regards the results of the study, no statistically significant difference was found in strategy use between these two groups of learners, which means that "(…) the education system has little influence on the way learners usually go about applying language learning strategies" (Ganjooei and Rahimi 2008: 14). In addition, no statistically significant differences were observed when it comes to the frequency of occurrence of the e-learners' and t-learners' use of strategies. The next research question concerning the relationship between the learners' FL proficiency and their language strategy use was investigated, and statistically significant positive correlations were found between both e-learners and t-learners, which means that students with high FL proficiency level exhibited more effective use of

strategies. It was also revealed that there was a statistically significant positive correlation between FL proficiency level and the application of subcategories of LLSs in both groups. Finally, in order to address the last research question, two Standard Multiple Regression Analyses were performed. In the first model, language learning strategy use was treated as an independent variable and FL proficiency as a dependent variable. Data analysis confirmed that the model explained 38.5% of variance in language proficiency level, which indicated that LLS use made a strong contribution to explaining the dependent variable. In the second model, language learning strategy use was considered as the dependent variable and FL proficiency served as the independent variable, and in this case, the R Square value indicated that 38.5% of variance in the participants' language learning strategy use was explained by the independent variable. Consequently, it was showed that the learners' language proficiency scores could significantly predict the frequency of LLS use. All in all, it appears that there is a relationship between language learning strategies and foreign language proficiency; however, no major differences exist between e-learners and traditional learners.

Another interesting study on the role of language learning strategies in the CALL environment was conducted by Ghonsooly and Seyyedrezaie (2014). The researchers investigated whether there was any significant difference between post-test scores of web-based learners and face-to-face learners with respect to their preferences for language learning strategies, as well as whether there was any significant difference between pre-test and post-test reading comprehension scores of EFL students who were exposed to web-based learners and face-to-face instruction. The participants of the study were 200 Iranian EFL students who took the *Preliminary English Test* (PET), a translated version of the *SILL* (Oxford 1990a) and a test of reading comprehension. Results of the research suggest that, as is the case of the study conducted by Ganjooei and Rahimi (2008), the selection and use of language learning strategies was not noticeably affected by the type of instruction as both groups of web-based and face-to-face learners applied LLSs in approximately the same way. Moreover, it was found out that there was a significant difference between pre-test and post-test reading comprehension scores of the face-to-face instruction students, which may suggest that it is the type of instruction and not the use of LLSs that influences the effectiveness of FL learning.

One study that focused on the relationship between different IDs and CALL was conducted by Felix (2001), who investigated language learning strategies, age, and gender. As regards the first factor, the scholar attempted to examine which language learning

strategies can typify good web-based students in learning Italian, Japanese, and English as a L2. When it comes to the other two variables, the researcher tried to establish whether students' perceptions of the computer use vary according to age and gender. The measurement tools employed in the study were the *SILL* (Oxford 1990a) and the *Web experience perception questionnaire* designed by the researcher. Data analysis did not support the hypothesis that certain language learning strategy preferences may have an impact on the way language learners perceive web learning. However, a significant relationship between study preference and affective strategies was found; namely students with a low mean score on affective strategies preferred to work individually; whereas those with a high mean score on this category of strategies leaned towards working in a group. When it comes to the age factor, the subjects were divided into two groups, i.e. those younger than 30 years of age and those older than that. Data analysis showed that the younger students felt more comfortable with the web in the beginning and were more impressed with the graphics, whereas older learners preferred using the web as a supplement to the face-to-face learning. As far as gender is concerned, it was found that males spent more time using the web than females and preferred the face-to-face component of the course.

It is also important to present outcomes of two studies that dealt with language learning strategies with respect to another crucial individual learner variable, i.e. motivation, conducted by Chang (2005, 2007). In the first study, the researcher examined the effect of self-regulated learning strategies on learners' perception of motivation within web-based instruction in a group of 28 vocational university students who had no previous experience in web-based courses. The subjects completed the *Motivated Strategies for Learning Questonnaire* (MSLQ) (Pintrich et al. 1991) and participated in informal interviews. Findings of the study revealed that the application of self-regulatory strategies in the CALL environment has the potential to improve students' motivation, learners' belief of taking control of their own learning as well as students' expectancy for success and self-efficacy. In the second study, Chang (2007) explored the effects of a self-monitoring strategy on students' academic performance and motivational beliefs in web-based instruction in the case of 99 freshmen with higher and lower levels of EFL proficiency. There were two dependent variables in the study, namely the participants' academic performance, measured by means of course grades, and motivational beliefs assessed by an adapted version of the *MSLQ* (Pintrich et al. 1991) mentioned earlier. The results of the

study showed that the self-monitoring strategy exerted an impact on the students' academic performance and their motivational beliefs.

To sum up, the current section has aimed at presenting different available studies dealing with the relationship between cognitive variables and L2 performance in the CALL environment. When it comes to intelligence and working memory, findings from these studies suggest that Multiple Intelligences-based technology-assisted language learning can be beneficial for students with different individual needs (Kim 2009). Additionally, the chatroom environment may indirectly develop L2 speaking ability and it can provide additional benefits to learners with specific memory capacity limitations (Payne and Whitney 2002; Payne and Ross 2005). As regards cognitive/learning styles, the results of the studies described in this section indicate that field-dependent and field-independent students work differently in the CALL environment (Chapelle and Heift 2009), there is a link between the visual learning style preference and reading comprehension ability (Akbulut 2007), learning styles have an impact on self-directed vocabulary learning (Wu 2011), learning styles do not affect the way web-based learning is perceived by students (Felix 2004), and that hypermedia-assisted vocabulary learning can accommodate students with different learning styles and strategies (Liu and Reed 1994). Finally, research into language learning strategies has shown that the use of LLSs is not affected by the type of instruction (Ganjooei and Rahimi 2008; Ghonsooly and Seyyedrezaie 2014), affective strategies are linked with individual/group work preference (Felix 2001), and self-regulatory strategies can impact students motivational beliefs (Chang 2005, 2007) as well as academic performance (Chang 2007). As can be seen from this section, more state-of-the-art studies are needed to tap the relationship between different cognitive variables, e.g. foreign language aptitude and L2 performance in new instructional environments.

3.3. Affective variables and CALL

This section provides an overview of research into such affective learner variables as motivation, anxiety, and personality with respect to Computer Assisted Language Learning. When it comes to the first ID factor, motivation, it has probably been the most promising and frequently researched individual variable with respect to CALL, which is evidenced by the fact that "(…) motivation has been a pervasive theme in CALL" (Hanson-Smith 2001: 109). It is widely thought that this ID factor contributes to enhancing FL learning (Sokolik

2001; White 2003; Warschauer 1996a) and thus the link between CALL and motivation deserves closer study.

A research project that was an initial look at the effective results of real-time computer networking on student communication in the foreign language classroom was conducted by Beauvois (1995). The participants were 41 students of French as a L2 who completed pre- and post-study questionnaires, the main aim of which was to determine the students' attitudes towards speaking French before and after the intervention. The subjects also participated in follow-up, audio-taped interviews in order to expand on the post-study instrument responses. The specific objectives of the research were to examine the learners' attitudes toward learning a FL using a real-time local area network (LAN) and to identify any linguistic benefits of the LAN intervention to SL learning. The researcher found that computer-assisted discussion constituted an entirely new way of looking at classroom communication in a FL; namely, it allowed for a moderation of ideas as well as phrasing and re-phrasing of thoughts before expressing them. It also allowed for attention to individual learning styles. To be more precise, the IDs of the learners were accommodated by the network process as the subjects responded in their own way and in their own time. As Beauvois (1995) states, the LAN communication was an effective motivating force due to many benefits enumerated by the participants, such as lack of pressure, permanent nature of discussion allowing error correction or time to think. Another important finding of the study was that computer-assisted communication in a L2 was essentially a student-centred activity in which the teacher had a lot less influence over the students' output. However, as the scholar suggests, the findings "(…) do not suggest a superiority of instruction or learning as a result of the use of networked computers for classroom discussion" (Beauvois 1995: 187).

Apart from that described above, one of the most well-known studies on motivational aspects of using computers for FL learning is probably that conducted by Warschauer (1996b). In his view, there are four most frequently-cited motivating aspects of CAI, which include: (1) the novelty of working with a new medium, (2) the individualized nature of CAI, (3) the opportunities for learner control, and (4) the opportunities for frequent, non-judgemental feedback. The researcher conducted a study on the effects of student motivation for using computers for writing and communication in the language classroom, taking into account two significant limitations. First of all, foreign language learning involves a number of social, psychological, and cognitive aspects that are not present in other types of learning and, as a consequence, what motivates a FL learner using computers may be en-

tirely different from what motivates learners who study other subjects. Secondly, the vast majority of empirical studies into CAI appears to be outdated because of rapid technology development; therefore, new ways of using computers in the classroom as well as new ways of motivating learners are required. Warschauer's (1996b) study primarily focused on two aspects of CALL; namely, using the computer for writing and for communication. To be more precise, the expert tried to find out what aspects of using the computer for writing and communication FL students find motivating, what differences exist among these motivating aspects for students of different backgrounds, and how student motivation varies from class to class, teacher to teacher, and from second language to foreign language situations. The research was conducted in a group of 167 university students in 12 ESL and EFL academic writing classes in the USA, Hong Kong, and Taiwan. The data were collected by means of the *Attitudes toward Using Computers* instrument described in Section 2.5. of Chapter 2.

Factor analysis carried out for the purpose of the study made it possible to extract the following three factors: *communication*, *empowerment*, and *learning*, which, according to the researcher "(…) go beyond the view of language learning motivation as being either integrative or instrumental" (Warschauer 1996b: 9). The strongest factor in the survey, i.e. *communication*, involved the students' readiness to communicate with native speakers in other countries, various non-native speakers in different locations as well as with the teacher. The second factor, *empowerment*, was connected with affective variables and involved such issues as combating isolation or overcoming anxiety to contact other people. The third factor, *learning*, indicated that the computer could serve as a tool which could help to learn more effectively and independently. In addition, when using this tool, students felt that they were able to take control of their own learning and practice English more.

Furthermore, it was found that two factors correlated with mean motivation at a statistically significant level ($p<.05$), which were *self-rated computer knowledge* and *experience with e-mail*. Multiple regression analysis revealed that these two factors together contributed 14% to the variance. The question, however, is whether knowledge and experience cause a more positive attitude or a more positive attitude is the reason for learners' gains in knowledge and experience. As Warschauer (1996b) claims, the influence is bi-directional. Finally, the researcher found that, although the learners manifested positive attitudes toward learning with computers, there were significant differences among the classes. Teachers involved in the research were asked to state the specific ways in which computers were used in the classroom. It turned out that the class with the lowest mean motivation score

was the one in which the computer played a 'peripheral' role in the course and this tool was not mandatory for the completion of class assignments. Moreover, students in this group had individual experience in email communication. On the other hand, in the groups with high motivation scores the computer constituted an integral part of the course. As Warschauer (1996b: 10) concludes, "(…) the best results are achieved when on-line activities are well integrated into the ongoing structure of student assignments and interaction rather than included as an informal add-on". Teachers are also encouraged to help learners raise their awareness about using computers in order to enhance their motivation.

Another research project focusing on the relationship between CALL and motivation was conducted by Akbulut (2008), who made an attempt to expand on Warschauer's (1996b) research. In particular, it set out to determine what aspects of using a PC for writing and communication created positive attitudes in freshmen foreign language students, and whether attitudes towards CALL varied when different backgrounds were taken into consideration. The participants of the study were 155 learners at a Turkish state university (41 males and 114 females) learning English as a FL at an advanced level. The instrument used was the survey developed by Warschauer (1996b), administered to the participants in English but some items in the questionnaire were altered for the purpose of the study. When it comes to the results of the research, the item with the highest average value was "Learning how to use computers is important in my career", which may indicate that the learners were instrumentally motivated. Exploratory factor analysis revealed the following seven factors: *independence*, *learning*, *collaboration*, *instrumental benefits*, *empowerment*, *comfort*, and *communication*. In addition to this, an independent samples *t-test* showed that male and female students did not differ from each other when it comes to attitudes toward computer assisted writing and communication. Another independent samples *t-test* was conducted in order to examine whether total scores differed between learners who had a PC at home and those who did not and the analysis revealed the former had significantly more positive attitudes towards computers in comparison with the latter. Finally, the researcher conducted a one-way between-group ANOVA in order to investigate whether the participants' attitudes towards CALL were influenced by age. No major differences in the students' attitudes towards CALL were found out in terms of this ID factor.

Motivation has also been addressed by researchers with respect to other individual learner variables, for example anxiety. Such a research project was carried out by Ushida (2005), who investigated the role of motivation and attitudes in student foreign language learning in an online L2 course content (LOL). The study also examined the impact of the

course on learners' attitudes and motivation and how it influenced the participants' L2 learning. Specifically, the main aim of the study was to examine the patterns of motivation and attitude towards the study and learning of French and Spanish on the part of students who participated in LOL courses, how students' attitudes and motivation related to their L2 learning in LOL courses, and what factors affected students' attitudes and motivation and thus, at least indirectly, their success in the study and learning of French and Spanish in LOL courses. The participants of the study were learners enrolled in elementary French online elementary French (EF), elementary Spanish (ES), and intermediate Spanish (IS) online courses and the research involved several course teachers and language assistants. There were two types of data analysed by the researcher: quantitative and qualitative. As regards the former, three types of questionnaires were applied: the *General Background Questionnaire*, which gathered demographic data from the students, the *Technology Background Questionnaire* that gathered information concerning the subjects' experience using technology, e.g. chat, and the *AMTB* (Gardner et al. 1997), used to examine the participants' attitudes and motivation. Moreover, additional sections were included on computer attitudes adapted from Beauvois's (1995) study which used items measuring French/Spanish class/course and use anxiety. When it comes to qualitative data, classroom observations and interviews were employed. The results of the study showed that the learners' motivation and attitudes toward the learning of Spanish and French were positive and similar across the LOL courses. What is more, such positive motivation and attitudes remained unchanged over the period of a 15-week semester. The results of the research also indicated that at the beginning of the semester the students appeared to have a relatively high anxiety level about the LOL course. As Ushida (2005) suggests, this might stem from the fact that the subjects were not familiar with specific LOL learning environment. The learners' level of anxiety, however, dropped significantly by the end of the semester.

When it comes to the second research question, results of a correlation analysis revealed that the participants who had positive motivation and attitudes towards learning a FL tended to obtain high scores on module tests and participate actively in online chat sessions with language assistants. Significant correlations were found between the learners' module test results and the level of their motivation at the beginning of the semester, at the end of the semester as well as between the language assistants' rating of the students' performance for online chat sessions and their motivation level at the beginning of the semester and at the end of the semester. The outcomes of the study suggest that there is a positive relationship between the learners' motivation and attitudes, and achievement in the LOL course. In

addition to this, the students' participation in the online chat sessions "(…) served as a good predictor for determining their motivation to study the target language" (Ushida 2005: 68). However, no statistically significant correlation was found between the participants' motivation and attitudes and their final examination scores or end-of-term grades. The results of the study also indicate that the FL learning experience was less positive among the EFL students compared with students from the other LOL courses. The researcher suggests that the teacher variable may be the reason for this difference as the teacher may affect students' motivation and attitudes as well as their anxiety level.

It is interesting to note that the above-mentioned affective factor, i.e. anxiety, similarly to motivation, has been the subject of interest to many researchers in the field of CALL. In one study, Huang and Hwang (2013) made an attempt to explore the relationship between EFL learners' anxiety and e-learning environments. Specifically, the study was aimed at investigating the correlation between EFL students' language anxiety and the use of multimedia instruction in the English classroom. The participants were over 120 learners at the age of 18–20 studying at a medical university in Taiwan. The instrument designed for the purpose of the study was a questionnaire consisting of three parts. The first part gathered background information from the students, whereas in the second part, the researchers used the *Foreign Language Classroom Anxiety Scale* (Horwitz et al. 1986). The last part of the questionnaire elicited the learners' perceptions of learning English in a multimedia environment. The findings showed that the learners were anxious about the following situations: negative consequences of failing the foreign language class, speaking without preparation in the English class, providing volunteer answers in the EFL class, and being asked a question by the English teacher without time for preparation. By contrast, the students were not worried about going to the FL class. When it comes to the second research question, there were five items with the highest mean scores in the third part of the questionnaire. The participants answered that they liked learning English through songs and multimedia (i.e. computers, DVD, You Tube, PPT). They learnt how to work with others from the group presentation in class and believed English captions helped them to understand the conversation better. Surprisingly, three out of five multimedia learning items that were perceived by the students as most useful can be facilitated by the computer. The authors also conducted a correlation analysis between the items of the third part of the questionnaire and found out that there were two items that correlated with each other at a significant level ($p<.05$). These were: statement 18 "I think multimedia will reduce my English learning anxiety" and statement 17 "I think multimedia (i.e. computers, DVD, You Tube,

PPT) is a good teaching instruction to learn English". According to the researchers, this indicates that "(…) there is a positive relationship between reduced learning anxiety and use of a multimedia environment" (Huang and Hwang 2013: 32). As regards the third research question which focused on the impact of gender on language anxiety, *t-test* results revealed that there was no significant difference between the levels of language anxiety between males and females. Nevertheless, the level of language learning anxiety was a little higher in the case of female learners in comparison with the male students.

Another interesting study into the relationship between CALL and anxiety was conducted by Tallon (2009), who attempted to determine whether students experienced a reduction of foreign language anxiety by using asynchronous CMC (ACMC). The participants of the study were 26 heritage and non-heritage students of Spanish as a L2 (13 males and 13 females) who were divided into two experimental groups in which asynchronous discussions were held using the *Blackboard* software outside the classroom, and one control group which completed the assignments in the classroom. The instrument used in the study was an adapted version of the *FLCAS* (Horwitz et al. 1986), which was administered to both groups as a pre-test and a post-test to establish the participants' level of foreign language anxiety. Additionally, one open-ended question was formulated in the case of the experimental group, the main aim of which was to provide opinion of the *Blackboard* assignment. The researchers found that the non-heritage students experienced a higher level of anxiety; however, due to the small sample size it was not possible to assess statistical significance. Furthermore, research results suggest that the use of CMC has the potential to reduce learners' anxiety level, with the caveat that it was more visible in the case of non-heritage students.

One of the most state-of-the-art research projects that examined the role of CALL in reducing anxiety of students was carried out by White (2014). The participants were 10 Japanese students who took part in an EFL course in Australia with the use of CALL. The subjects completed two types of instruments; namely, a Japanese version of the *FLCAS* (Horwitz et al. 1986) was used to assess the learners' level of anxiety, and semi-structured interviews were applied in order to collect the learners' accounts of their beliefs about the role of CALL in reducing their level of anxiety during the overseas programme. Undoubtedly, a major limitation of the study was the sample size and, hence, results of the research cannot be generalized to the whole population. However, some general trends could be observed in the course of the research. Firstly, it was found that the learners were the most anxious about speaking in the classroom, in particular when asked to provide answers

without preparation. As for the interviews results, most of the students' beliefs about CALL were positive and they agreed that learning English with the help of the computer, listening to and repeating authentic video recordings had the potential to reduce the level of FL anxiety.

The last affective variable that will be discussed in this section is personality which has received relatively scant attention among CALL specialists. Probably the first such research project was carried out by Beauvois and Eledge (1996), who investigated students' attitudes towards Computer Mediated Communication in the LAN environment using the *InterChange* software with respect to their personality types, introverts and extroverts in particular. The participants of the study were 19 students who enrolled in two sections of second semester Conversation and Composition course of French as a FL. The students completed demographic and evaluation questionnaires at the beginning and at the end of the semester and the *MBTI* (Myers 1980) in order to assess the personality profiles of the respondents. In addition, interviews with the students were conducted at the end of the course in order to receive information according to the participants' attitudes towards the computer mediated instruction in their French classes. As the results of the study indicate, generally speaking, both extrovert and introvert learners perceived their communication on the LAN as beneficial linguistically, effectively, and interpersonally. In addition to this, students with the INTP (Introversion, Intuition, Thinking, Perceiving) personality profile, as a group, viewed the LAN experience somewhat less positively than the rest of the group. However, it appears that the LAN communication can accommodate the needs of both introvert and extrovert learners and become an important addition to classroom instruction aided by technology.

Another interesting study on the relationship between personality and Computer Assisted Language Learning was conducted by Meunier (1996), who investigated the effects of gender and personality differences on computer based foreign language group activities at the university level. In particular, the study aimed at examining whether gender is a more powerful factor in predicting language learning and interaction patterns than personality. The participants were 60 learners enrolled in intermediate French classes at a major research institution who were divided into three types of pairs/dyads, i.e. female, male, and mixed-gender dyads. The instruments used in the study were the *MBTI* (Myers 1980), applied to establish the participants' personality profiles, and software-based pre- and post-tests which assessed the subjects' language learning achievement. The computer programme used for the purpose of the research was the *Carmen San Diego*, which is a game

that falls into the category of collaborative software. The results clearly show that personality appears to be a stronger predictor of FL learning when comparing with gender. As Meunier (1996: 67) claims, "the study suggests that particular attention should be paid to group dynamics in cooperative computer based foreign language activities, as well as the compatibility of software types with gender differences and the multiplicity of personality types".

To sum up, affective variables such as motivation, anxiety and personality seem to be of vital importance in the CALL environment. Although this area of research is still unexplored, studies conducted by various scholars have presented some promising research directions. It was found, for instance, that CALL can be a motivating factor (Beauvois 1995) thanks to many benefits it can entail, such as for example, communication with other learners by means of the computer (Warschauer 1996b). What is more, it was discovered that there is a relationship between motivation and FL performance in the CALL environment (Ushida 2005). When it comes to the remaining two affective variables, i.e. anxiety and personality, some studies proved that CALL has the potential to reduce the level of students' anxiety (Ushida 2005; Tallon 2009; White 2014), whereas others found that personality is a stronger predictor of FL learning than gender (Meunier 1996). Nevertheless, certainly more research is needed to explore the role affective variables play in the CALL environment using different instruments and more modern software. Additionally, there is a need to examine the relationship between other affective variables, for example willingness to communicate and the use of Computer Assisted Language Learning.

Conclusion

Reflecting on the effectiveness of research into CALL, Chapelle (2013: 1) argues, "It seems like a simple enough question: Is computer-assisted language learning effective for language learning? Indeed, researchers address this question in a variety of ways, but most language teachers and researchers would point out that the question is considerably more complex than it first appears". It should be noted that changing foreign language learning opportunities are rejuvenating interest and research on how to learn more effectively. As demonstrated in the previous chapter, the question is not so much whether computer-aided learning helps students gain proficiency in a L2, since this problem appears to have been

resolved empirically to considerable extent (e.g. Blake et al. 2008; Sullivan and Pratt 1996; Jafarian et al. 2012; Naba'h et al. 2009), but what type of instruction, i.e. *face-to-face* or *blended* is most effective in developing FL skills as well as what individual learner characteristics may influence learners' success.

The current chapter has attempted to describe and compare findings of different research projects pertaining to the link between a range of different cognitive, affective, and social variables with respect to Computer Assisted Language Learning. As was discussed earlier in this chapter, numerous studies have been conducted to help determine which IDs have the potential to impact the CALL instruction; yet the obtained findings are often difficult to analyse and interpret due to the conflicting nature of the results and the methodological problems from which the research often suffers. As was expected, to date the most widely researched IDs with respect to CALL are invariably motivation to learn a L2 and foreign language anxiety, which was reflected in such studies as those conducted by, for example, Beauvois (1995), Warschauer (1996b) or White (2014). Definitely, more studies on different IDs, e.g. aptitude, as well as longitudinal projects need to be conducted in order to determine the role of individual learner variables in the CALL instruction as well as the effectiveness of the medium, especially in light of the fact that after synthesising the outcomes of the different studies, it should be noted that most of the research is outdated and deserves closer study. Moreover, the different software used, for example *Blackboard* (Tallon 2009), *InterChange* (Beauvois and Eledge 1996) or *Carmen San Diego* (Meunier 1996), is out of date and more modern and sophisticated computer programmes should be used to explore the role IDs play in the CALL environment. The combination of observation, self-report data collected through questionnaires and interviews could enhance the validity of the studies. Although there is a number of issues that call for researchers' attention and pose a considerable challenge and difficulty in terms of conducting reliable studies, the present researcher made an attempt to conduct such an empirical study which will be described in detail in the remaining two chapters of the current thesis.

Chapter 4: Methodological considerations

Introduction

As discussed earlier, the first two chapters of this dissertation have provided an overview of the key concepts in the field of individual differences in Second Language Acquisition as well as the theoretical foundations for Computer Assisted Language Learning. Chapter 3 has discussed research into individual learner factors and computer-aided FL learning, drawing the reader's primary attention to the issues connected with different IDs, such as language learning strategies, learning styles, and motivation or aptitude, which are the main focus of the study described in the current thesis. This present chapter is the first of the two related to the research project exploring the relationship between a range of cognitive and affective learner factors and CALL. To be more precise, it is devoted to the presentation of the methodological aspects of the current study and it is divided into seven sections. It will start by presenting the design of the study and research questions in sections 4.1. and 4.2., respectively, with a justification for the choice of such foci of research. The following two sections will deal with the description of the participants of the research project (Section 4.3.) and the pilot study (Section 4.4.), its participants and instruments of data collection and analysis. The chapter will also provide a description of the instruments used in the proper study, data collection procedures, as well as data analysis issues which will be presented in sections 4.5., 4.6., and 4.7., respectively.

4.1. Research design

When it comes to the research design, the present study can be described as *experimental*, and *correlational*. An *experimental* study uses a control group which receives no treatment; whereas a *correlational* study is applied to test a relationship between variables (Mackey and Gass 2005). This study applied a mixed methods paradigm which has been described by Ivankova and Creswell (2009: 136) in the following way: "Mixed methods research, with its focus on the meaningful integration of both quantitative and qualitative data, can provide a depth and breadth that a single approach may lack by itself". It means that possible inadequacies that may be found in one-source data are minimized when multiple sources corroborate the results obtained.

In the current research, methodological triangulation was used in order to combine the strengths of both types of research (quantitative and qualitative) and conduct a multidimensional analysis of the data. Additionally, such a design integrates both approaches and provides a more detailed picture of what is being researched. Dörnyei (2007: 164) states that the traditional goal of triangulation is to "(…) validate one's conclusion by presenting converging results obtained through different methods", and enumerates eight ways in which quantitative and qualitative methods designs can be mixed, which are as follows:

(1) questionnaire survey with follow-up interview or retrospection (QUAN → qual);
(2) questionnaire survey facilitated by preceding interview (qual → QUAN);
(3) interview study with follow-up questionnaire survey (QUAL → quan);
(4) interview study facilitated by preceding questionnaire survey (quan → QUAL);
(5) concurrent combinations of qualitative and quantitative research (QUAL/qual+ QUAN/quan);
(6) experiments with parallel interviews (QUAN + qual);
(7) longitudinal study with mixed methods components (QUAN + QUAL);
(8) combining self-report and observation data (QUAL + QUAN).

In a mixed-design study, both quantitative and qualitative components have three categories according to the sequence and dominance dimensions: qualitative first, quantitative first or concurrent; and qualitative dominant, quantitative dominant or equal status (Dörnyei 2007). In the present study, quantitative data of the experiment were supplemented with interviews.

The present study was conducted at Poznan University of Technology (PUT), Poznań, Poland, in the academic year 2012/2013. At PUT, students learn English for Specific

Purposes (ESP) that is carefully tailored to a curriculum in which each course syllabus is designed to meet the specific needs of the learner, comprising such elements as technical language, business correspondence, or perfecting presentation skills (Olejarczuk 2013a). In order to determine group levels, students new to the university are requested to take the *Pearson Longman Introductory Placement Test* (Steinbrich 2008), an instrument commonly used to enable the teachers to place the new learners at the correct level in groups of similar ability and/or to decide what pace and approach to adopt. A group of specially trained teachers have designed online courses which enable the students to learn specialized language, and to communicate with the teacher and other students in English (Olejarczuk 2014a). At the end of the language course, students take an examination in English, both oral and written, and it is parts of the oral and written examination that were used for the purpose of the current study.

Table 4.1. Chronology of the research schedule.

	Date	Instruments
1.	February 2013	Pearson Longman Introductory Placement Test
2.	February 2013	Learner Profile and Beliefs about CALL Questionnaire
3.	February 2013	Strategy Inventory for Language Learning
4.	March 2013	Foreign Language Proficiency Test 1—BULATS0
5.	March 2013	Speaking Task 1 (students' recordings) and Writing Task 1 (guided writing)
6.	March 2013	Learning Style Survey
7.	March 2013	Motivation Battery
8.	April 2013	Foreign Language Aptitude Test—FLAT-PL (TUNJO)
9.	May 2013	Interviews with students
10.	June 2013	Foreign Language Proficiency Test 2—BULATS0A
11.	June 2013	Speaking Task 2 (students' recordings) and Writing Task 2 (guided writing)

Table 4.1. presents the schedule of the current research project, which was conducted in the period of time from February 2013 to June 2013 (16 weeks). As illustrated in Table 4.1., the data collection procedure for the research comprised a number of instruments administered in eleven steps. When it comes to quantitative data, firstly, the *Pearson Longman Introductory Placement Test*, written by Piotr Steinbrich (2008), was used. As mentioned earlier in this section, the reason for implementing this test was to assess the students' approximate level of proficiency in English and to divide them into more homogenous groups. The next two instruments that were applied were the *Learner Profile* and the

Beliefs about CALL Questionnaire[2] (Olejarczuk 2013b)—measurement tools which were designed by the present researcher in order to collect two types of data from the participants: background information, and information concerning the learners' opinions about CALL, respectively. The next step of the data collection procedure was to administer three types of questionnaires and an aptitude test. The questionnaires were as follows: the *Strategy Inventory for Language Learning* (Oxford 1989), the *Learning Style Survey* (Cohen et al. 2002), the *Motivation Battery* (Pawlak 2012b), and the *Foreign Language Aptitude Test—Polish* (FLAT-PL), hereinafter referred to as the *TUNJO* (Test Uzdolnień do Nauki Języków Obcych) (Rysiewicz 2012). The first questionnaire, the *Strategy Inventory for Language Learning*, developed by Rebecca Oxford (1989), was used to assess the students' learning strategy use. The *Learning Style Survey*, designed by Cohen et al. (2002), was used to determine the subjects' general approach to learning. The third questionnaire was the *Motivation Battery*, designed by Pawlak (2012b), on the basis of surveys designed by Ryan (2005), Taguchi et al. (2009), and Csizér and Kormos (2009), and was used to assess the participants' level of motivation to learn English. Finally, the *TUNJO*, developed by Rysiewicz (2012), was administered to diagnose the learners' aptitude profiles.

In order to assess the students' attainment, a foreign language performance test was administered, which was done twice, at the beginning and at the end of the semester. For this reason, the present researcher used three instruments. The first test was the *Business Language Testing Service* (BULATS), versions EN000 (2007) and EN000A (2010), which was applied to assess students' listening and reading skills as well as vocabulary and grammar knowledge. The second test was the *Speaking Task*, in which the students' utterances concerned with business topics were audio-recorded. The reason for administering this test was to evaluate the students' speaking skills. As the researcher looked both at the learners' *implicit knowledge* (speaking) and *explicit knowledge* (written tests), the third test consisted in writing a short text, called *guided writing*, named the *Writing Task*, concerned with business topics and used to assess the participants' writing skills. Speaking and writing tasks assessed the participants' *procedural* rather than *declarative* knowledge (a distinction between *knowing how* and *knowing that*), with the caveat that the above-mentioned terms are defined in the following way: "(…) one acquires declarative knowledge suddenly by being told whereas one acquires procedural knowledge gradually by performing the

[2] In the first version, the questionnaire was named the *Learner Profile containing a CALL component*; however, later on a decision was made to divide it into two separate questionnaires and rename the measurement tools.

skill" (Anderson 1976: 117). The main research was preceded by a pilot study, which took place in January 2013, and involved piloting the newly developed instruments; namely the *Learner Profile*, the *Beliefs about CALL Questionnaire*, the *Strategy Inventory for Language Learning*, and the *Learning Style Survey*. The results of the pilot study will be presented in Section 4.4.

4.2. Research questions

As Sunderland (2010: 9) suggests, "Research questions are (…) the key to any empirical research project. Without research questions, you would flounder; with them, you will be guided in terms of data needed, data collection methods and data analysis". Undoubtedly, developing research questions is one of the most crucial stages in the research process.

It should be noted that the aim of the study was two-fold. First of all, the main objective was to compare groups of students who attended traditional classes (traditional learners, hereinafter referred to as T-learners) and those who participated in a blended learning course (E-learners, hereinafter referred to as E-learners) in terms of foreign language attainment. Secondly, the study was designed to investigate the role of individual differences in second language learning in various learner groups who attended a course in English as a foreign language with respect to CALL. In other words, firstly, the intention of the present researcher was to look into the impact of the two types of instruction on foreign language attainment, and later to explore the intervening effects of IDs. Specifically, the study was designed to address the following research questions:

- Research Question 1: *What are learners' beliefs about Computer Assisted Language Learning?*
- Research Question 2: *Are students' beliefs about Computer Assisted Language Learning, as measured by the CALL questionnaire, related to different IDs and FL attainment?*
- Research Question 3: *Is there a relationship between selected IDs and attainment in foreign language learning aided by CALL?*
- Research Question 4: *Is there a difference in the impact of the two types of instruction: traditional learning and blended learning on attainment in English?*

- Research Question 5: *Which of the IDs is the most powerful predictor of students' attainment in English?*

4.3. Participants

Nine groups of students participating in a course of English as a second language at Poznan University of Technology were involved in the study. The participants were 150 Polish learners, 100 males and 50 females (N=150; average age=19.6).

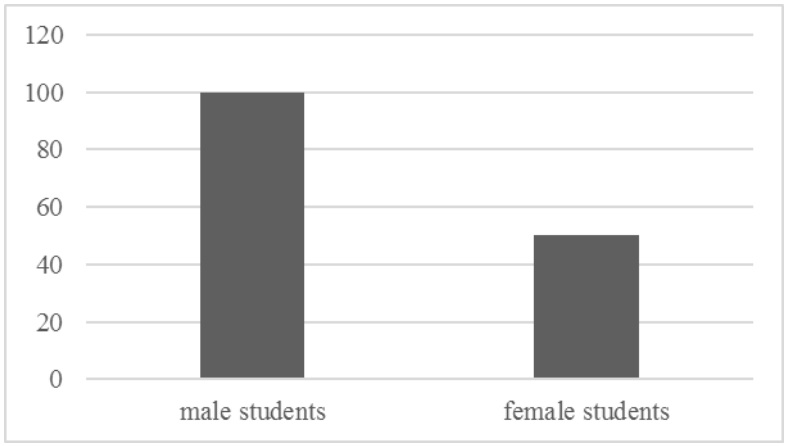

Fig. 4.1. Male and female participants of the study.

As presented in Figure 4.1., the number of male participants of the study (66.6%) was twice as high as the number of female students (33.3%). All the students learnt English as a foreign language at PUT; whereas over one third of the participants (56%) declared that they also learnt German as a FL or other foreign languages such as Russian (10%), French (8%), or Spanish (5%). The learners were attending an ESP course in the second semester of the academic year 2012/2013 as part of a full-time programme. It was their first year of studies and first semester of attending English classes at the university. The overall number of hours of learning English in the semester was 60, with two meetings each week (one meeting was two units of 45 minutes each).

Table 4.2. Participants of the study.

Participants of the study				
group number	group name	field of study	number of students	group type
1.	01ET	Electronics and Telecommunications	18	experimental group
2.	02ET	Electronics and Telecommunications	18	experimental group
3.	03ET	Electronics and Telecommunications	20	experimental group
4.	04SE	Safety Engineering	16	control group
5.	05ME	Materials Engineering	17	experimental group
6.	06IT	Information Technology	14	control group
7.	07MC	Mechanical Engineering	19	experimental group
8.	08MP	Management and Production Engineering	13	experimental group
9.	09MP	Management and Production Engineering	15	experimental group

As can be seen from Table 4.2., which shows the groups involved in the research project, the fields of study that were selected for the purpose of the research were: Electronics and Telecommunications, Safety Engineering, Materials Engineering, Information Technology, Mechanical Engineering, as well as Management and Production Engineering.

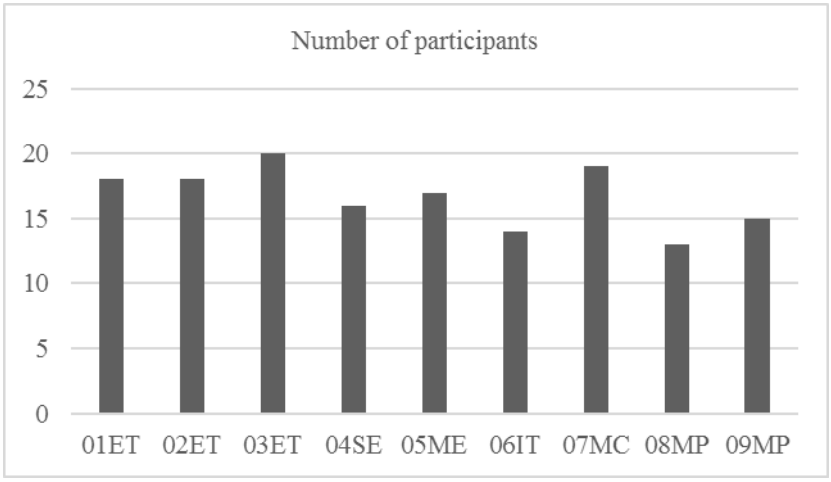

Fig. 4.2. Number of participants in groups.

As illustrated in Figure 4.2., each group was assigned a group name, e.g. Electronics and Telecommunications, group 1, was named 01ET. Figure 4.2. presents the number of participants in each group, which was as follows: 01ET=18, 02ET=18, 03ET=20, 04SE=16, 05ME=17, 06IT=14, 07MC=19, 08MP=13, and 09MP=15. The participants were also divided into two main groups: the first one was the *experimental group* (01ET, 02ET, 03ET, 05ME, 07MC, 08MP, and 09MP), whereas the second one was the *control group* (04SE and 06IT), depending on the type of instruction, i.e. blended learning or traditional learning, respectively. This study looked at the differences between the experimental group and the control group, with the caveat that the experimental group comprised 120 participants (80% of the total) and the control group consisted of 30 students (20% of the total). The difference in the size of the groups resulted from the fact that the experimental group was subjected to the experimental manipulation, which constituted the main purpose of the study, whereas the control group was not. As far as the participants' command of English is concerned, it varied considerably and the nine groups could be viewed as mixed–proficiency. The levels of proficiency of the groups could be characterized in the following way, according to the *Common European Framework of Reference for Languages* (CEFR): 01ET–B2, 02ET–B1, 03ET–B1, 04SE–B1, 5ME–B2, 06IT–A2, 07MC–A2, 08MP–A2 and 09MP–A2. This was confirmed by the results of the placement test and the teachers conducting classes with these groups of learners.

As declared by the participants in the *Learner Profile* questionnaire, the most frequent reasons for their learning English were as follows: "I would like to get a well-paid job" (77%), "This subject is compulsory at the university" (54%), "I like learning English" (44%), "I would like to go abroad" (41%), and "I would like to have a certificate of English" (30%). Most of the students also admitted that they had contact with the English language during classes at the university (88%) and while talking to friends from different countries (44%). Over 40% of the learners stated that they used English every day. Only 8% of the respondents reported that they worked; however only 4% of them used English at work for different purposes. The participants also stated that they found the following activities useful in learning English: using the Internet (95%), watching films (86%), using computer programmes (66%), playing computer games (64%), watching TV programmes (41%), and reading newspapers and magazines (38%). The subjects (36%) also declared that they had visited English speaking countries and the average time spent abroad per person was 24.7 days. Their contact with English, as declared in the questionnaire, varied con-

siderably and ranged from two to sixteen years (average=10.2 years). Only several students (3%) stated that they held certificates in English, among them: the *First Certificate in* English—FCE (2%), *The European Language Certificate*—TELC and the *Test of English for International Communication*—TOEIC (1%).

When it comes to using computer technology, the learners reported having a computer at home and using it for 11.7 years; 26.9 hours a week (an average). They used the computer with high speed data transfer at home (96%) or at the university (42%) and utilised mobile phones or LTE technology (3%). The respondents reported spending 24 hours a week using the Internet in general and stated that they used the Internet in the following ways: gathering information (75%), reading (58%), playing computer games (45%), making conversations (38%), reading and writing emails (35%), and learning grammar and vocabulary (27%). Only seven learners (4%) stated that they had participated in an e-learning course of English, which took place in a language school (3%), at a university (1%), or in a secondary school (1%).

4.4. Pilot study

Before conducting a study, it is crucial to pilot any newly developed instruments that will be used for the purpose of data collection procedures. As Mackey and Gass (2005: 43) state, "A pilot study is generally considered to be a small-scale trial of the proposed procedures, materials, and methods, and sometimes also includes coding sheets and analytic choices". The main aim of a pilot study is to develop and test the adequacy (validity, reliability) of the research instruments. Additionally, Gass and Mackey (2008: 3) make the point that "A pilot study is therefore an important means of assessing the feasibility and usefulness of the data sampling and collection methods and revising them before they are used with the research participants". Dörnyei and Csizér (2012) enumerate several reasons for conducting a pilot study, among them: fine-tuning the final version of the questionnaire with a view to eliminating any ambiguous or irrelevant items, improving the clarity of instructions, working on the layout, rehearsing the administration, and checking if there are no mistakes. Apart from the reasons for conducting a pilot study presented above, the present researcher aimed to check whether the new instruments would be appropriate to answer the research questions posed in the main study. It should be noted that the pilot study

was conducted at the end of the first semester of the academic year 2012/2013 (January, 7th 2013).

4.4.1. Participants of the pilot study

Two groups of students participating in blended learning classes of English as a foreign language at Poznan University of Technology were involved in the study. The learners were taught English for Specific Purposes (ESP) in a course that was divided into two parts: (1) 70% of classes was conducted in the classroom with the teacher and (2) 30% of the classes was conducted online, outside the classroom. The participants were 25 Polish learners, 21 males and 4 females (N=25; average age=20.4), who were studying Electronics and Telecommunications in their second year of full-time studies. Their command of English could be characterized as falling somewhere in between B1 and B2, according to the *Common European Framework of Reference for Languages* (CEFR).

4.4.2. Instruments used in the pilot study

The pilot study involved four instruments. Firstly, the *Learner Profile* and the *Beliefs about CALL Questionnaire* were specifically designed in Polish by the present researcher. The other two instruments, the *Strategy Inventory for Language Learning*, and the *Learning Style Survey*, were translated into Polish for the purpose of the study. The reason for doing so was the researcher's belief that the quality of the obtained data would improve if the questionnaire was written in the respondents' mother tongue.

In order to analyse the data received from the *Learner Profile* and the *Beliefs about CALL Questionnaire*, three steps were taken. First of all, a survey codebook was created; then, the reliability of the CALL questionnaire was established by calculating Cronbach's alpha and, finally, the means (used for measuring central tendency of the data) and standard deviations (used in order to find out if the responses were subject to considerable variation) for all the items in the CALL questionnaire were calculated.

	full variable name	SPSS variable name	coding instructions
	identification number	id	subject identification number
LP one Part A			
LPoneA01	sex	sex	1-males; 2-females
LPoneA02	age	age	in years
LPoneA03	studies	studies	1-full time; 2-part time
LPoneA04	language at home	langhome	1-Polish; 2-other
LPoneA05	year of studies	yearstud	1-first; 2-second; 3-third
LPoneA06	semester	semester	1-first; 2-second; 3-third; fourth
LPoneA07	field of study	field	1-ET; 2-SE; 3-ME; 4-IT; 5-MC; 6-MP
LP one Part B			
LPoneB01	reason for learning English	reason	compulsory I like learning certificate abroad job grades other

Fig. 4.3. Survey codebook for the Learner Profile.

As presented in Figure 4.3., each item included in the questionnaire (e.g. LPoneA04, referring to Learner Profile, part 1, question 4—'What language do you speak at home?') was assigned a full variable name (e.g. language at home), an SPSS variable name (e.g. langhome), and a grade according to coding instructions (e.g. 1–Polish; 2–other) in order to analyse the data using the *Statistical Package for the Social Sciences* (SPSS) software. The internal consistency reliability of the 27 items of the *Beliefs about CALL Questionnaire* was established for all the participants by calculating Cronbach's alpha, which amounted to 0.78. The result was considered a satisfactory value as the alpha indicated that the items of the questionnaire formed a scale that had reasonable internal consistency reliability (Dörnyei 2007).

The highest means (M=4.0 and higher) were determined for such statements as: CALL25: "I use English to communicate with other people by means of the computer (e.g. using forums)" (M=4.4, SD=0.76), CALL10: "Using CALL I have easier access to additional information" (M=4.3, SD=0.67), CALL20: "I use websites in English (e.g. online newspapers, entertainment websites)" (M=4.3, SD=0.79), CALL18: "I use an online or electronic dictionary, e.g. on DVD-ROM, to learn English" (M=4.2, SD=1.22), CALL2: "Learning English is easier for me using the computer" (M=4.1, SD=0.6), CALL1: "I like using the computer to learn English very much" (M=4.0, SD=0.61), and CALL24: "I use English to communicate with other people by means of the computer (e.g. using e-mail)" (M=4.0, SD=1.02). Items with the lowest means (M lower than 3.0) were as follows: CALL14: "The CALL environment enables me to develop speaking skills" (M=2.6, SD=1.08), CALL23: "I use websites designed to learn English (M=2.2, SD=0.97), and

CALL22: “I use English corpora (e.g. the British National Corpus) for learning” (M=2.1, SD=1.07). Such low mean scores may be indicative of the fact that the students misunderstood some of the questions, e.g. they might not have known what a *corpus* is. The present researcher decided to leave the questions in the final version of the questionnaire; however more caution was applied during the administration of the final version of the survey, e.g. the students were instructed that if any questions arose, they were welcome to ask them for clarification. It should be noted that the values of standard deviation were quite high in some cases, which may indicate that the responses were subject to considerable individual variation. The item with the highest value of standard deviation was CALL26: “I use English to communicate with other people by means of VoIP (Voice over Internet Protocol) communicators, e.g. Skype” (SD=1.47). There was also one open-ended question at the end of the questionnaire; namely: “Do you use the computer to learn English in any other way? If yes, please specify”, which was answered by only three students. The responses were as follows: (a) I watch films, sitcoms, and read training materials, (b) I use computer programmes, e.g. *Professor Henry*, and (c) I play computer games. Such a low number of responses was a signal for the researcher that more emphasis should be placed on this particular question, and the students should be instructed to answer it while being administered the final version of the questionnaire.

The internal consistency reliability of the 50 items in the *Strategy Inventory for Language Learning* instrument (the Polish version) was established for all the participants by calculating Cronbach’s alpha, which amounted to 0.89. The result was considered an acceptable value, and the translated version of the SILL appeared to be a reliable instrument. The highest means (M=4.0 and higher) were determined for such statements as SILLC29: “If I can’t think of an English word, I use a word or phrase that means the same thing” (M=4.36, SD=0.76), SILLD32: “I pay attention when someone is speaking English” (M=4.12, SD=0.73), SILLB21: “I find the meaning of an English word by dividing it into parts that I understand” (M=4.08, SD=1.08), SILLB11: “I try to talk like native English speakers” (M=4.04, SD=0.89), and SILLF45: “If I don’t understand something in English, I ask the other person to slow down or say it again” (M=4.04, SD=0.79). Items with the lowest means (M lower than 2.0) were as follows: SILLE43: “I write down my feelings in a language learning diary” (M=1.28, SD=0.79), SILLE44: “I talk to someone else about how I feel when I am learning English” (M=1.60, SD=1.12), SILLA5: “I use rhymes to remember new English words” (M=1.72, SD=1.10), and SILLA6: “I use flashcards to remember new English words” (M=1.92, SD=1.32). The item with the highest value of standard devi-

ation was SILLF50: “I try to learn about the culture of English speakers” (SD=1.42). After all the responses had been analysed, the researcher made several amendments in the questionnaire in order to ensure that it could be easily understood, e.g. rephrasing some sentences, or correcting spelling mistakes.

The internal consistency reliability of the 110 items of the *Learning Style Survey* (the Polish version) instrument was established for all the participants by calculating Cronbach’s alpha, which amounted to 0.90, a result that could be considered a highly satisfactory value. The highest means (M=3.0 and higher) were determined for such statements as LSSoneA1: “I remember something better if I write it down” (M=3.32, SD=0.90), LSSoneA9: “Charts, diagrams, and maps help me understand what someone says” (M=3.20, SD=0.87), LSSthreeB10: “I prefer things presented in a step-by-step way” (M=3.08, SD=0.76), and LSSthreeA6: “I am open-minded to new suggestions from my peers” (M=3.04, SD=0.79). Items with the lowest means (*M* lower than 1.5) were as follows: LSSoneC24: “If I have a choice between sitting and standing, I’d rather stand” (M=0.88, SD=1.13), LSSsixB8: “I like to focus on grammar rules” (M=1.24, SD=1.33), LSSfiveB10: “When I try to tell a joke, I remember details but forget the punch line” (M=1.28, SD=0.98), LSSoneC28: “Manipulating objects helps me to remember what someone says” (M=1.4, SD=1.08), LSSoneA7: “I have to look at people to understand what they say” (M=1.44, SD=1.19), LSSoneC25: “I get nervous when I sit still too long” (M=1.48, SD=1.33), LSSfourB7: “I don’t worry about comprehending everything” (M=1.48, SD=0.96), and LSSsixB7: “When I tell a story or explain something, it takes a long time” (M=1.48, SD=0.92). The item with the highest value of standard deviation was LSSoneB14: “Background sound helps me think” (SD=1.47). Similarly to the SILL, some items of the LSS questionnaire were worded differently in order to be understood easily by the students.

All in all, all the piloted questionnaires appeared to be reliable instruments that could be used for the main study. The original versions of the measurement tools discussed in this section can be found in Appendices A–C of the current thesis.

4.5. Instruments

Since second language research methods can be divided into two main types: *qualitative* and *quantitative*, various instruments may be used for the purpose of a study, depending on its nature. It is also possible to combine these two research methods. As regards *qualitative* research, it gathers information that is not in numerical form and typically involves the collection of descriptive data (e.g. verbal or narrative reporting). A typical way of collecting qualitative data is an interview, which has been described by Richards (2009: 183) as "(…) a data collection method that offers different ways of exploring people's experience and views". When it comes to *quantitative* research methods, a typical example of a data collection procedure is conducting a questionnaire including, e.g. Likert-scale items. However, the selection of an appropriate instrument clearly depends on the types of research questions posed. In their review of designing and analyzing surveys, Dörnyei and Csizér (2012: 75) argue, "The most common way of obtaining large amounts of data in a relatively short period of time in a cost-effective way is by means of standardized questionnaires". As mentioned earlier, a combination of qualitative and quantitative research methods has led to a third research approach—*mixed methods* research. As explained in Section 4.1. of the current thesis, the design of the present study represents a mixed methods paradigm; therefore measures of L2 proficiency and measures of IDs and CALL will be presented in separate subsections with a division into quantitative and qualitative data.

4.5.1. Measures of L2 proficiency

As mentioned earlier, the three types of proficiency tests administered at the beginning and at the end of the study and subjected to statistical analysis were: the *BULATS* test, the *Speaking Task*, and the *Writing Task*. The *Pearson Longman Introductory Placement Test* was also used but it was administered once—at the beginning of the semester, with the caveat that it was not analysed statistically.

4.5.1.1. Proficiency tests (BULATS, versions EN000 and EN000A)

The *BULATS* is an instrument designed to test learners' ability to use a foreign language in real-life situations and it is representative of the language used in business situations. The test is composed of two major parts: (1) *Listening* (50 items), and (2) *Reading and Language Knowledge* (60 items), and lasts 110 minutes (50 minutes for the *Listening* part and 60 minutes for the *Reading and Language Knowledge* part). As can be seen from Table 4.3., the listening comprehension test is divided into four parts and the types of questions included in this part are: choosing the correct answer from a few options, completing a form with appropriate information, or matching exercises. Tables 4.4. and 4.5. present the *Reading and Language Knowledge* parts of the *BULATS* test (one and two) divided into sections. The types of questions included in these two parts are: choosing the correct answer from a few options (e.g. based on graphs and tables or a text), reading a longer piece of text and marking the correct answers, completing a short text with one word in each blank space (an *open cloze* exercise) or finding and correcting mistakes in a text.

Table 4.3. BULATS—types of listening tasks (adapted from "BULATS: Information for candidates" 2011).

Content	Type of task	Number of questions
Part 1	Understanding short conversations or monologues.	10
Part 2	Taking down phone messages orders, notes, etc.	12
Part 3	Listening for gist, identifying topic, context or function. Short monologues/dialogues.	10
Part 4	Listening to extend speech for detail and inference. Monologue/dialogue.	18

Table 4.4. BULATS—types of reading and language knowledge tasks, part 1 (adapted from "BULATS: Information for candidates" 2011).

Content	Type of task	Number of questions
Section 1	Understanding notices, messages, timetables, adverts, leaflets, graphs, etc. Multiple-choice task.	7
Section 2	Grammar and vocabulary. Gapped sentences with multiple-choice task.	6
Section 3	Newspaper or magazine article, advert, leaflet, etc. Long text with multiple-choice task.	6
Section 4	Grammar. Medium-length text open cloze.	5

Table 4.5. BULATS—types of reading and language knowledge tasks, part 2 (adapted from "BULATS: Information for candidates" 2011).

Content	Type of task	Number of questions
Section 1	Reading for specific information. Four short texts with matching text.	7
Section 2	Grammar and vocabulary. Medium-length text with multiple-choice cloze.	5
Section 3	Grammar. Medium-length text, open cloze.	5
Section 4	Grammar and vocabulary. Gapped sentence with multiple-choice task.	6
Section 5	Reading for gist and specific information. Newspaper or magazine article, report etc. Long text with multiple choice task.	6
Section 6	Error correction task. Medium-length text.	7

As presented in Table 4.6., the overall reliability of the *BULATS* for standard tests versions (EN21–EN25) was estimated and amounted to 0.95 and 0.97, which is considered a highly satisfactory result (Dörnyei 2007). It is worth mentioning that the scoring procedure for the *BULATS* tests is relatively error-proof because of the fact that the majority of the tests items use objective response formats (e.g. limited selection or matching).

Table 4.6. Cronbach's Alpha for most recent versions of Standard BULATS test by component and as a whole (adapted from BULATS Test Specification 2010).

		BULATS test reliability		
Standard test version	Sample size of candidates	Listening reliability	Reading and Language Knowledge reliability	Overall reliability
EN21	520	0.93	0.95	0.97
EN22	468	0.92	0.92	0.96
EN23	959	0.92	0.93	0.96
EN24	1446	0.95	0.94	0.97
EN25	789	0.91	0.92	0.95

4.5.1.2. Speaking and Writing Tasks

The speaking and writing tasks were developed by the present researcher and, as was the case of the *BULATS* tests, they were administered to the participants in two points in time, at the beginning and at the end of the semester. The main objective of using these tasks was to assess the students' speaking and writing skills as far as *Business English* is concerned.

Each speaking task was supposed to last no longer than 5 minutes and was recorded by the learners in a language laboratory under the supervision of a teacher of English. In *Speaking Task 1*, the students were supposed to prepare a short speech, and explain why they had chosen to study at Poznan University of Technology, what they would like to do after graduating from their field of study (the field of study was one of the following: Information Technology, Electronics and Telecommunications, Safety Engineering, Materials Engineering, Mechanical Engineering, Management and Production Engineering), what they would take into consideration while looking for a job and why, and name different places where they could be employed in the future. In *Speaking Task 2*, the learners were asked to explain what the definition of an invention was, say if they agreed with what Thomas Edison said: 'Invention is 99 % perspiration and 1% inspiration'?, explain what other qualities inventors needed, and state which, according to them, was the most important invention in the history and why? The speaking tasks were assessed using five criteria, according to the examination standards at PUT, which were as follows: grammar/lexical structures (1–6 points), language (1–6 points), grammatical correctness (1–6 points), message conveyance (1–6 points), and pronunciation/intonation (1–6 points). The students could receive a maximum of 30 points for each speaking task .

As far as the writing tasks are concerned, the learners were to complete a guided piece of writing in 100–150 words in a computer laboratory and send it to the teacher. In *Writing Task 1*, the participants were asked to explain what characteristics could be used to describe a successful leader (while providing the description, the participants were supposed to use the following expressions to help them: *charismatic*, *strong*, *a good communicator*, and add some other features to the list above), state if, in their opinion, they could be successful leaders and why, choose one leader they knew and characterize him/her, and use passive voice in at least two sentences. In *Writing Task 2*, the students were asked to name and briefly describe five steps of preparing a successful presentation, state what *signposting language* was, provide an example sentence of its use, and use passive voice in at least two sentences. Similarly to the speaking tasks, the writing tasks were assessed using criteria, according to the examination standards at PUT, which were as follows: organization and style (1–2 points), content (1–6 points), and grammar/vocabulary (1–6 points). In order to achieve greater reliability of the scoring procedure, both speaking and writing tasks were assessed collaboratively by two independent teachers of English. The first one was the present researcher and the other one was a teacher from outside Poznan University of Tech-

nology and the assessment required spending together a long time at the computer and deciding on the final scores.

It should be noted that the reliability for the speaking and writing tasks was estimated by calculating Cronbach's alpha. The reliability value was slightly higher in the case of *Speaking Task 1* (α=0.86) and *Speaking Task 2* (α=0.85) when compared to *Writing Task 1* (α=0.75) and *Writing Task 2* (α=0.64). However, in both cases it reached a satisfactory value (Dörnyei 2003b).

4.5.1.3. Pearson Longman Introductory Placement Test

As mentioned earlier, the *Pearson Longman Introductory Placement Test* (2008) was developed by Piotr Steinbrich and consulted by Hanna Komorowska and it was used to place the participants in homogeneous groups. This test is composed of 100 closed-ended items in which students are asked to choose the correct answer out of four options.

Table 4.7. Sample items of the Pearson Longman Introductory Placement Test.

Question number	Task
1.	José is ____ Argentina. a) from b) to c) at d) with
50.	People say I read ____ a) quick b) slow c) fast d) pacey
100.	Some of the delegates made an extremely useful ____ to the discussion. a) contribution b) suggestion c) insertion d) opinion

Table 4.8. Scoring for levels of the Pearson Longman Introductory Placement Test.

Number of points	Level
0–16	A0—the student scores fewer than 10 points from items 1–16
0–16	A1—the student scores at least 10 points from items 1–16
17–33	A2
34–50	B1
51–67	B2
68–84	C1
85–100	C2

As illustrated in Table 4.7., the test starts with more basic and easier items and finishes with more complicated structures. The results of the *Pearson Longman Introductory Placement Test* are presented according to the *Common European Framework of Reference for Languages*: *Learning, teaching, assessment* (CEFR), which describes foreign language proficiency at six levels: A1–A2, B1–B2, C1–C2, shown in Table 4.8. The author of the test asserts that the test results can only be treated as supplying information concerning students' level of proficiency and additional instruments need to be applied, for example speaking or listening tasks. Therefore, in the present study the results of the placement test were not analysed statistically, but other proficiency measures were administered as well.

4.5.2. Measures of Individual Differences and CALL

As discussed in the *research design* section, four instruments were used to measure the individual variables among the participants, and two measures were employed to tap into the students' beliefs about Computer Assisted Language Learning. These measurement tools will be discussed in more detail in the following subsections.

4.5.2.1. Strategy Inventory for Language Learning (SILL)

The *Strategy Inventory for Language Learning*, which is a self-report questionnaire consisting of 50 items, was developed by Rebecca Oxford (1989). This instrument assesses language learning strategy use and it has been translated into at least 17 languages all over the world (Oxford 1999a). The *SILL*, version 7.0 (ESL/EFL), consists of 50, 5-point Likert-scale items, where 1 indicates 'never or almost never true of me' and 5 indicates 'always or almost always true of me'. While completing the questionnaire, the participants are asked to provide answers in terms of how well the statements describe them. The time that was allotted to completing the questionnaire in the current study was no longer than 30 minutes.

Table 4.9. Sample items for Oxford's (1989) Strategy Inventory for Language Learning.

parts	strategies	sample items
A	memory strategies	e.g. "I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign."
B	cognitive strategies	e.g. "I find the meaning of an English word by dividing it into parts that I understand."
C	compensation strategies	e.g. "If I can't think of an English word, I use a word or phrase that means the same thing."
D	metacognitive strategies	e.g. "I plan my schedule so I will have enough time to study English."
E	affective strategies	e.g. "I encourage myself to speak English even when I am afraid of making a mistake."
F	social strategies	e.g. "If I do not understand something in English, I ask the other person to slow down or say it again."

The *Strategy Inventory for Language Learning* is based on Oxford's taxonomy of language learning strategies (1990a). As shown in Table 4.9., the *SILL* is composed of six parts (A–F), referring to the following scales: A: memory strategies: remembering more effectively, composed of 9 items; B: cognitive strategies: using mental processes, containing 14 items; C: compensation strategies: making up for missing knowledge, consisting of 6 items; D: metacognitive strategies: managing the learning process, containing 9 items; E: affective strategies: managing one's emotions, consisting of 6 items, and F: social strategies: learning via interaction with others, including 6 items. The main purpose of the *SILL* is to provide a general picture of students' strategy use rather than a description of the strategies used by the learner during the performance of a particular language task. As Oxford (1999a) states, this instrument has been applied in different ways, e.g. to provide practical information for the teacher to improve language teaching and learning or to supply research data for building stronger theories of learning strategies and learner autonomy. In addition to this, Oxford suggests the following interpretation of the scores of the *SILL*, which will be used in the study described in the current thesis:

	Always or almost always used	*4.5–5.0*
High	*Usually used*	*3.5–4.4*
Medium	*Sometimes used*	*2.5–3.4*
Low	*Generally not used*	*1.5–2.4*
	Never or almost never used	*1.0–1.4*

Finally, Oxford (1990a) suggests creating a graph representing the average score for each group of learning strategies and argues that the best use of strategies depends on such factors as age, purpose of learning, or personality.

4.5.2.2. Learning Style Survey (LSS)

The *Learning Style Survey* was constructed by Cohen et al. (2002) and it was meant as an improvement on the *Style Analysis Survey* (designed by Oxford) briefly described in Chapter 1, section 1.2.1.4. The *Learning Style Survey* is a self-report questionnaire consisting of 110, 5-point Likert-scale items, where 0 indicates 'never' and 4 indicates 'always'. This is an instrument primarily used for the purpose of raising students' awareness of their own learning style preferences. The time that was allotted to completing the questionnaire in the present study was no longer than 30 minutes.

Table 4.10. Sample items for Cohen et al.'s (2002) Learning Style Survey.

parts	section	sample items
1: How I use my physical senses	A	e.g. " I remember something better if I write it down."
	B	e.g. "I remember things better if I discuss them with someone."
	C	e.g. "I prefer to start doing things rather than checking the directions first."
2: How I expose myself to learning situations	A	e.g. "I learn better when I work or study with others than myself."
	B	e.g. "I am energized by the inner world (what I'm thinking inside)."
3: How I handle possibilities	A	e.g. "I have a creative imagination."
	B	e.g. "I focus on a situation as it is rather than thinking about how it could be."
4: How I deal with ambiguity and with deadlines	A	e.g. "I like to plan language study sessions carefully and do lessons on time or early."
	B	e.g. "I let deadlines slide if I'm involved in other things."
5: How I receive information	A	e.g. "I prefer short and simple answers rather than long explanations."
	B	e.g. "I need very specific examples in order to understand fully."
6: How I further process information	A	e.g. "I can summarize information easily."
	B	e.g. "I have a hard time understanding when I don't know every word."
7: How I commit material to memory	A	e.g. "I try to pay attention to all the features of new material as I learn."
	B	e.g. "When learning new information, I may clump together data by eliminating or reducing differences and focusing on similarities."
8: How I deal with language rules	A	e.g. "I like to go from general patterns to the specific examples in learning."
	B	e.g. "I like to learn rules of language indirectly by being exposed to examples of grammatical structures and other language fea-

		tures."
9: How I deal with multiple inputs	A	e.g. "I can separate out the relevant and important information in a given context even when distracting information is present."
	B	e.g. "When speaking or writing, I feel that focusing on grammar is less important than paying attention to the content of the message."
10: How I deal with response time	A	e.g. "I react quickly in language situations."
	B	e.g. "I need to think things through before speaking or writing."
11: How literally I take reality	A	e.g. "I find that building metaphors in my mind helps me deal with language (e.g. viewing the language like a machine with component parts that can be disassembled)."
	B	e.g. "I take learning language literally and don't deal in metaphors."

As illustrated in Table 4.10., the tool is based on a key distinction between 11 major activities, which represent 12 various aspects of learning styles: (1) A–visual (10 items); B–auditory (10 items); C–tactile/kinesthetic (10 items), (2) A–extroverted (6 items); B–introverted (6 items), (3) A– random–intuitive (6 items); B–concrete–sequential (6 items), (4) A–closure–oriented (4 items); B–open (4 items), (5) A–global (5 items); B–particular (5 items), (6) A–synthesizing (5 items); B–analytic (5 items), (7) A–sharpener (3 items); B–leveler (3 items), (8) A–deductive (3 items); B–inductive (3 items), (9) A–field independent (3 items); B–field–dependent (3 items), (10) A–impulsive (3 items); B–reflective (3 items), and (11) A–metaphoric (2 items), and B–literal (2 items). Cohen et al. (2002) do not provide any key that would help to understand the averages; they simply suggest adding the points in each part, e.g. Part 1: A–visual, B–auditory, C–tactile/kinesthetic, and mark the one on which the score is the highest. When the number of scores is high in all parts, e.g. introverted/extroverted, it may mean that a particular learner may feel comfortable both at working alone and with other students. The authors of the instrument provide an explanation of all learning styles preferences for the learner and suggest that learning styles may change over time or can be stretched by the student.

4.5.2.3. Motivation Battery

As mentioned earlier, the *Motivation Battery* is a questionnaire developed by Pawlak (2012b) on the basis of surveys designed by Ryan (2005), Taguchi et al. (2009), and Csizér and Kormos (2009), and draws on the theory of the *Motivational Self-System* proposed by

Dörnyei (2009c). It consists of 42 6-point Likert-scale items, where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree'. In the present study, this questionnaire was used to collect information concerning the participants' motives for learning English.

Table 4.11. Factors measured by the Motivation Battery.

	Measured factors	Example items
1.	Interest in international vocation or activities/travel orientation	MB1: "Learning English is important for me because I want to travel."
2.	Parental encouragement	MB2: "My parents encourage me to learn English."
3.	Cultural interest	MB4: "I am very interested in the way people from different cultures live."
4.	Intended learning effort	MB7: "If I work hard, I will certainly learn English."
5.	Instrumentality	MB6: "Learning English is useful for me because one day it will help me to find a job."
6.	L2 self-confidence/ English anxiety	MB11: "I would be nervous when talking to an Englishman or American in English."
7.	Ideal L2 self	MB8: "I imagine myself living abroad and conduct conversations in English."
8.	Fear of assimilation	MB9: "There is a danger that Poles will forget about the importance of their own culture as a result of globalization."
9.	Attitudes to learning English	MB3: "I feel excited when I hear somebody speaking English."
10.	Interest in foreign languages	MB15: "I am curious about how English is used during conversations."
11.	Ethnocentrism	MB16: "I would like other cultures to be similar to Polish culture."

As presented in Table 4.11., the *Motivation Battery* questionnaire measures eleven factors, which are as follows: (1) interest in international vocation or activities/travel orientation (items 1, 26, 31, 39), (2) parental encouragement (items 2, 14, 25, 29, 40), (3) cultural interest (item 4), (4) intended learning effort (items 5, 7, 17, 28, 41, 42), (5) instrumentality (items 6, 10, 18, 23, 36, 38, 13), (6) L2 self-confidence/English anxiety (items 11, 22, 35), (7) ideal L2 self (items 8, 19, 20, 32, 33), (8) fear of assimilation (items 9, 21, 34), (9) attitudes to learning English (items 3, 12, 24, 37), (10) interest in foreign languages (items 15, 27), and (11) ethnocentrism (items 16, 30). The *Motivation Battery* was designed for Polish learners of English representing different levels of a L2, therefore the questionnaire was administered to the participants in Polish. It is important to note that the internal consistency of the *Motivation Battery* was established for a group of 28 Polish senior high

school learners by calculating Cronbach's alpha and the value, which amounted to 0.82, was a highly satisfactory result (Pawlak 2012b).

4.5.2.4. Foreign Language Aptitude Test—Polish, TUNJO

The *Foreign Language Aptitude Test*—Polish (the *TUNJO*, *Test Uzdolnień do Nauki Języków Obcych*) is a battery developed by Rysiewicz (2012) and used for several purposes, among them: diagnosis of learners' aptitude profile, prognosis of foreign language learning success and, obviously, research. The *TUNJO* is a 'paper and pencil' power test, which means that a time limit is set for each task. In the current study, a version *TUNJO 18* was used, which is designed for young adults and adults (from 17/18 onwards) and intended to measure foreign language learning ability of native speakers of Polish. It is also worth mentioning that in order to help test instructors to interpret the results of the *TUNJO* battery, the participants are supposed to state their age taking into account a full number of years and months, e.g. 18/4 (18 years and 4 months). Furthermore, at the end of the test, the students are asked to provide feedback on the test in terms of its *difficulty* (in a scale of 1 indicating 'very easy' to 5 indicating 'very difficult') and *accuracy* (in a scale of 1 indicating 'entirely irrelevant' to 5 indicating 'very relevant'). However, this part is optional for instructors conducting the test.

Since Rysiewicz's (2012) battery is an adaptation of the *Modern Language Aptitude Test* (MLAT) developed by Carrol and Sapon (1959, 2002) and described in detail in subsection 1.2.1.2. of Chapter 1, the *TUNJO* is similar to the *MLAT*. However, as presented in Table 4.12., it consists of six parts, rather than five, and measures such aptitude components as phonological memory, inductive learning, phonemic coding, native vocabulary, grammatical sensitivity, and memory. It is essential to remember that this instrument provides the teacher and the learner with two types of information. Firstly, the total score on the test offers insights into relative facility and speed of mastering a foreign language by a learner in comparison with other students from the same population. In other words, the higher the overall result of the test, the less effort and time is needed to learn a FL. Secondly, the results of the six tests on the *TUNJO* can help to determine three main aptitude profiles, namely, a *phonetic* profile, an *analytical* profile, and a *memory* profile.

Table 4.12. Comparison of the MLAT and the TUNJO (from Rysiewicz 2011).

MLAT	aptitude component/s	TUNJO
MLAT I "Number Learning"	phonological memory inductive learning phonemic coding	TUNJO IV Number learning *"Uczenie się Liczb"*
MLAT II "Phonetic Script"	phonemic coding	TUNJO I Phonetic Alphabet *"Alfabet Fonetyczny"*
MLAT III "Spelling Clues"	phonemic coding native vocabulary	TUNJO III Hidden Words *"Ukryte Słowa"*
MLAT IV "Words in Sentences	grammatical sensitivity	TUNJO V Words in Sentences *"Słowa w Zdaniach"*
MLAT V	memory	TUNJO VI New Words *"Nowe Słowa"*
xxxxxxxxxxxxxxxx	inductive learning	TUNJO II Artificial Language *"Sztuczny Język"*

Table 4.13. TUNJO—test items.

test items	time limit (in minutes)	points
TUNJO I Phonetic Alphabet	13	30
TUNJO II Artificial Language	17	18
TUNJO III Hidden Words	7	30
TUNJO IV Number learning	10	20
TUNJO V Words in Sentences	8	20
TUNJO VI New Words	3	23
Total number of points for all tasks		145

The time allotted to completing this test is between 60 and 70 minutes, which involves providing all necessary explanations and reading instructions by the teacher, as well as completing the tasks by the students. Table 4.13. presents the six components of the *TUNJO* together with the time (in minutes) needed to complete the test as well as the number of points learners can receive for the whole test (145), and for particular components. Example items from the *TUNJO* are as follows:

(1) *Phonetic Alphabet*—this part tests the participants' sound-symbol association ability, which is the ability to learn associations between a speech sound and written symbols. Participants hear words and match the sound with phonetic symbols:

e.g. kas kaʊs kaz kaʊz.

(2) *Artificial Language*—in this task, the students learn words and phrases in a hypothetical language *Doran* and are supposed to choose the correct translation of a sen-

tence from *Doran* into Polish from three available options and then to translate three sentences from Polish into *Doran*:

e.g. *E waweldus quenot soh glesgalot.*

a. *Pisać książkę pod górą.*
b. *Pisać książki pod górą.*
c. *Napisał książkę pod górą.*
d. *Pisać książki pod górami.*

(3) *Hidden Words*—this part tests the learners' vocabulary knowledge of English as well as their sound-symbol association ability:

e.g. *brsztn*

a. *ulotka*
b. *żywica*
c. *ciemnowłosy*
d. *roślina pnąca.*

(4) *Number Learning*—this test taps into the subjects' memory as well as an *auditory alertness* factor. Participants hear and learn numbers (1, 2, 3, 4, 10, 20, 30, 40, 100, 200, 300, 400) in an unknown language. Then, they hear 20 numbers and are supposed to write those numbers in digits:

e.g. ʃɜ:mkənəm tedʒnə mu:l (number 412).

(5) *Words in Sentences*—this test measures the subjects' sensitivity to grammatical structures without using any grammatical terminology. The learners are given two pairs of sentences (a model sentence and a test sentence) in each item and their task is to choose a word or phrase in the test sentence which performs the same function as in the model sentence:

*e.g. Jak się spotkamy wieczorem to opowiem **ci** coś ciekawego.*
Jak już był na to gotowy, opowiedział Mariannie tę historię.
A B C D

(6) *New Words*—in this part the students learn as many of 24 new words in a *Kurdish* language as possible within one minute and then they are supposed to choose the correct answer out of five possibilities:

e.g. *lohong*

a. żaba
b. wilk
c. ciało
d. pytać
e. zimno.

As can be seen from the above, the *TUNJO* battery is divided into *Listening* and *Reading* tests, with the qualification that the *Listening* component comprises the following tests: *Phonetic Alphabet* and *Number Learning*; whereas the *Reading* part is composed of such components as *Artificial Language*, *Hidden Words*, *Words in Sentences*, and *New Words*. According to information included in an unpublished manual for the battery prepared by Rysiewicz, the results of these six tests help the researcher to establish three main aptitude profiles, which are as follows:

- phonetic profile: Phonetic Alphabet and Hidden Words;
- analytic profile: Artificial Language, New Language, and Words in Sentences;
- memory profile: New Words.

It is also possible to distinguish an 'equal' profile, when a participant receives 'above average' standard scores on all the components of the whole battery, or a 'mixed' profile when a learner receives above average standard scores on two components of the test, one or two scores close to the average, and below the average on two of the tests.

As far as the psychometric characteristics of the *TUNJO* are concerned, Rysiewicz (2008a) states that the test's reliability was estimated using two methods. Firstly, a split-half method was applied, which involved dividing the test in half and conducting correlation analysis between the two parts. As the author asserts, "(…) the split-half reliability estimate for the whole battery is more than satisfactory (0.89) (…)" (Rysiewicz 2008a: 590). The second method used in order to find out more about the reliability of the instrument was Cronbach's alpha, which was applied to each subscale of the instrument, thus giving a reliability index for each test. As can be seen from Table 4.14., which illustrates the Cronbach's alpha values for the components of the battery, some values are high, e.g. HW (α=0.80) or NL (α=0.85). As regards lower reliability of individual tasks, Rysiewicz (2008a) claims that more caution is needed when inferences are made on the basis of particular components rather than on the whole battery.

Table 4.14. Cronbach's alpha for the TUNJO (adapted from Rysiewicz 2008a).

TUNJO part	PhS	HW	WinS	NL	AL
Cronbach's alpha	0.69	0.80	0.66	0.85	0.41

When it comes to interpreting the results of the test for individual learners, two types of scores can be obtained through the *TUNJO* battery: *raw scores*, which are totals of correct responses on the tests, and *standard scores*, which enable comparison of the learners' scores. Due to the fact that there was a different maximum number of points on each of the six tests of the *TUNJO* battery, i.e. *Phonetic Alphabet* (30), *Artificial Language* (18), *Hidden Words* (30), *New Language* (20), *Words in Sentences* (23), *New Words* (24), it was necessary to convert all the raw scores into standard scores. The author of the battery provided the present researcher with a formula and an Excel spreadsheet to make the necessary calculations and create an ability profile for each learner.

4.5.2.5. The Learner Profile and the Beliefs about CALL Questionnaire

The *Learner Profile* and the *Beliefs about CALL Questionnaire* are instruments that were specifically developed by the present researcher for the purpose of the current research project (Olejarczuk 2013b; Olejarczuk 2014b) and they were intended to gather information about the students participating in the study. The questionnaires were designed in such a way that their administration should not take longer than 30 minutes and they were written in Polish. This decision was dictated by the fact that there was a danger that some of the students could have misunderstood the questions in a foreign language, which could have jeopardized the reliability of the study. When it comes to the *Learner Profile*, it was composed of the following two parts:

(1) *General information*, the main aim of which was to gather factual information about the participants, and which was further subdivided into:
   a. *General information about the students*—this part consisted of 7 items concerning such questions as the respondents' age or field of study;
   b. *General information about learning English*—this part was designed to collect information concerned with foreign language learning and it consisted of 14 items, e.g. *Which foreign language do you learn at the university?*

(2) *Computer Assisted Language Learning* (CALL)—the main aim of this part was to collect general information concerning the use of *Information and Communications Technology* (ICT) and consisted of 9 items, for example: *Have you ever participated in a blended learning course?*

As regards the *Beliefs about CALL Questionnaire*, this instrument was directly connected with the students' beliefs about the application of CALL and consisted of 27 5-point Likert-scale items, where 1 indicated *complete disagreement* and 5 *complete agreement*. The items included in the questionnaire provided insights into such areas as:

- the effectiveness of working with the computer while learning English, e.g. "Learning English is more effective using the computer than using traditional methods";
- the feedback the computer provides, e.g. "Feedback that is provided by the computer after a task has been completed is clear";
- the importance of using the computer to learn English, e.g. "Using the computer to learn English is as important as traditional learning methods";
- students' preferences, e.g. "I prefer using the computer to learn English than using a traditional coursebook";
- students' attitudes towards CALL, e.g. "When I use CALL, I am less stressed";
- computer use, e.g. "I use online or electronic dictionaries (e.g. on DVD-ROM) to learn English".

The survey also contained the following open-ended question: "Do you use the computer to learn English in any other way? If yes, please specify.", which aimed to collect additional information from the students about using the computer to learn English.

4.5.2.6. Interviews with the students

According to Nunan (1992), there are three types of interviews: an *unstructured* interview, a *semi-structured* interview, and a *structured* interview. An *unstructured* interview is similar to everyday conversation and involves questions that are not pre-set, and responses guided by the interviewee rather than by an interviewer. In a *semi-structured* interview, the interviewer knows what topics need to be covered and what questions need to be posed; however, he/she can be more flexible and ask more questions than previously intended, guided, for example, by the responses provided by the students. The most formal type of an

interview is a *structured* one, in which all the questions are developed beforehand and are posed in the same order to each interviewee.

In the present study, semi-structured interviews were used, which was motivated by the fact that not all the questions were formulated ahead of time, allowing both the interviewer and the students being interviewed the flexibility to probe for details or discuss unexpected issues, and it was a sort of a 'compromise' (Dörnyei 2007: 137). The interviews used in the current research project were developed by the present researcher and conducted in Polish with two groups of E-learners, namely 10 learners whose proficiency test results were high and 10 students with low proficiency test results.[3] It was decided to work with a sample of 20 respondents, which is acknowledged by many authors dealing with research methodology as acceptable for qualitative procedures (Cohen et al. 2007). The interviewees were carefully selected by the present researcher. As none of the learners had taken part in an interview before, it was surprising that all of the students agreed to participate in it with no objections. The interviews were conducted only once, immediately after the completion of the treatment, in May 2013, with a view to obtaining information from the students concerning their opinions about and attitudes towards the type of instruction they had received.

Table 4.15. Interview items.

	Interview items	Example questions
1.	Attitude to blended learning	What was your attitude to blended learning at the beginning of the semester? Did it change at the end of the semester? If yes, how did it change?
2.	Attitude to particular tasks	Some tasks involved recording your speech and uploading the files to the Moodle platform. What was your attitude to these tasks and why?
3.	Advantages and disadvantages of a blended learning method	What are the advantages of this (blended learning) method? Are there any disadvantages? If yes, please enumerate them and justify your answer.
4.	Learning English in the future	Would you like to participate in classes conducted using this (blended learning) method? Why?
5.	Other learners' opinions	What were your friends' opinions about the blended learning course?
6.	Teachers' assistance	Did your teacher help you to solve problems during online classes? Please, justify your answer.
7.	Transparency of information	Were all instructions in the online course clear for you? If not, which ones required clarification?

[3] All the interview questions are presented in *Appendix D* of the current thesis.

As illustrated in Table 4.15., the interviews focused on seven main issues, the main objective of which was to complement the quantitative data obtained from the *Beliefs about CALL Questionnaire*. The researcher aimed at finding out what the students' beliefs about the *blended learning* course were as well as what positive and negative aspects of participating in a blended learning course they could distinguish. Each student was asked several introductory questions, e.g. they were asked to explain how long they had been learning English at the beginning of the interview in order to 'warm up'. These questions were then followed by specific topics which were of interest to the teacher. The interviews were carried out by the present researcher. The interactions were digitally audio-recorded and subsequently transcribed. Each of the interviews that contained 18 predetermined questions did not last longer than 20 minutes; however, the teacher posed several more questions in order to fully understand the meaning of the students' utterances.

4.6. Procedures

As mentioned earlier, there were eleven steps involved in the data collection procedure and the research was conducted over a period of 16 weeks (from February 2013 to June 2013), after conducting the pilot study. Two main groups were involved in the study: the *experimental* group and the *control* group. Although all the instruments were administered in both groups at the same time, the procedure applied was different for E-learners and T-learners. As described in Section 4.3., the experimental group comprised learners who studied Electronics and Telecommunications (ET), Materials Engineering (ME), Mechanical Engineering (MC), and Management and Production Engineering (MP), whereas the control group was composed of two smaller groups, i.e. students of Information Technology (IT), and Safety Engineering (SE). Each field of study had a different course syllabus relating to their curriculum, which is shown in Table 4.16. for all the participants, according to group symbol.

Table 4.16. Course syllabus for all the groups according to group symbol.

Group symbol	Common topics for all groups	Specialized language component
01ET 02ET 03ET	Business English component online Maths, geometry, numbers and shapes	• The phenomenon of electricity • Circuit symbols, describing block diagrams and circuits • Computer history • Batteries • Remote control • HD Television • Global Positioning System
05ME		• Engineering materials • Material types: steel, non-ferrous metals, polymers, minerals and ceramics, concrete, wood • Corrosion • Load, stress, and strain • Force, deformation and failure • Non-mechanical joints
07MC		• Objectives of engineering • Safety at work, describing health and safety precautions, working with written instructions and notices • Engineering materials, describing specific materials, categorizing materials, specifying and describing properties • Forces in engineering
08MP 09MP		• Research and development (funding for scientific research, planning new projects and expenditure, developing a new product) • Design and testing (industrial design, compromises and engineering design, value engineering and testing products, performance and sustainability, productivity, profit) • Manufacturing and industry (expert knowledge, computer systems)
06IT	Business English component in the classroom Maths, geometry, numbers and shapes	• Computer history • Computer users • Computer architecture • Computer applications • Operating Systems • Networks • The Internet • The World Wide Web, websites • Communications systems
04SE		• Entrepreneurs • Start-ups • Inventions • Definition of safety engineering • The role of a safety engineer • Safety at work • Procedures • Materials in engineering • Types of mechanisms

Apart from the current researcher, there were five other teachers who agreed to participate in the study, one male and four females. All of them were experienced teachers of

English, members of an e-learning section of the Centre of Languages and Communication at Poznan University of Technology, and *leaders* (Olejarczuk 2013a). Like the researcher, they had had considerable experience in designing and conducting blended learning courses before. It should be noted that the present researcher was assigned a role of the *leading teacher* who could do anything within the online course, including changing the activities and grading the students, whereas each of the remaining five teachers was assigned a role of the *non-editing teachers*, who could teach in the course, grade the learners, but might not alter activities. Apart from generating positive attitudes on the part of the participants towards the questionnaires, proficiency tests, and interviews, the teachers were expected to provide a guarantee of confidentiality to the learners. Before the actual administration of questionnaires and proficiency tests, the teachers had been provided with information on how to conduct the surveys and tests. The only exception was the *TUNJO* battery which, on account of its complexity, was administered by the present researcher in all the groups. Similarly, the interviews in the experimental group were also conducted by the researcher, a decision that was meant to guarantee that all the interviews were administered in the same way. A detailed description of the procedures used in the groups of E-learners and T-learners will be presented in the subsequent subsections.

4.6.1. The experimental group

While designing a blended learning course, a number of important decisions had to be taken into consideration to ensure the quality and effectiveness of the curriculum. The decision-making process involved three steps: (1) planning the course, (2) designing, preparing and developing materials and, finally, (3) uploading the materials to the e-learning platform. The *planning* stage was related to incorporating the e-learning component into traditional foreign language learning. At this point, the researcher needed to consider such issues as (cf. Olejarczuk 2014a):

- why do I actually desire my students to participate in a course like this?
- what is the main objective of introducing such a course?
- how will I check my students' progress?
- which students should participate in the course (year, term of studying English, proficiency level, number of students in a group)?

- what kind of course (technical, grammar, Business English) do I want to conduct?
- what experience (if any) do my students have with technology use?
- what experience (if any) do I have with technology use?
- how are the students going to access the e-learning platform? Are they going to use any special login or password?

As can be seen, there were numerous issues that needed to be attended to before the second step could be approached, which was designing the blended learning elements as well as preparing and developing materials that were going to be used in the course. It should be noted that the second part of the whole process was the most tedious and time-consuming one. First of all, the researcher needed to consider the relationship between traditional learning and e-learning parts, which was connected with such issues as which component should be predominant and to what extent. Secondly, the course needed to be varied in terms of materials used so that all the students could be successful. After that, the materials needed to be prepared and developed, which was followed by the last step of the process, namely uploading them to the e-learning platform. Before the students were introduced to the course, clear rules had to be set concerning participation in blended learning classes. Additionally, the students had to be familiarized with the structure of the course and informed what they were expected to do during each step of the course. They were also provided with the course syllabus and the outline of the course in a digital form and a printable file. In addition to this, the teacher set up a simple system of communication with the students to ensure that the participants could easily ask questions or inform her about any unexpected problems that might arise.

Table 4.17. The procedure used in the experimental group.

	Examples	
week	class 1	class 2
1	Placement test	Learner Profile, Beliefs about CALL Questionnaire, and SILL
2	Bulats0	
3		LSS and Motivation Battery
4	Online class 1 and Speaking/Writing Task 1	
5	Online class 2	
6	Online class 3	
7	Online class 4	
8	Online class 5	TUNJO
9	Online class 6	
10		
11	Online class 7	

12	Online class 8
13	Online class 9
14	Online class 10 and Speaking/Writing Task 2
15	Bulats0A
16	

As illustrated in Table 4.17., ten classes (30% of the whole course) were conducted with the help of a *Virtual Learning Environment* (VLE) (Moodle, version 1.9) during which the students in the experimental group worked online under the teachers' supervision. During online classes, the students learnt and practiced the *Business English* component of the course. The remaining classes (70%) were conducted in the classroom with the regular teacher where the students learnt specialized language, i.e. *English for Specific Purposes* (ESP), connected with their fields of study.

Table 4.18. A syllabus for the Business English component of the course.

	Topic
Online class 1	The world of work
Online class 2	Describing statistics
Online class 3	Presentations
Online class 4	Business correspondence
Online class 5	Negotiations
Online class 6	Body language
Online class 7	Motivation at work
Online class 8	New technologies
Online class 9	Stress management
Online class 10	Business topics

Table 4.18. presents the syllabus for the *Business English* component of the course. When it comes to the experimental group, this part of the classes was conducted online using the *Moodle* platform. The online course was especially designed by the present researcher. The process of developing the course parts was based on the author's more than 6-year experience in designing online courses for *Business English*, *specialized* language and *soft skills*. The *Business English* online component of the course was composed of ten units, covering all the typical issues essential for business communication and every unit concentrated on fundamental aspects of business language. All of the units included lists of vocabulary connected with each topic, reading texts, dictionaries, online resources, online grammar practice and short films as core components. Numerous practice exercises includ-

ed *gap-filling*, *True/False* questions or *matching*. Another interesting type of exercise was an *online text*, in which the learners wrote a short text (guided writing) and submitted it to the teacher. The document could be then downloaded or printed, and assessed online or on paper. In order to enable the students to record their speaking tasks online, a *nanogong* applet was installed. This application was used to record, playback, save, and download the students' utterances on the computer. When the recording was played back, each participant could speed up or slow down the sound without changing it. Some units in the Moodle course also contained links to online, and editable dictionaries, as well as crosswords, which encouraged reflection. The online dictionaries used on the Moodle platform, e.g. *Cambridge Dictionaries Online* allowed the participants to check the meaning of any new word online. The editable dictionaries enabled the students to prepare a list of Business English words, which they could then share, download or print. The learners were offered the possibility of talking to one another in English using a chat, which was also available on the platform. All in all, the learners could develop their English skills and use the English language in numerous ways by means of interactive exercises and tasks as well as additional resources.

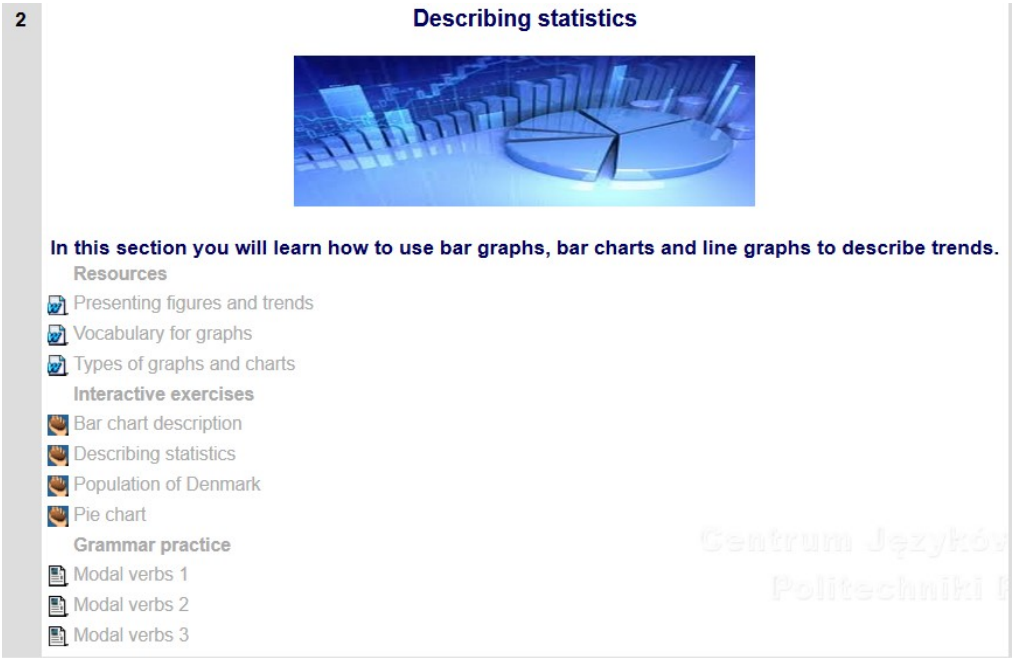

Fig. 4.4. A sample unit in the online course.

As presented in Figure 4.4., a sample Business English unit in the online course was composed of three subunits. In the first section, the students were provided with downloadable resources, the main aim of which was to provide an introduction to the course. In the second part, the participants were supposed to complete interactive exercises or watch a short film connected with the topic of a particular unit, and, finally, in the third section, the students could learn or revise grammatical structures online.

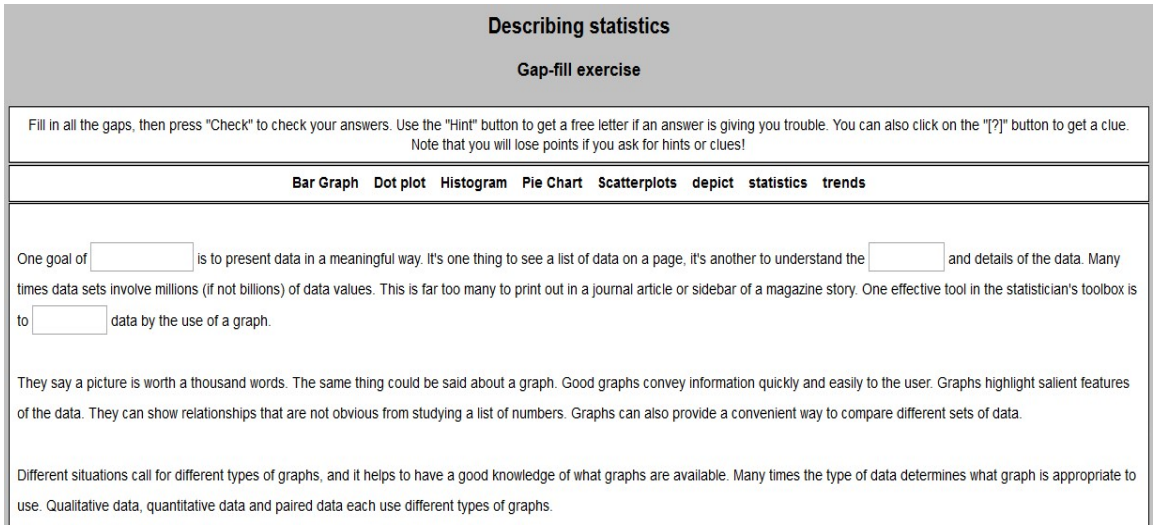

Fig. 4.5. A sample interactive exercise.

Figure 4.5. presents a sample interactive exercise for the Business English online course, where the students were asked to complete a short text concerned with describing graphs. It was a gap-fill exercise in which blank spaces were left and several words were given. The subjects were provided with immediate feedback shortly after completing each exercise and they could score max. 100% for each task. The number of attempts to do a particular task was unlimited and the computer calculated the average of all scores for a particular task. It is worth noting that the Moodle platform facilitated monitoring the students' work through automatic log reports that contained information concerning the type of work completed, and the amount of time spent on each task by each participant. In addition to this, the system allowed the instructor to specify timeframes for completing specific activities.

It should be emphasized that, as online classes were conducted ten times, the learners were supposed to complete each unit on one particular day indicated by the present researcher. Because of the fact that the students had different timetables (e.g. the English

classes were held on Monday and Friday in the case of Electronics and Telecommunications students; whereas students of Mechanical Engineering had English classes on Tuesdays and Thursdays) and in order to provide greater clarity, *Moodle* was always available on Mondays from 8 a.m. to Tuesdays at 8 a.m., with the caveat that after this time frame the access to the online tasks was denied. In cases where questions or problems came up, each online course teacher was available online at a particular time, e.g. Monday from 6 to 7.30 p.m. It is worth mentioning that students from all the groups were informed about the procedure that was going to be performed during the first class and, additionally, the learners from the experimental group were given a password to the online course group, which was necessary to sign in to Moodle in addition to their e-mail address and a password.

4.6.2. The control group

Table 4.19. presents the procedure used in the control group in which T-learners only participated in classroom meetings with the teacher, without the benefit of having online classes. This means that the *Business English* component was exactly the same as in the case of the experimental group (see Table 4.18.) but the tasks were completed during regular classes.

As was the case of the experimental group, the classes in the control group were divided into two parts: 30% of the Business English component and 70% of specialized language connected with their fields of study. The learners from the control group were also given a password to the online course group and signed in to Moodle using their e-mail address, which was a necessary step to complete *Writing Tasks 1* and *2* as well as *Speaking Tasks 1* and *2* using the *online text* assignment and the *nanogong* applet briefly described in subsection 4.6.1. However, no access was granted to the learners when it comes to online resources and exercises so that they could only rely on the materials and tasks completed in the classroom.

Table 4.19. The procedure used in the control group.

	Examples	
week	class 1	class 2
1	Placement test	Learner Profile, Beliefs about CALL Questionnaire, and SILL
2	Bulats0	
3		LSS and Motivation Battery
4	Speaking/Writing Task 1	
5		
6		
7		
8		TUNJO
9		
10		
11		
12		
13		
14	Speaking/Writing Task 2	
15	Bulats0A	
16		

4.7. Data analysis

After collecting the data, the next step was to analyse them using a combination of quantitative and qualitative methods. The numerical data were examined using a set of various procedures which ranged from *descriptive statistics* to more complicated statistical tools, such as *regression analysis*. All the calculations carried out in the current study were performed using a data analysis software system the *Statistical Package for the Social Sciences* (SPSS), produced by SPSS, Inc. in Chicago, USA, a trial version 20.

4.7.1. Quantitative analysis

It should be emphasized that a number of assumptions must be met before the quantitative analysis is undertaken and, in case any violations of the assumptions are found, closer and more careful examination of the data is needed. Therefore, this subsection starts with discussing the assumptions, which is followed by a brief discussion of statistical procedures used in the current research project.

4.7.1.1. Assumptions

In the current study it was necessary to determine whether the data met several assumptions (Tabachnick and Fidell 2007; Brown 1988), two of which (*homoscedasticity* and lack of *multicollinearity*) are typical for multiple regression analysis. In this subsection an attempt was made to address the assumptions with reference to the present study.

(1) *Measurement level of variables*—Mackey and Gass (2005) enumerate four main types of data: *nominal data* that refer to a set of information organized by category or name, it is also known as a *categorical* data set, merely used as a label (e.g. 1=male, 2=female); *ordinal data* that refer to sets of rankings (e.g. 1=never, 5=always); *interval data* that refer to a very precise type of data, which can be seen as ordinal data in which different values are at an equal distance from each other on a continuum (e.g. test scores), and *ratio data* that have all the components of interval data; however, they also include a comparison of points on the scale to an absolute zero. According to Pallant (2011), it is essential to remember that such statistical procedures as *correlation*, *multiple regression* or *t-tests* will only deal with *interval* and *ratio* level variables; therefore these two types of scale were used in the present study.

(2) *Ratio of cases to explanatory (independent) variables*—it is true that with small samples the obtained result might not be generalized, or repeated with other samples, and thus it is of little scientific value (Pallant 2011); therefore, it is recommended that a large number of observations is used. It should be noted that different researchers suggest various solutions; however, most of them agree on the absolute minimum, which is five times as many cases as explanatory variables (Pallant 2011). Some experts even propose special formulas, a good case in point being Tabachnick and Fidell (2007: 123), who encourage to perform the following calculations: $N > 50+8m$ (where 'm' is equal to the number of independent variables). As far as the present study is concerned, in both cases the assumption was met as the overall number of cases was over 100.

(3) *The outliers*—as Hodge and Austin (2004: 4) claim, "Outliers arise because of human error, instrument error, natural deviations in populations, fraudulent behavior, changes in behavior of systems or faults in systems". Because of the fact that some statistical procedures, e.g. *multiple regression* are sensitive to both very high and

very low scores, such outliers should be detected and, if necessary, eliminated. Several methods can be used to check for outliers and in the present study two of such procedures were used. At first, *histograms* of the dependent variables were closely examined in order to observe the tails of the distribution and it should be stated that the scores seemed to drop away in a reasonably even slope. Secondly, the inspection of *boxplots*, or visual aids to examining key statistical properties of a given variable (Pallant 2011) was applied.

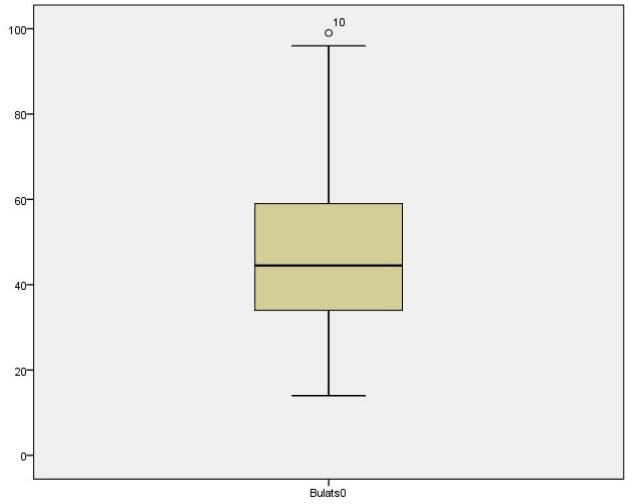

Fig. 4.6. A sample boxplot presenting a detected outlier in the current study.

As illustrated in Figure 4.6., one little circle was marked in the boxplot presenting results for Bulats0A, which suggests that there was only one outlier detected, i.e. ID number 10. Although some authors suggest removing all the outliers from the data file, it is also possible to leave them as they are. Pallant (2011: 159), for example, claims: "With large samples, it is not uncommon to find a number of outlying residuals. If you find only a few, it may not be necessary to take any action". After inspecting the *Descriptives* table it was found that the *Mean* and the *5% Trimmed Mean* values were similar, i.e. 47.79 and 46.87 respectively; therefore, the single outlier detected was retained in the data file. Secondly, histograms and boxplots of independent variables were checked. In this case, there were more outliers, as presented in Table 4.20. together with the *Mean* and *5% Trimmed Mean* (the latter of which being a method of averaging that removes 5% of the largest and smallest values before calculating the mean) values.

Table 4.20. Outliers, Mean and 5% Trimmed Mean scores for the independent variables.

variable	outliers	Mean	5% Trimmed Mean
CALL	148	90.74	90.62
LSS	141*, 30, 81	246.82	245.16
MB	100	168.53	167.87
SILL	51, 93, 129, 57	160.7	160.68
TUNJO	117, 100	99.96	100.52

As can be seen from Table 4.20., single outliers were detected, which may alert the reader to the fact that these points may be questionable. It is worth mentioning that, apart from outliers, in the case of the LSS variable one extreme point was also found (indicated with an asterisk*). All in all, the Mean and the 5% Trimmed Mean values were similar in the case of each variable and the influence of outliers could be considered minor. Consequently, there was no serious reason for omitting them and the single outliers together with the extreme point were retained in the data file.

(4) *Normal distribution*—as Razali and Wah (2011: 21) explain, "The importance of normal distribution is undeniable since it is an underlying assumption of many statistical procedures". The normal distribution is probably the most widely known and used of all distributions and can be characterized as symmetrical, bell-shaped and continuous (for all values of x *between* $-\infty$ *and* ∞) (Dörnyei 2007). In a normal distribution, the scores cluster around the midpoint with smaller frequencies towards the extremes. It is interesting to note that there are several methods for assessing normality, such as conducting normality tests, using numerical or graphical methods. Because of the fact that different tests of normality can produce various results, two methods for assessing normal distribution were employed in the present study. Firstly, a *numerical method* was used, which involved examining the measures of *skewness* and *kurtosis* of the data. The skewness value indicates the symmetry of the distribution, whereas the kurtosis indicates the distribution's 'peakedness'. As Pallant (2011: 57) explains, "If the distribution is perfectly normal, you would obtain a skewness and kurtosis value of 0".

Table 4.21. Skewness and kurtosis values.

Variable	Skewness	Kurtosis
CALL	.14	.20
LSS	1.32	4.68
MB	.32	.09
SILL	-.04	.69
TUNJO	-.49	.08
Bulats0	.68	.02
Bulats0A	.32	.86
Sp1	.22	.56
Sp2	-.12	.20
Wr1	-.19	.39
Wr2	-.25	.17

As shown in Table 4.21., the values of skewness and kurtosis were not equal but close to 0 in most cases and, since a 0 value of skewness and kurtosis is almost impossible to achieve, it can be assumed that the data collected for the purpose of the present study were normally distributed. The only variable that was far from the researcher's expectations was the *LSS* since the skewness and kurtosis values for this variable, which were equal to 1.32 and 4.68 respectively, could be characterized as *unusual* or *suspicious* from a statistical perspective. Therefore, in order to support the numerical method, graphical methods were applied. It should be emphasized that the most common graphical methods available in the SPSS are: *histograms*, *q-q plots*, *boxplots* or *stem-and-leaf plots*, with the qualification that the *histogram* as well as normal *quantile-quantile plot* (q-q plot) are probably the most effective tools for checking normality of the data. Figures 4.7. and 4.8. present a sample histogram and a sample q-q plot for the CALL questionnaire.

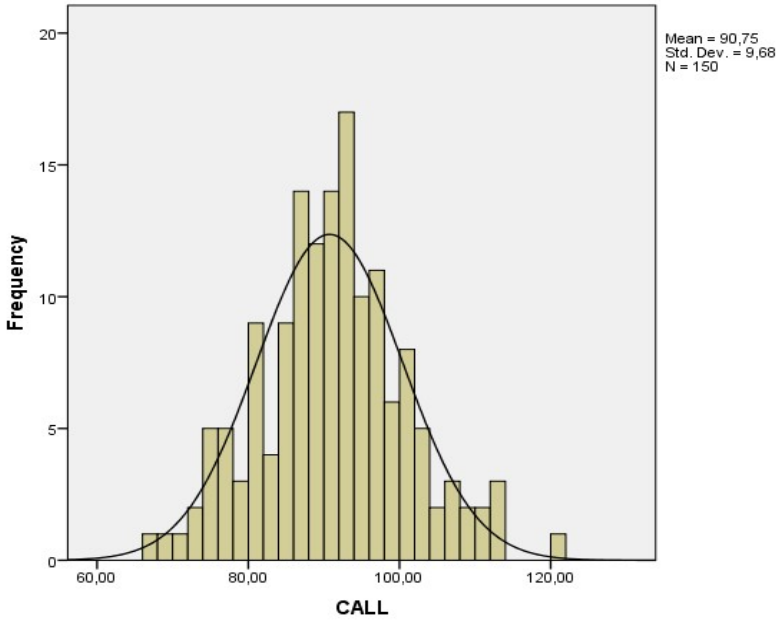

Fig. 4.7. A sample histogram presenting normally distributed data for the CALL questionnaire.

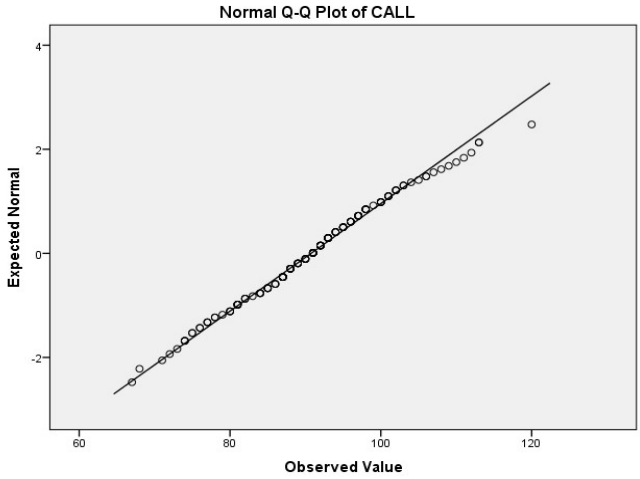

Fig. 4.8. A sample q-q plot presenting normally distributed data for the CALL questionnaire.

As illustrated in Figure 4.8., the data points in the CALL questionnaire approximate the constructed diagonal line, which suggests that the data were normally distributed. The inspection of histograms and q-q plots constructed for other variables confirmed that the data collected by means of all the instruments were normally distributed. The only suspicious variable, as discussed earlier using the numerical method, was the *LSS*. The unusual LSS distribution alerted the researcher to the

fact that more caution was needed while using this variable for performing further calculations in the research.

(5) *Linearity*—the assumption of *linearity* stipulates that the relationships between dependent and independent variables are *linear*, which is crucial, especially in the case of multiple regression, as it can only test linear relationships between variables. In order to check whether the assumption of linearity was not violated, matrices of scatterplots between a whole group of variables were examined (Larson-Hall 2010).

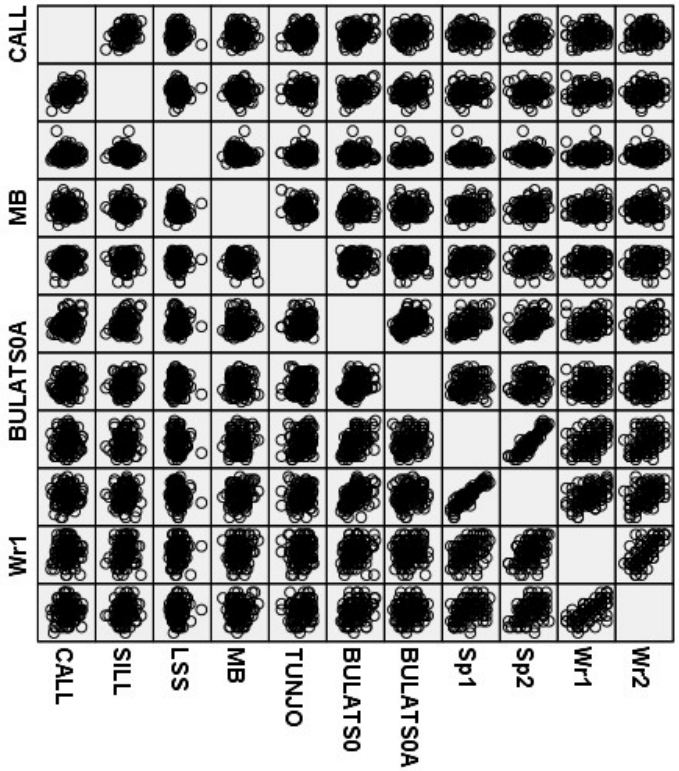

Fig. 4.9. A matrix of scatterplots.

As evidenced in Figure 4.9., which presents a matrix of scatterplots between the whole group of variables, a number of scatterplots were created and inspected simultaneously. Generally speaking, it can be stated that no major violations were found and, therefore, concluded that the linearity assumption was met.

(6) *Homoscedasticity*—Larson-Hall (2010: 394) defines homoscedasticity as "The condition of having homogeneity of variance", whereas Cohen et al. (2003: 119) provide an in-depth explanation of what homoscedasticity is, stating that "For any

value of the independent variable X, the conditional variance of the residuals around the regression line in the population is assumed constant". The experts (Cohen et al. 2003: 120) add that:

> Otherwise stated, the variance of the residuals around the regression line is assumed to be constant regardless of the value X. When the assumption of constant variance of the residuals regardless of the value of X is met, this condition is termed homoscedasticity. When the variance changes as the value of X changes, this condition is termed heteroscedasticity.

In other words, if *heteroscedasticity* is marked, it can lead to serious distortion of findings and weaken the analysis. Guilford (1960) argues that one way of checking for homoscedasticity is inspecting whether the distribution of data is not strongly skewed. As described earlier in this subsection, the data were normally distributed. Furthermore, the analysis of all the q-q plots showed no serious violation of the assumption of homoscedasticity.

(7) *Multicollinearity*—the term *multicollinearity*, or *collinearity* is used to describe a situation when one or more of the independent variables is/are highly correlated with one or more of the other independent variables. Such a situation is undesirable because in some cases multiple regression results may turn out to be paradoxical. As Howitt and Cramer (2011: 389) state, "When the intercorrelations of your predictor variables are very high, perhaps above 0.8 or so, then the dangers of multicollinearity are also high". Gordon (1968: 596), in turn, argues: "Discussions of multicollinearity in statistical texts tend to be tantalizingly brief". In order to test the assumption of multicollinearity, Larson-Hall (2010) proposes using the following two methods: inspecting a matrix of correlations between variables, and checking the *Variance Inflation Factor* (VIF), which is a measure of collinearity. It should be noted that numerous scholars suggest different VIF values, for instance Heiberger and Holland (2004) argue that VIF values of over 5 constitute evidence of collinearity while Pallant (2011: 158) claims: "VIF values above 10 would be a concern, indicating multicollinearity".

Table 4.22. Collinearity statistics for Bulats0 and Bulats0A as dependent variables.

	Bulats0		Bulats0A	
	Tolerance	VIF	Tolerance	VIF
SILL	.548	1.826	.540	1.852
LSS	.813	1.230	.785	1.273
CALL	.684	1.463	.698	1.433
MB	.729	1.371	.710	1.409
TUNJO	.974	1.027	.971	1.029

Table 4.23. Collinearity statistics for Speaking Task 1 and Speaking Task 2 as dependent variables.

	Sp1		Sp2	
	Tolerance	VIF	Tolerance	VIF
SILL	.543	1.840	.543	1.840
LSS	.818	1.223	.818	1.223
CALL	.699	1.430	.699	1.430
MB	.710	1.409	.710	1.409
TUNJO	.971	1.030	.971	1.030

Table 4.24. Collinearity statistics for Writing Task 1 and Writing Task 2 as dependent variables.

	Wr1		Wr2	
	Tolerance	VIF	Tolerance	VIF
SILL	.543	1.840	.543	1.840
LSS	.818	1.223	.818	1.223
CALL	.699	1.430	.699	1.430
MB	.710	1.409	.710	1.409
TUNJO	.971	1.030	.971	1.030

When it comes to intercorrelations between variables investigated in the present study, no presence of highly intercorrelated predictor variables was detected. The highest correlation values between independent variables that were found were between the *SILL* and the *CALL* (r=.478, p=.000) together with the *SILL* and the *MB* (r=.455, p=.000), which is well below the critical value of 0.8. Additionally, the VIF values in multiple regression were inspected and, as illustrated in Tables 4.22.–4.24., all of the VIF values

were between 1 and 2. Therefore, the application of the two methods, i.e. correlation and regression, showed a lack of multicollinearity.

4.7.1.2. Descriptive statistics

Descriptive statistics were applied in the current research project to highlight general tendencies in the data. As Brown (2002: 122) suggests, "descriptive statistics are used to characterize or describe a set of numbers in terms of central tendency and to show how the numbers disperse, or vary, around the center". Descriptive statistics can be divided into two broad groups: measures of central tendency (mean, median, and mode), and measures of variability (range and its square root—the standard deviation). According to Dörnyei (2007), the basic statistics that are usually provided in scientific papers are the mean (M), the standard deviation (SD), and the number of participants (N), all of which were applied in the present study. In the case of the *TUNJO* battery and proficiency tests, also the minimum and the maximum values were provided.

4.7.1.3. Correlation

Another procedure that was employed was correlation analysis, which refers to a statistical measurement of the relationship between two variables. Brown (1988: 126) describes the idea behind using this procedure in the following way: "In general, correlational studies are designed to investigate the nature and strength of functional relationships among the variable of interest to the researcher". Possible correlations range from +1 to -1, whereas a zero correlation indicates that there is no relationship between the investigated variables, with different researchers proposing different interpretations of the values; for example, according to Cohen (1988: 79): "an r of .10 in a population is indeed small". The expert continues: "When r=.30, r^2=PV=.09, so that our definition of a medium effect in linear correlation implies that 9% of the variance of the dependent variable is attributable to the independent variable"; "The definition of a large correlational ES as r=.50 leads to r^2=.25 of the variance of either variable being associated linearly with variance in the other" (Cohen 1988: 80). Dörnyei (2007: 223), in turn, writes:

> To give an indication of the strength of the correlation coefficient in applied linguistics research we can find meaningful correlations of as low as 0.3–0.5 (for example, between motivation and achievement) and if two tests correlate with each other in the order of 0.6, we can say that they measure more or less the same thing.

It should be stated that the correlation analysis was used in the present study in order to verify the presence of a positive or negative relationship between the following variables: *beliefs about CALL*, *learning strategies*, *learning styles*, *motivation*, *foreign language aptitude*, as well as between the IDs and proficiency in EFL in the experimental group. This was done by calculating *Pearson Product-Moment Correlation Coefficient* (*Pearson r*). The decision of applying this procedure was dictated by the type of scale *Pearson r* is designed for. As Pallant (2011) states, *Pearson r* is used for interval data (continuous variables) and normal distribution, which have been used in the present study. Furthermore, coefficients of determination (r^2) were calculated in order to inspect how much variance each pair of correlated variables shared.

4.7.1.4. Multiple regression

As was the case of the correlation analysis, multiple regression analysis was used to learn more about the relationship between the variables in the experimental group. Pallant (2011: 148) defines multiple regression in the following way:

> Multiple regression is not just one technique but a family of techniques that can be used to explore the relationship between one continuous dependent variable and a number of independent variables or predictors (usually continuous). Multiple regression is based on correlation, but allows a more sophisticated exploration of the interrelationship among a set of variables.

The rationale for using this procedure in the present study was to analyse the relationship between the variables, and to predict which independent variable has the greatest impact on the dependent variable researched. To be more precise, standard multiple regression was used where an attempt was made to predict the outcomes of proficiency tests, i.e. *Bulats0*, *Bulats0A*, *Speaking Task 1*, *Speaking Task 2*, *Writing Task 1*, and *Writing Task 2* as dependent variables by means of the *SILL*, the *LSS*, the *CALL*, the *MB*, and the *TUNJO* as independent variables. It is interesting to note that standard multiple regression is the most

commonly used type of regression analysis where all the independent variables are entered into the regression equation at once (Pallant 2011).

4.7.1.5. Independent and paired-samples t-tests

Other two procedures that were employed in the current study were independent samples *t-tests*, used to compare the mean scores on the continuous variables, i.e. the *Bulats* tests, the *Speaking Tasks*, and the *Writing Tasks*, for the experimental group and the control group, and paired-samples *t-tests* employed in order to compare the results of the aforementioned pretests and posttests for the same group, i.e. separately for E-learners and T-learners. In addition to this, measures of the effect size for the independent, and paired-samples *t-tests* were calculated and expressed in *etas squared* for all the differences that were investigated. It is essential to remember that the *effect size* provides an indication of the magnitude of the differences between the groups in the case of the independent samples *t-test*, and the magnitude of the intervention's effect when it comes to the paired-samples *t-test*. Although the formulas for calculating the effect size are different for the two types of *t-tests* (cf. Pallant 2011), the guidelines for interpreting this value, proposed by Cohen (1998), are the same: .01=small effect, .06=moderate effect and .14=large effect.

4.7.1.6. Statistical significance

A crucial aspect of using statistics in the present study was testing statistical significance, which refers to whether the results of the research in this particular sample were true for the whole population, and therefore generalizable, or whether they were simply due to chance. Dörnyei (2007) states that in social sciences significance is usually marked in the following way:

* indicates $p < .05$

** indicates $p < .01$

*** indicates $p < .001$

In the current study, the alpha level was set at $p < .05$.

4.7.2. Qualitative data analysis

In addition to the numerical data, twenty semi-structured interviews were conducted to elicit additional information regarding the students' beliefs about using the computer to learn English. The subjects' responses were intended to examine the extent to which the interviews findings substantiated, complemented and augmented the findings from the quantitative data. The interviews were subjected to qualitative analysis, which consisted in identifying the recurring themes with particular emphasis put on providing information on the relationship between applying the BL way of EFL learning by students and their FL performance. The repeated listening and multiple reading of the learners' interview responses with thorough examination of each sentence and phrase led to identifying the themes representing the participants' opinions about the investigated issue. According to Ryan and Bernard (2003: 85), "[t]heme identification is one of the most fundamental tasks in qualitative research".

Conclusion

Although the previous three chapters, providing theoretical foundations of the current research, are of great significance, the most crucial part of this dissertation is contained in chapters 4 and 5. The present chapter has aimed at providing a detailed description of methodological considerations of the study exploring the relationship between a variety of individual learner variables and learners' performance in a blended learning environment. More specifically, the researcher presented the design of the study, acquainted the reader with the participants of the study, their background as well as their attitudes towards the use of Information and Communications Technology. The current research project was described in terms of its duration, the EFL content studied by the participants, the instructional treatment and the tools for data collection and analysis. In the present researcher's point of view, the decision to include numerous measurement tools as well as a control group enhanced the overall quality and strength of the study. This chapter has also presented the statistical procedures that were used to enhance trustworthiness of the study. It should be emphasized that Chapter 4 provided foundations for Chapter 5, in which the actual results

of the research project will be presented, taking into account both quantitative and qualitative data.

Chapter 5: Findings of the research project

Introduction

The analysis of the data provided by means of a variety of different research tools, described in detail in the preceding chapter, allowed the present researcher to obtain the results relevant to the research questions described in section 4.2. of that chapter, which will be presented with reference to the experimental and the control group. The main objective of Chapter 5 is to present the results of the quantitative and qualitative analyses of the data collected in the course of the study. These results also provide a basis for a discussion in which an attempt will be made to address the aforementioned research questions posed by the present author. The current chapter consists of six sections, further divided into subsections. Section 5.1. presents research findings with reference to the following individual difference variables: learning strategies, learning styles, motivation, and FL aptitude. Section 5.2. provides a description of the students' beliefs about CALL collected by means of the *Beliefs about CALL Questionnaire* as well as interviews with the E-learners. In Section 5.3., proficiency tests results are discussed. Additionally, the relationship between various IDs, CALL, and FL proficiency is presented in Section 5.4. separately with respect to the results of correlation and multiple regression analysis. This is followed by a discussion of the answers to the research questions in Section 5.5. and limitations of the current study.

5.1. Individual variables

In this section, the results of quantitative analysis will be presented with respect to the following four individual variables: learning strategies, learning styles, motivation, and FL aptitude. As will be recalled from Section 4.7. of Chapter 4, descriptive statistics were used to describe general trends in the data gathered by means of various research instruments.

5.1.1. Language learning strategies

Table 5.1. shows the participants' responses to the 50 SILL items with reference to six categories of learning strategies: memory strategies, cognitive strategies, compensation strategies, metacognitive strategies, affective strategies, and social strategies. As described in subsection 4.5.2.1. of Chapter 4, Oxford (1990a) provides a key to understanding the average scores of the questionnaire and the subsequent analysis is based on this interpretation.

Table 5.1. Descriptive statistics for the SILL.

	all participants (N=148)		experimental group (N=118)		control group (N=30)	
	Mean	SD	Mean	SD	Mean	SD
memory strategies	2.93	1.02	2.94	1.00	2.91	1.08
cognitive strategies	3.45	1.03	3.47	1.03	3.37	1.06
compensation strategies	3.39	0.96	3.39	0.97	3.40	0.92
metacognitive strategies	3.33	0.91	3.33	0.91	3.34	0.87
affective strategies	2.60	1.00	2.65	0.99	2.38	1.02
social strategies	3.35	1.00	3.35	1.02	3.36	0.94
Total	3.21	0.99	3.23	0.99	3.17	0.99

As presented in Table 5.1., the average score of learning strategies for all the participants (N=148) was estimated to be *medium* (sometimes used) (M=3.21, SD=0.99), which means that all averages were between 2.5 and 3.4 according to Oxford's guidelines. The highest means were observed for *cognitive strategies* (M=3.45, SD=1.03) and *compensation strategies* (M=3.39, SD=0.96). When it comes to the experimental group, the average of the participants' learning strategies was also *medium* (sometimes used) (M=3.23, SD=0.99), with the caveat that the highest mean score was observed in the case of *cognitive strategies* (M=3.47, SD=1.03) and *compensation strategies* (M=3.39, SD=0.97). As far as

the control group is concerned, the highest mean values were determined for the following three groups of learning strategies: *compensation strategies* (M=3.40, SD=0.92), *cognitive strategies* (M=3.37, SD=1.06), and *social strategies* (M=3.36, SD=0.94); whereas *affective strategies* were marked as *low* (generally not used) (M=2.38, SD=1.02). The standard deviation values ranged between 0.91 (metacognitive strategies) and 1.03 (cognitive strategies) in the experimental group, and 0.87 (metacognitive strategies) and 1.08 (memory strategies) in the control group, with the standard deviation value for the whole tool equalling 0.99. This shows that the participants' responses to the SILL questionnaire were similar, clustering around the mean.

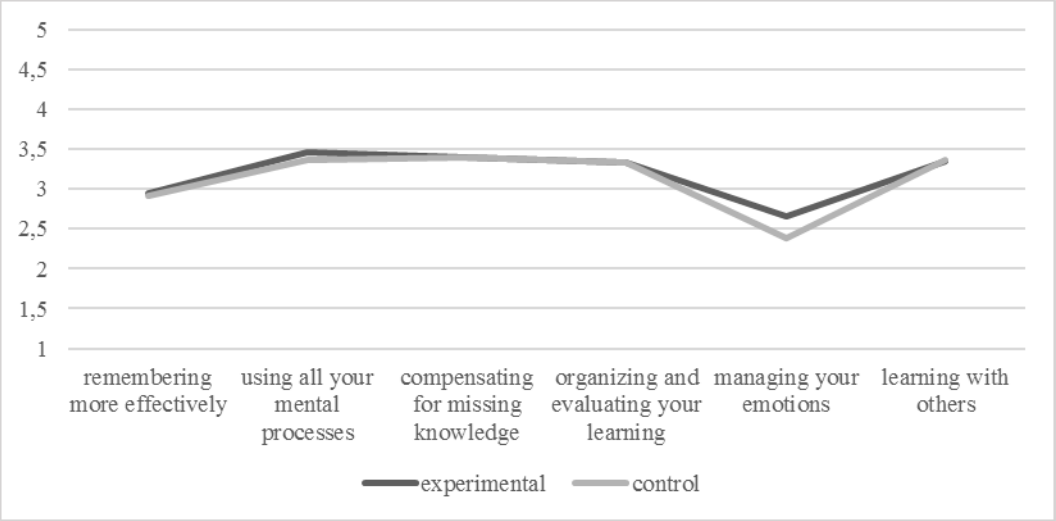

Fig. 5.1. Language learning strategy use according to strategy group.

Figure 5.1. presents a line graph of language learning strategy use in the experimental group and the control group. As can be seen from the plots, no major differences between the two groups were observed when it comes to particular categories of strategies. It can also be stated that the participants did not appear to be frequent learning strategies users, as indicated by the mean scores of the students' responses. After particular questionnaire items had been examined, several conclusions can be drawn. Firstly, there were no items with an average value of 4.5–5.00 (always or almost always used). Secondly, there was only one item with the value of 1.0–1.4 (never or almost never used) in both groups, which was SILLE43: "I write down my feelings in a language learning diary" (M=1.36, SD=0.59; experimental group) and (M=1.27, SD=0.61; control group). As for the reported

frequency of use of specific items in the experimental group, high averages (usually used – 3.5–4.4) were determined for the following statements: SILLD32: "I pay attention when someone is speaking English" (M=3.98, SD=0.73), SILLA1: "I think of relationships between what I already know and new things I learn in English" (M=3.92, SD=0.82), SILLB11: "I try to talk like native English speakers" (M=3.75, SD=0.97), SILLD31: "I notice my English mistakes and use that information to help me do better" (M=3.71, SD=0.85), SILLB22: "I try not to translate word-for-word" (M=3.68, SD=1.06), SILLB10: "I say or write new English words several times" (M=3.63, SD=1.07), SILLB23: "I make summaries of information that I hear or read in English" (M=3.58, SD=0.84) and SILLD33: "I try to find out how to be a better learner of English" (M=3.58, SD=0.84) with the last two having equal mean values, SILLF49: "I ask questions in English" (M=3.55, SD=0.93), SILLB13: "I use the English words I know in different ways" (M=3.54, SD=0.80), SILLA2: "I use new English words in a sentence so I can remember them" (M=3.53, SD=0.84), SILLB21: "I find the meaning of an English word by dividing it into parts that I understand" (M=3.52, SD=1.11), SILLC24: "To understand unfamiliar English words, I make guesses" (M=3.51, SD=0.99), as well as SILLB20: "I try to find patterns in English" (M=3.50, SD=1.08) and SILLC25: "When I can't think of a word during a conversation in English, I use gestures" (M=3.50, SD=1.12) that had the same mean scores. The lowest averages (generally not used—1.5–2.4) were determined for the following items: SILLA5: "I use rhymes to remember new English words" (M=2.02, SD=1.01), SILLA6: "I use flashcards to remember new English words" (M=1.88, SD=0.99), SILLA7: "I physically act out new English words" (M=2.25, SD=1.02), SILLC26: "I make up new words if I do not know the right ones in English" (M=2.31, SD=1.11), and SILLE44: "I talk to someone else about how I feel when I am learning English" (M=1.97, SD=1.11).

As far as the control group is concerned, the highest averages were observed for the following items in the questionnaire: SILLB10: "I say or write new English words several times" (M=3.73, SD=1.12) and SILLD33: "I try to find out how to be a better learner of English" (M=3.73, SD=0.85), both of which with the same mean score, SILLA1: "I think of relationships between what I already know and new things I learn in English" (M=3.70, SD=0.81), SILLB13: "I use the English words I know in different ways" (M=3.67, SD=0.83), SILLC25: "When I can't think of a word during a conversation in English, I use gestures" (M=3.67, SD=1.16), SILLD31: "I notice my English mistakes and use that information to help me do better" (M=3.63, SD=0.89), SILLB11: "I try to talk like native English speakers" (M=3.60, SD=0.96), SILLB22: "I try not to translate word-for-word"

(M=3.60, SD=1.04), and SILLF49: “I ask questions in English” (M=3.50, SD=0.92). It is interesting to note that there were two items for which the means were higher than for the control group: SILLD32: “I pay attention when someone is speaking English” (M=4.20, SD=0.73) and SILLF45: “If I do not understand something in English, I ask the other person to slow down or say it again” (M=4.20, SD=0.92). When it comes to the lowest mean scores in the control group, they were observed for the following items: SILLA5: “I use rhymes to remember new English words” (M=2.10, SD=1.00), SILLA6: “I use flashcards to remember new English words” (M=2.27, SD=0.95), SILLA7: “I physically act out new English words” (M=2.23, SD=1.01), SILLC26: “I make up new words if I do not know the right ones in English” (M=2.40, SD=1.10), SILLE41: “I give myself a reward or treat when I do well in English” (M=2.10, SD=1.10), and SILLE44: “I talk to someone else about how I feel when I am learning English” (M=1.67, SD=1.13). The lowest average (never or almost never used) was found for SILLE43: “I write down my feelings in a language learning diary” (M=1.27, SD=0.61). All in all, no major differences between the experimental group and the control group were detected as for the reported frequency use of learning strategies.

It is worth mentioning that the lowest standard deviation value equalled 0.59 in the experimental group and 0.61 in the control group in the case of SILLE43: “I write down my feelings in a language learning diary”. The highest dispersion value amounted to 1.26 in the experimental group and 1.27 in the control group and the statement was SILLA9: “I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign”. This shows that this value was the most likely to be reflective of individual variation among the participants.

5.1.2. Learning style preferences

The results of the descriptive analysis for the *Learning Style Survey* are illustrated in Table 5.2., where the 110 items of the *LSS* are divided into 11 main areas, and composed of 23 learning style types. As discussed in section 4.5. of Chapter 4, the authors of the instrument suggest comparing the questionnaire items in order to inspect which learning style preferences are dominant in a particular group.

Table 5.2. Descriptive statistics for the LSS.

		all participants (N=145)		experimental group (N=116)		control group (N=29)	
		Mean	SD	Mean	SD	Mean	SD
1: How I use my physical senses	visual	2.39	1.02	2.39	1.01	2.37	1.08
	auditory	2.12	1.00	2.15	0.99	1.98	1.01
	tactile/kinesthetic	2.12	1.15	2.13	1.14	2.06	1.18
2: How I expose myself to learning situations	extroverted	2.24	1.02	2.24	1.03	2.25	1.01
	introverted	2.22	1.03	2.21	1.03	2.22	1.03
3: How I handle possibilities	random–intuitive	2.54	0.93	2.57	0.94	2.44	0.86
	concrete–sequential	2.23	0.93	2.22	0.95	2.26	0.88
4: How I deal with ambiguity and with deadlines	closure–oriented	2.24	1.04	2.20	1.07	2.40	0.89
	open	2.08	1.04	2.11	1.03	1.94	0.96
5: How I receive information	global	2.41	0.94	2.42	0.90	2.39	1.10
	particular	2.13	0.95	2.12	0.91	2.16	1.05
6: How I further process information	synthesizing	2.63	0.83	2.64	0.84	2.58	0.76
	analytic	2.05	0.93	2.03	0.94	2.11	0.91
7: How I commit material to memory	sharpener	1.97	0.93	1.96	0.94	2.02	0.89
	leveler	2.13	0.86	2.06	0.87	2.40	0.74
8: How I deal with language rules	deductive	2.23	0.92	2.22	0.92	2.25	0.93
	inductive	2.03	0.97	2.04	0.98	2.00	0.92
9: How I deal with multiple inputs	field-independent	2.34	0.92	2.36	0.91	2.26	0.97
	field-dependent	2.24	0.97	2.22	0.97	2.32	0.97
10: How I deal with response time	impulsive	2.33	0.82	2.38	0.82	2.15	0.81
	reflective	2.51	0.83	2.48	0.84	2.62	0.81
11: How literally I take reality	metaphoric	2.13	0.96	2.16	0.97	2.02	0.92
	literal	2.19	0.95	2.16	0.96	2.29	0.90

For all the participants (N=145), the highest means were determined for such learning styles as: *synthesizing* (M=2.63, SD=0.83), *random–intuitive* (M=2.54, SD=0.93), and *reflective* (M=2.51, SD=0.83). In the experimental group (N=116), most of the learners received the highest mean scores on the following parts of the *LSS* questionnaire: *synthesizing* (M=2.64, SD=0.84) and *random–intuitive* (M=2.57, SD=0.94); whereas the dominant learning style preferences in the control group were: *reflective* (M=2.62, SD=0.81) and *synthesizing* (M=2.58, SD=0.76). In general, the mean scores for the learning styles preferences included in the *LSS* instrument ranged from 1.96 (*sharpener*) to 2.64 (*synthesizing*), with theme extreme values having been recorded in the experimental group, and the values of standard deviation ranged from 0.81 (*reflective*) to 1.18 (*tactile/kinesthetic*), with both of these having been observed in the control group.

As far as the particular learning style preferences are concerned, in the experimental group they were as follows: *synthesizing* (M=2.64, SD=0.84), *random–intuitive* (M=2.57, SD=0.94), *reflective* (M=2.48, SD=0.84), *global* (M=2.42, SD=0.90), *visual* (M=2.39, SD=1.01), *field-independent* (M=2.36, SD=0.91), *extroverted* (M=2.24, SD=1.03), *deductive* (M=2.22, SD=0.92), *closure-oriented* (M=2.20, SD=1.07), *metaphoric* (M=2.16, SD=0.97) and *literal* (M=2.16, SD=0.96), with the last two being characterized by the same means, and *leveler* (M=2.06, SD=0.87). In the control group, the following learning style preferences were distinguished: *reflective* (M=2.62, SD=0.81), *synthesizing* (M=2.58, SD=0.76), *random-intuitive* (M=2.44, SD=0.86), *closure-oriented* (M=2.40, SD=0.89) and *leveler* (M=2.40, SD=0.74), with the last two showing equal mean scores values, *global* (M=2.39, SD=1.10), *visual* (M=2.37, SD=1.08), *field-dependent* (M=2.32, SD=0.97), *literal* (M=2.29, SD=0.90), as well as *extroverted* (M=2.25, SD=1.01) and *deductive* (M=2.25, SD=0.93) with the same mean scores values. These results show that, as was the case with the use of learning strategies, there were no major differences in learning styles preferences between the two groups.

When it comes to the highest mean scores for individual statements in the experimental group, they were identified for such items as: LSSoneA1: "I remember something better if I write it down" (M=3.14, SD=0.83), LSSoneA8: "I understand lectures better when professors write on the board" (M=2.90, SD=0.86) and LSSfiveA1: "I prefer short and simple answers rather than long explanations" (M=2.90, SD=0.89) with the last two being characterized by the same mean value, LSSthreeA2: "I try to find many options and possibilities for why something happens" (M=2.86, SD=0.83), LSSoneB11: "I remember things better if I discuss them with someone" (M=2.85, SD=0.80), and LSSoneB16: "I can understand what people say even when I cannot see them" (M=2.80, SD=0.80). The lowest means were observed in the case of the following statements: LSSoneB17: "I remember people's names but not their faces" (M=1.28, SD=0.98), LSSoneC24: "If I have a choice between sitting and standing, I'd rather stand" (M=1.06, SD=0.99), LSSthreeB8: "I read instruction manuals (e.g. for computers or VCRs) before using the device" (M=1.34, SD=1.18), LSSfiveB10: "When I try to tell a joke, I remember details but forget the punch line" (M=1.45, SD=1.04), and LSSsixB8: "I like to focus on grammar rules" (M=1.48, SD=1.05).

Similarly to the experimental group, in the control group the highest mean scores were also detected for such statements as: LSSoneA1: "I remember something better if I write it down" (M=3.24, SD=0.83), LSSoneA8: "I understand lectures better when profes-

sors write on the board" (M=3.00, SD=0.80), and LSSoneB11: "I remember things better if I discuss them with someone" (M=2.93, SD=0.80). High means were also observed for the following statements: LSSthreeB10: "I prefer things presented in a step-by-step way" (M=2.86, SD=0.74), LSSfourA3: "I like to be certain about what things mean in a target language" (M=2.93, SD=0.75), LSSfourA4: "I like to know how rules are applied and why" (M=2.83, SD=0.76), and LSSsixA3: "When I create an outline, I consider the key points first" (M=2.90, SD=0.67). When it comes to the lowest mean scores in the control group, in four cases, the statements were the same as in the experimental group, namely: LSSoneB17: "I remember people's names but not their faces" (M=1.31, SD=0.97), LSSoneC24: "If I have a choice between sitting and standing, I'd rather stand" (M=1.10, SD=1.11), LSSthreeB8: "I read instruction manuals (e.g. for computers or VCRs) before using the device" (M=1.34, SD=1.11), and LSSfiveB10: "When I try to tell a joke, I remember details but forget the punch line" (M=1.52, SD=1.15). There was also one statement with a low average, which was different from the experimental group and the item was LSSoneB14: "Background sound helps me think" (M=1.52, SD=1.30).

It is interesting to note that the values of standard deviation for the statements included in the survey were between 0.72 and 1.37 in the experimental group in the case of the following answers: LSSoneB13: "I need oral directions for a task" (SD=0.72), LSSthreeB9: "I trust concrete facts instead of new, untested ideas" (SD=0.72), and LSSoneC27: "I play with or bite on my pens during lectures" (SD=1.37). In the control group, the values of dispersion were similar to the experimental group and ranged from 0.63 to 1.83 for the following items: LSSsevenB4: "When learning new information, I may clump together data by eliminating or reducing differences and focusing on similarities" (SD=0.63), and LSSfiveB9: "I enjoy activities where I fill in the blank with missing words I hear" (SD=1.83). The values of the standard deviation may indicate that there was not much individual variation in these two groups.

5.1.3. Motivation

The results of the *Motivation Battery* (Pawlak 2012b) scores are reported in two ways. Firstly, the eleven factors of motivation will be discussed and, secondly, individual items will be presented. Table 5.3. presents descriptive statistics for the factors in L2 self consid-

ered separately for E-learners and T-learners, whereas Figure 5.2. provides a graphical illustration of the data collected by mean of the *MB* questionnaire. As can be observed, the highest mean scores in both groups were determined for such factors as *interest in international vocation or activities/travel orientation* (M=4.52, SD=0.30 in the experimental group and M=4.53, SD=0.28 in the control group), *intended learning effort* (M=4.24, SD=0.67 in the experimental group and M=4.44, SD=0.55 in the control group), and *ideal L2 self* (M=4.61, SD=0.55 among E-learners and M=4.42, SD=0.71 among T-learners). The lowest mean scores were observed in the following cases: *L2 self-confidence/English anxiety* (M=3.36, SD=0.36) and *fear of assimilation* (M=3.08, SD=0.52) in the experimental group, and *parental encouragement* (M=3.26, SD=0.51) and *fear of assimilation* (M=3.16, SD=0.51) in the control group.

Table 5.3. Descriptive statistics for the MB questionnaire according to factors of the L2 self.

factors	experimental group (N=118)		control group (N=30)	
	Mean	SD	Mean	SD
1. Interest in international vocation or activities/travel orientation	4.52	0.30	4.53	0.28
2. Parental encouragement	3.75	0.65	3.26	0.51
3. Cultural interest	3.92	1.28	4.37	1.00
4. Intended learning effort	4.24	0.67	4.44	0.55
5. Instrumentality	4.05	0.91	4.12	1.05
6. L2 self-confidence/English anxiety	3.36	0.36	3.43	0.57
7. Ideal L2 self	4.61	0.55	4.42	0.71
8. Fear of assimilation	3.08	0.52	3.16	0.51
9. Attitudes to learning English	4.07	0.61	4.08	0.76
10. Interest in foreign languages	3.76	0.26	4.08	0.26
11. Ethnocentrism	3.89	1.26	4.03	1.27

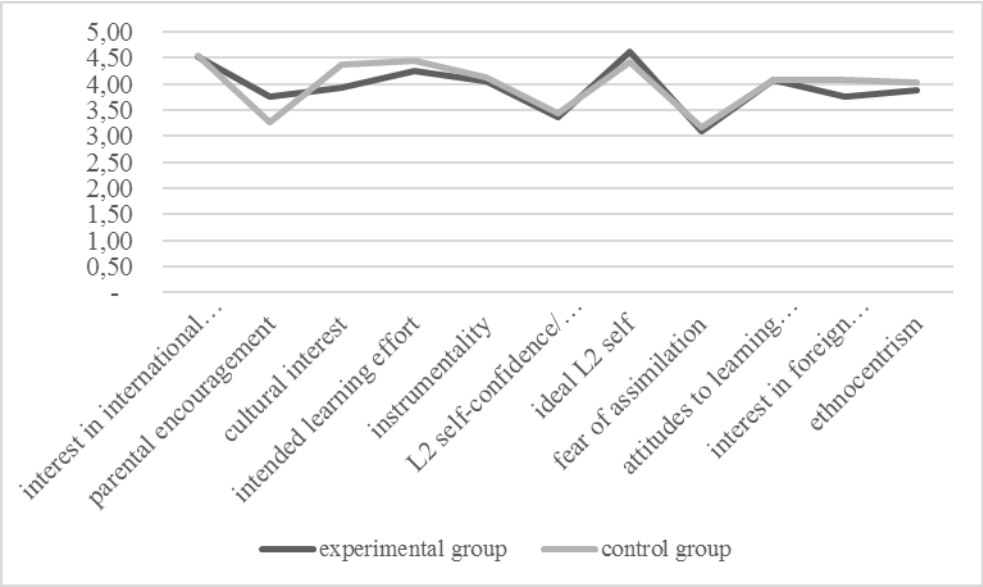

Fig. 5.2. Motivation level according to factors in the L2 self.

As for the values of the standard deviation, they were high in some cases, which may indicate considerable individual variation among the respondents. The factors with the highest SD were: *cultural interest* (SD=1.28 among E-learners and SD=1.00 among T-learners), *ethnocentrism* (SD=1.26 in the experimental group and SD=1.27 in the control group), and *instrumentality* (SD=1.05) among T-learners. As can be seen from Table 5.4., generally speaking, the respondents manifested high levels of motivation. When it comes to the combined results of the *MB* questionnaire in both groups (N=148), the mean scores fluctuated between 2.50 and 5.48 on a scale of 1 to 6. The highest mean scores were obtained for the following items: MB6: "Learning English is useful for me because one day it will help me to find a job" (M=5.48, SD=0.69), MB19: "I believe that I will be able to read and understand most of the texts in English if I continue to learn English" (M=5.22, SD=0.82), MB18: "Learning English is important for me because knowledge of this language will be necessary to get a promotion in the future" (M=5.09, SD=0.88), and MB7: "If I work hard, I will certainly learn English" (M=5.05, SD=0.95).

Table 5.4. Descriptive statistics for the MB questionnaire.

Items	all participants (N=148)		experimental group (N=118)		control group (N=30)	
	Mean	SD	Mean	SD	Mean	SD
1. Learning English is important for me because I want to travel.	4.88	1.03	4.87	1.01	4.90	1.12
2. My parents encourage me to learn English.	4.47	1.35	4.62	1.22	3.90	1.69
3. I feel excited when I hear somebody speaking English.	3.14	1.30	3.18	1.25	2.97	1.50
4. I am very interested in the way people from different cultures live.	4.01	1.24	3.92	1.28	4.37	1.00
5. If I had an opportunity to participate in a course of English (e.g. at the university), I certainly would do that.	4.41	1.25	4.38	1.25	4.50	1.25
6. Learning English is useful for me because one day it will help me to find a job.	5.48	0.69	5.44	0.70	5.63	0.67
7. If I work hard, I will certainly learn English.	5.05	0.95	5.00	0.94	5.23	0.97
8. I imagine myself living abroad and conduct conversations in English.	3.67	1.35	3.71	1.35	3.50	1.36
9. There is a danger that Poles will forget about the importance of their own culture as a result of globalization.	3.36	1.35	3.34	1.69	3.47	1.48
10. I have to learn English because if I don't receive a positive grade, I will not be promoted for the next semester.	3.60	1.69	3.59	1.67	3.63	1.81
11. I would be nervous when talking to an Englishperson or American in English.	3.53	1.50	3.57	1.49	3.37	1.54
12. I like the atmosphere of my English classes.	4.58	1.15	4.55	1.17	4.70	1.06
13. I learn English because my close relatives think it's important.	3.30	1.41	3.37	1.41	3.00	1.36
14. My parents encourage me to take every opportunity to practise speaking English.	3.97	1.39	4.09	1.31	3.50	1.63
15. I am curious about how English is used during conversations.	4.01	1.06	3.95	1.08	4.27	0.98
16. I would like other cultures to be similar to Polish culture.	3.03	1.40	3.00	1.43	3.13	1.33
17. I do my best to learn English.	4.13	1.17	4.13	1.15	4.13	1.25
18. Studying English is important to me because English proficiency is necessary for promotion in the future.	5.09	0.88	5.03	0.91	5.33	0.71
19. I believe that I will be able to read and understand most texts in English if I continue to learn English.	5.22	0.82	5.17	0.82	5.40	0.81
20. I can imagine a situation in	4.45	1.23	4.53	1.14	4.13	1.53

which I speak with foreigners in English.						
21. I think that Polish is changing for the worse under the influence of English.	3.43	1.53	3.43	1.52	3.43	1.61
22. I am anxious and make mistakes when I speak English during classes.	3.66	1.25	3.57	1.27	4.03	1.10
23. I have to learn English because I don't want to receive bad grades.	3.49	1.48	3.39	1.44	3.87	1.59
24. I think that learning English is interesting.	4.35	0.97	4.36	0.96	4.30	1.02
25. I have to learn English so as not to disappoint my parents.	2.80	1.41	2.87	1.43	2.50	1.31
26. Learning English is important for me because I would like to travel.	4.38	1.15	4.36	1.17	4.47	1.07
27. I think that the differences between English and Polish vocabulary are interesting.	3.64	1.28	3.58	1.32	3.90	1.12
28. I am ready to become deeply engaged in learning English.	4.27	1.12	4.17	1.14	4.67	0.92
29. My parents encourage me to learn English in my free time.	3.47	1.47	3.53	1.44	3.20	1.58
30. I respect the values and ways of life of other cultures and nationalities.	4.81	1.07	4.78	1.11	4.93	0.91
31. Learning English is important for me because I want to spend some time abroad learning or working.	4.20	1.26	4.19	1.31	4.23	1.07
32. I am sure that I will be able to write in English if I continue to learn this language.	4.87	0.95	4.91	0.88	4.73	1.20
33. I imagine myself as someone who is able to speak English.	4.64	1.20	4.72	1.13	4.33	1.40
34. Learning English has a negative influence on Polish national values.	2.50	1.29	2.48	1.32	2.57	1.19
35. I would be nervous if I met an English or American native speaker.	2.93	1.51	2.94	1.48	2.90	1.65
36. I have to learn English because otherwise I will not achieve success in my future work.	4.40	1.23	4.41	1.26	4.37	1.10
37. I am always willing to participate in English classes.	4.20	1.12	4.17	1.15	4.33	0.99
38. Learning English is necessary because people around me expect it from me.	3.11	1.31	3.14	1.30	3.00	1.34
39. I learn English because travelling will become more pleasant.	4.62	1.05	4.64	0.97	4.53	1.33
40. My parents encourage me to participate in additional English lessons (private lessons, courses etc.).	3.53	1.52	3.61	1.51	3.20	1.52
41. I can honestly admit that I do my best to learn English	3.18	1.34	3.07	1.35	3.60	1.22

42. I like the way English sounds.	4.68	1.06	4.71	1.01	4.53	1.28

In the case of the experimental group, the highest mean values were determined for the following statements: MB6: "Learning English is useful for me because one day it will help me to find a job" (M=5.44, SD=0.70), MB19: "I believe that I will be able to read and understand most texts in English if I continue to learn English" (M=5.17, SD=0.82), MB18: "Studying English is important to me because English proficiency is necessary for promotion in the future" (M=5.03, SD=0.91), MB7: "If I work hard, I will certainly learn English" (M=5.00, SD=0.94), MB32: "I am sure that I will be able to write in English if I continue to learn this language" (M=4.91, SD=0.88), and MB1: "Learning English is important for me because I want to travel" (M=4.87, SD=1.10). There were four items in the case of which the learners in the experimental group received the lowest averages, which were as follows: MB16: "I would like other cultures to be similar to Polish culture" (M=3.00, SD=1.43), MB25: "I have to learn English so as not to disappoint my parents" (M=2.87, SD=1.43), MB34: "Learning English has a negative influence on Polish national values" (M=2.48, SD=1.32), and MB35: "I would be nervous if I met an English or American native speaker" (M=2.94, SD=1.48). The highest mean values in the control group were computed for the following statements: MB6: "Learning English is useful for me because one day it will help me to find a job" (M=5.63, SD=0.67), MB19: "I believe that I will be able to read and understand most texts in English if I continue to learn English" (M=5.40, SD=0.81), MB18: "Studying English is important to me because English proficiency is necessary for promotion in the future" (M=5.33, SD=0.71), and MB7: "If I work hard, I will certainly learn English" (M=5.23, SD=0.97). The lowest mean values among T-learners were observed in the following items: MB25: "I have to learn English so as not to disappoint my parents" (M=2.50, SD=1.31), MB34: "Learning English has a negative influence on Polish national values" (M=2.57, SD=1.19), and MB35: " I would be nervous if I met an English or American native speaker" (M=2.90, SD=1.65).

On the whole, it could be reasonably argued that the learners in both groups could be characterized as being interested in English as a foreign language for two reasons. Firstly, they stated that learning English would help them when they travel abroad, as indicated by high scores for the following factors: *interest in international vocation* or *activities/travel orientation* and *intended learning behaviour*. Secondly, they manifested a high

level of the *ideal self*, which means that they were able to imagine themselves as frequent and effective foreign language users.

5.1.4. Foreign language aptitude

As discussed in subsection 4.5.2.4. of Chapter 4, the results of the *TUNJO* test were analysed in two ways. Firstly, descriptive statistics were calculated in order to inspect general tendencies in the data. Secondly, *standard test scores* were determined and the learners' *aptitude profiles* were created in order to investigate the students' strengths and weaknesses when it comes to particular facets of language aptitude. The 110 items included in the *Foreign Language Aptitude Test* are divided into the following six parts: *Phonetic Alphabet* (PA), *Artificial Language* (AL), *Hidden Words* (HW), *Number Learning* (NL), *Words in Sentences* (WinS), and *New Words* (NW), which is shown in Table 5.5. As explained in subsection 4.5.2.4. of Chapter 4, the maximum number of points for the whole battery was 145, however the learners could receive the following scores for specific components of the test: PA=30, AL=18, HW=30, NL=20, WinS=20, and NW=23.

Table 5.5. Descriptive statistics for the TUNJO.

	all participants (N=127)				experimental group (N=98)				control group (N=29)			
	min	max	Mean	SD	min	max	Mean	SD	min	max	Mean	SD
Phonetic Alphabet	11	30	24.04	3.64	11	30	23.78	3.80	16	30	24.93	2.91
Artificial Language	2	18	9.57	3.83	2	18	10.08	3.75	2	15	7.86	3.62
Hidden Words	11	30	22.49	4.46	13	30	22.60	4.22	11	30	22.10	5.25
Number Learning	0	20	16.10	4.65	0	20	15.78	4.89	4	20	17.21	3.58
Words in Sentences	6	21	13.25	2.98	6	21	13.26	3.05	7	19	13.24	2.79
New Words	5	24	14.50	5.11	5	24	14.17	5.09	6	24	15.62	5.08
Total	50	128	99.96	16.34	50	128	99.66	16.47	50	127	100.97	16.17

Table 5.5. shows that *Phonetic Alphabet*, *Hidden Words* and *Number Learning* were the parts on which the experimental group (N=98) scored the highest and the following mean scores were determined for these components of the *TUNJO*: *PA* (M=23.78;

SD=3.80), *HW* (M=22.60; SD=4.22), and *NL* (M=15.78; SD=4.89). The control group (N=29) received the highest mean scores on the same subtests of the TUNJO as the experimental group and the values were as follows: *PA* (M=24.93; SD=2.91); *HW* (M=22.10; SD=5.25), and *NL* (M=17.21; SD=3.58. It should be noted that the mean score on the *TUNJO* for all the participants (N=127) was 99.96 (min=50, max=128, SD=16.34); whereas the total mean score of the control group (M=100.97, SD=16.17) slightly exceeded that for the experimental group (M=99.66, SD=16.47). The values of standard deviation fluctuated from 3.05 (WinS) to 5.09 (NW) in the experimental group, whereas in the control group they were between 2.79 (WinS) to 5.25 (HW). Such results indicate that individual variation was slightly more visible in the experimental group. However, it should be emphasized that the mean test scores were relatively high in both groups.

As discussed in subsection 4.5.2.4. of Chapter 4, apart from *raw scores*, *standard scores* were also calculated separately for the experimental group and the control group. It is interesting to note that the E-learners (N=98) received *above average* standard scores on the following components of the test: *PA*–54% (53 learners), *AL*–42% (42 learners), *HW*–56% (55 learners), *NL*–65% (64 learners), *WinS*–46% (46 learners), *NW*–45% (45 learners), and Total–51% (50 learners). As regards the T-learners group, the respondents (N=29) received *above average* standard scores on the following parts of the battery: *PA*–68% (20 learners), *AL*–41% (12 learners), *HW*–58% (17 learners), *NL*–62% (18 learners), *WinS*–48% (14 learners), *NW*–62% (18 learners), and Total–55% (16 learners).

When it comes to the aptitude profiles of the learners, they were divided into five groups on the basis of the results: (1) *phonetic profile*, (2) *analytic profile*, (3) *memory profile*, (4) *'equal' profile*, and (5) *'mixed' profile*. Students with the *phonetic profile* received 'above average' standard scores on *PA* and *HW* components of the test (14 learners in the experimental group and 4 learners in the control group). Participants with the *analytic profile* had high standard scores on *AL*, *NL*, and *WinS* components of the *TUNJO* (5 learners in the experimental group and no such cases in the control group). Subjects with the *memory profile* received the highest number of standard scores on the *NW* component (18 cases in the experimental group and 8 students in the control group). Seven students received an 'above average' standard score on all the components of the whole battery and two such cases were detected in the control group (an 'equal' profile). Finally, the majority of the students represented the 'mixed' profile (22 such cases in the experimental group and 8 students in the control group), which means that they received above average standard

scores in five out of six tests, whereas the score on the sixth component was close to the average. There were also students whose aptitude profiles could not be precisely determined, mainly due to the fact that their scores on most or all of the parts of the *TUNJO* test were below average (12 students in the experimental group and 2 such cases in the control group).

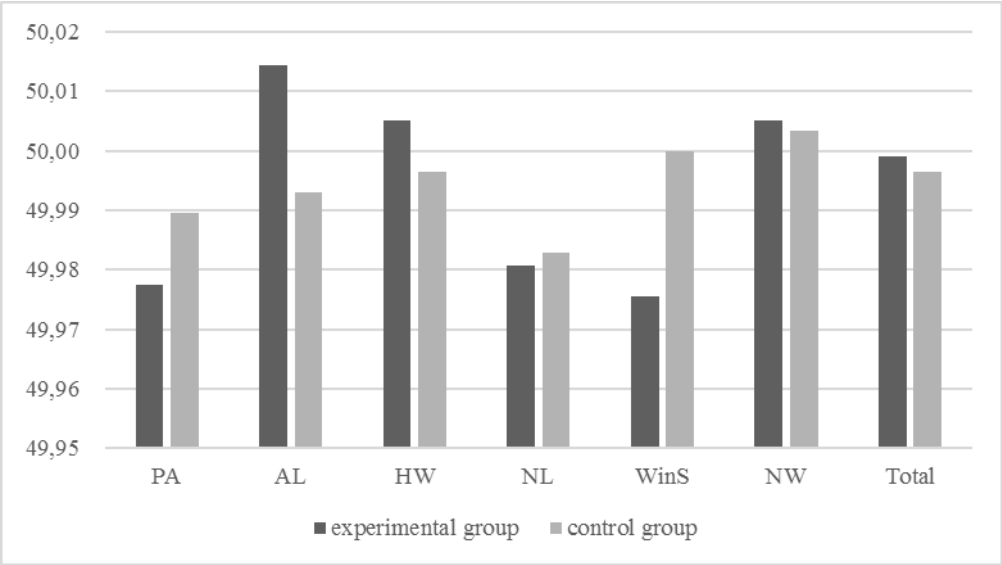

Fig. 5.3. Average aptitude profiles.

Yet another step in the analysis involved determining average aptitude profiles for the experimental group and the control group, which are presented in Figure 5.3. As illustrated above, the mean standard scores for the experimental group were as follows: *PA* (M=49.98), *AL* (M=50.01), *HW* (M=50.01), *NL* (M=49.98), *WinS* (M=49.98), *NW* (M=50.01), and Total (M=50.00). This shows that all the mean standard scores were slightly above or nearly equal to 50 points, which indicates that the aptitude profile for the experimental group learners was relatively high. When it comes to the mean standard scores for the control group, they were as follows: *PA* (M=49.99), *AL* (M=49.99), *HW* (M=50.00), *NL* (M=49.98), *WinS* (M=50.00), *NW* (M=50.00), and Total (M=50.00). These results indicate that no major differences between the two groups were observed.

5.2. Computer Assisted Language Learning

As mentioned in section 4.7. of Chapter 4, the students' beliefs about Computer Assisted Language Learning were analysed in two ways: quantitatively and qualitatively. In this section, the numerical data obtained from the CALL questionnaire will be presented and the discussion of the information gathered from the learners' interviews will be provided.

5.2.1. The Beliefs about CALL questionnaire

Descriptive statistics for the responses on the CALL survey scores are reported in Table 5.6. When it comes to the combined results of the CALL questionnaire in both groups (N=150), the mean scores fluctuated between 1.99 and 4.07. The highest mean values were obtained for the following items: CALL 20: "I use websites in English (e.g. online newspapers, entertainment websites)" (M=4.07, SD=0.96), CALL 18: "I use an online or electronic dictionary, e.g. on DVD-ROM to learn English" (M=3.87, SD=1.08), CALL 10: "Using CALL I have easier access to additional information" (M=3.76, SD=0.79), and CALL 15: "The CALL environment enables me to develop my vocabulary knowledge" (M=3.76, SD=0.67). Items with the lowest means scores were as follows: CALL22: "I use English corpora (e.g. British National Corpus) for learning" (M=1.99, SD=0.84) and CALL23: "I use websites designed to learn English" (M=2.21, SD=1.03).

Table 5.6. Descriptive statistics for the Beliefs about CALL Questionnaire.

Items	all participants (N=150)		experimental group (N=120)		control group (N=30)	
	Mean	SD	Mean	SD	Mean	SD
1. I like using the computer to learn English very much.	3.54	0.83	3.58	0.85	3.37	0.76
2. Learning English is easier for me using the computer.	3.73	0.73	3.74	0.73	3.67	0.76
3. My pace of learning English is faster using the computer compared to traditional methods.	3.15	0.84	3.12	0.85	3.30	0.79
4. Learning English is more effective using the computer than using traditional methods.	3.13	0.87	3.10	0.90	3.23	0.73
5. Using the computer to learn English is as important as traditional methods.	3.47	0.86	3.46	0.86	3.50	0.86
6. Feedback that is provided by the	3.63	0.70	3.61	0.70	3.73	0.69

computer after a task is completed is clear.						
7. I prefer to communicate with other people in English using the computer than face-to-face.	3.38	1.16	3.34	1.16	3.53	1.17
8. I prefer using the computer to using a traditional coursebook.	3.19	1.01	3.18	0.97	3.23	1.17
9. When I use CALL I am less stressed.	3.36	0.88	3.35	0.89	3.40	0.86
10. Using CALL I have easier access to additional information.	3.76	0.79	3.78	0.75	3.67	0.96
11. The CALL environment enables me to develop all the language skills (reading, writing, listening and speaking).	3.44	0.70	3.41	0.67	3.57	0.82
12. The CALL environment enables me to develop reading comprehension skills.	3.51	0.65	3.51	0.66	3.53	0.63
13. The CALL environment enables me to develop listening comprehension skills.	3.56	0.65	3.55	0.66	3.60	0.62
14. The CALL environment enables me to develop speaking skills.	2.93	0.76	2.91	0.74	3.03	0.81
15. The CALL environment enables me to extend vocabulary knowledge.	3.76	0.67	3.74	0.67	3.83	0.70
16. The CALL environment enables me to understand grammar rules.	3.61	0.72	3.57	0.73	3.80	0.66
17. CALL helped me to become an independent learner.	3.17	0.66	3.22	0.65	3.00	0.69
18. I use an online or electronic dictionary, e.g. on DVD-ROM to learn English.	3.87	1.08	3.83	1.13	4.07	0.87
19. I use a word processor (e.g. Microsoft Word) to create documents in English and I use such functions as spell check or thesaurus.	3.21	1.19	3.19	1.16	3.27	1.34
20. I use websites in English (e.g. online newspapers, entertainment websites).	4.07	0.96	4.13	0.91	3.83	1.12
21. I use websites in English to read scientific articles (e.g. www.sciencedaily.com, www.newscientist.com).	3.03	1.13	3.08	1.14	2.83	1.09
22. I use English corpora (e.g. British National Corpus) for learning.	1.99	0.84	1.99	0.87	1.97	0.72
23. I use websites designed to learn English.	2.21	1.03	2.20	1.02	2.27	1.11
24. I use English to communicate with other people by means of the computer (e.g. using e-mail).	3.74	1.11	3.78	1.06	3.60	1.33
25. I use English to communicate with other people by means of the computer (e.g. using forums).	3.65	1.14	3.68	1.13	3.53	1.17
26. I use English to communicate with other people by means of	3.02	1.28	3.04	1.28	2.93	1.28

VoIP communicators (e.g. Skype).						
27. I use English to communicate with other people by means of social networks (e.g. Facebook).	3.63	1.24	3.69	1.16	3.40	1.52

As regards the experimental group, the highest mean scores were determined for the following statements: CALL20: "I use websites in English (e.g. online newspapers, entertainment websites)" (M=4.13, SD=0.91), CALL18: "I use an online or electronic dictionary, e.g. on DVD-ROM to learn English" (M=3.83, SD=1.13), CALL10: "Using CALL I have easier access to additional information" (M=3.78, SD=0.75), CALL24: "I use English to communicate with other people by means of the computer (e.g. using e-mail)" (M=3.78, SD=1.06), CALL2: "Learning English is easier for me using the computer" (M=3.74, SD=0.73), and CALL15: "The CALL environment enables me to extend vocabulary knowledge" (M=3.74, SD=0.67). By contrast, the lowest mean scores were observed for such items as: CALL14: "The CALL environment enables me to develop speaking skills" (M=2.91, SD=0.74), CALL22: "I use English corpora (e.g. British National Corpus) for learning" (M=1.99, SD=0.87), and CALL23: "I use websites designed to learn English" (M=2.20, SD=1.02).

In the control group, the items with the highest mean values were as follows: CALL18: "I use an online or electronic dictionary, e.g. on DVD–ROM to learn English" (M=4.07, SD=0.87), CALL15: "The CALL environment enables me to extend vocabulary knowledge" (M=3.83, SD=0.70) and CALL20: "I use websites in English (e.g. online newspapers, entertainment websites)" (M=3.83, SD=1.12) being characterized with the same mean score values, and CALL16: "The CALL environment enables me to understand grammar rules" (M=3.80, SD=0.66). The lowest mean values in the control group were computed for such statements as: CALL21: "I use websites in English to read scientific articles (e.g. www.sciencedaily.com, www.newscientist.com)" (M=2.83, SD=1.09), CALL22: "I use English corpora (e.g. British National Corpus) for learning" (M=1.97, SD=0.72), CALL23: "I use websites designed to learn English" (M=2.27, SD=1.11), and CALL26: "I use English to communicate with other people by means of VoIP communicators (e.g. Skype)" (M=2.93, SD=1.28).

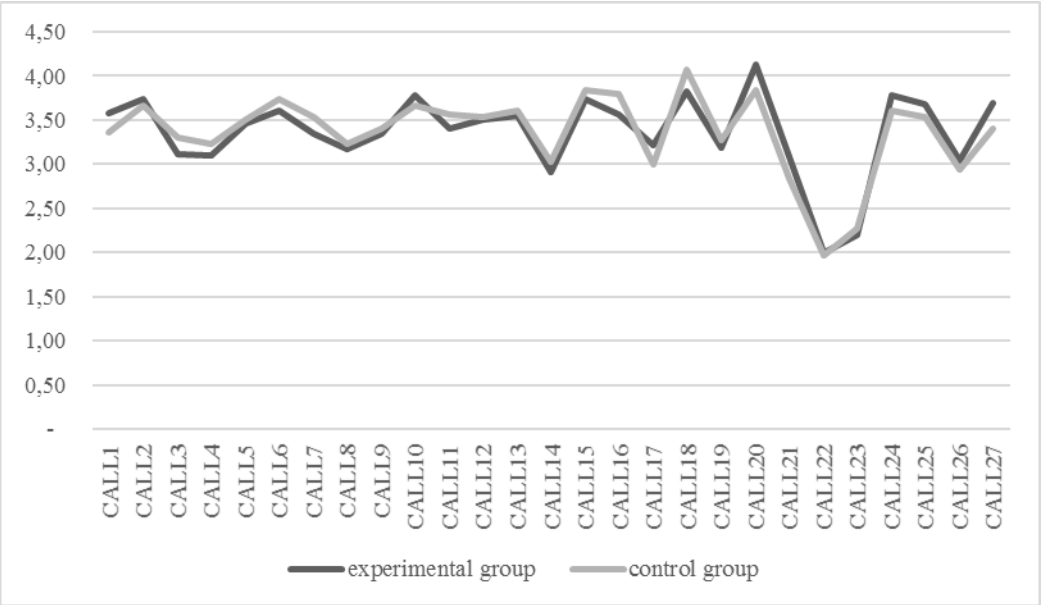

Fig. 5.4. CALL questionnaire mean scores.

The values of mean scores for the CALL questionnaire in both groups are illustrated by the two plots in Figure 5.4. and, as can be seen, there were no considerable differences in this respect. However, it was noted that the standard deviation values were high in some cases, which means that certain statements were subject to substantial individual variation. In the experimental group, it was visible in in the following statements: CALL26: "I use English to communicate with other people by means of VoIP communicators (e.g. Skype)" (SD=1.28), CALL7: "I prefer to communicate with other people in English using the computer than face-to-face" (SD=1.16), CALL19: "I use a word processor (e.g. Microsoft Word) to create documents in English and I use such functions as spell check or thesaurus" (SD=1.16), and CALL27: "I use English to communicate with other people by means of social networks (e.g. Facebook)" (SD=1.16). In the control group, this tendency manifested itself in the following items: CALL27: "I use English to communicate with other people by means of social networks (e.g. Facebook)" (SD=1.52), CALL19: "I use a word processor (e.g. Microsoft Word) to create documents in English and I use such functions as spell check or thesaurus" (SD=1.34), and CALL24: "I use English to communicate with other people by means of the computer (e.g. using e-mail)" (SD=1.33). There were some questionnaire items in which the standard deviation values were low, which may indicate that the learners' responses were relatively similar, clustering around the mean. In the E-learners group, it was visible in such statements as: CALL12: "The CALL environment

enables me to develop reading comprehension skills" (SD=0.66), CALL13: "The CALL environment enables me to develop listening comprehension skills" (SD=0.66), and CALL17: "CALL helped me to become an independent learner" (SD=0.65). By contrast, in the T-learners group the statements were as follows: CALL12: "The CALL environment enables me to develop reading comprehension skills" (SD=0.63), CALL13: "The CALL environment enables me to develop listening comprehension skills" (SD=0.62).

The 27 Likert-scale items of the CALL questionnaire were accompanied by one open-ended question, which was CALL28: "Do you use the computer to learn English in any other way? If yes, please specify.". There were 14 students who answered this question (12 from the experimental group and 2 from the control group). The learners from the experimental group claimed that they used the computer to learn English in the following ways: watching films and/or sitcoms, reading instructional materials and technical articles, using computer programmes (e.g. *Professor Henry*), playing computer games (e.g. memory games), listening to music, using e-books, singing karaoke songs in English, looking for useful information, or writing songs texts in English. As regards the control group, the participants reported using electronic dictionaries, talking to friends from abroad, or watching sitcoms. All of the students' responses indicated that the participants had positive attitudes towards the use of computers in learning English as a foreign language, with the caveat that the applications of computers that the subjects appreciated the most were using online or electronic dictionaries or using various websites in English in order to look for information or to entertain. The participants also stated that using the computer helped them to extend their vocabulary in English.

5.2.2. Interviews with the E-learners

There were the following seven main foci of the interviews conducted with twenty students from the experimental group: the advantages and disadvantages of blended learning, attitude towards blended learning, other learners' opinions about blended learning, enhanced motivation to learn English using blended learning, transparency of information the students received in the online course, the teachers' assistance in terms of completing online tasks, types of skills developed in the online and traditional classes, and attitude to particu-

lar tasks in the online course. It should be emphasized that other themes were also identified in the course of the analysis, such as learning English in the future.

When asked about the advantages and disadvantages of attending the blended learning course, all of the E-learners identified both. As for the positive aspects of the blended learning course, the participants stated that the greatest advantage for them was the fact that they saved time as they could complete the online tasks anytime. What is more, they characterized this way of learning as *convenient*, *novel* and *flexible*. Among the numerous advantages, the respondents particularly appreciated the fact that they could manifest their autonomy, manage their time in a more effective way, were able to do a number of things simultaneously, could work on their own at their own pace (e.g. they did not need to wait for other students in the group), had better and faster access to online materials, dictionaries or translators in order to enhance their learning and, last but not least, this way of learning brought quicker and more visible results, in their opinion. Such sentiments are evident in the following comments:[4]

> The most appealing tasks for me are, for example crosswords that are rarely used during traditional classes, they are something new. In my opinion, this method makes students become more autonomous language learners and allows receiving quite precise feedback using percentage. There is also a system of prompts for the students, therefore if we don't know the answer we can use it. What is more, there are very useful films which help understand many things. I also think that the material covered is very useful, starting with describing statistics, making presentations, making business correspondence and finishing with time management. (Interviewee 12.)

> Earlier, I didn't learn English using the blended learning method, it was a novelty for me which appealed to me very much. First of all, we not only learn English at the university but also from home. We don't need to do all the tasks in advance but we can divide them into smaller units and do them anytime. Personally, I feel that nobody forces me to learn English but I sit and relax while learning English and learning with the computer, which I like very much. (Interviewee 13.)

> I think that the greatest advantage of blended learning is that it saves our time and allows flexibility. It also prevents classes from being monotonous, sitting in the classroom all the time and learning in a traditional way; it introduces something new; it's innovative. To my mind, it helps learners to organize their time in a more effective way. It also develops our autonomy and independence as far as looking for information and looking for different methods of learning are concerned; that's the most valuable aspect of these classes. (Interviewee 14.)

> When we have English lessons in the classroom, there is always the teacher who will help us, translate new words for us etc. While working online, we are more independent as we can use different websites or online dictionaries. We can also do many different things while learn-

[4] This is not the original wording but a translation provided by the present researcher as the interviews were conducted in Polish.

> ing, e.g. eating or drinking; when we are tired we can rest and then return to doing exercises; in the classroom we have to sit for 90 minutes without a break; sometimes we are tired because we have many other classes on a particular day so we can't focus on the classes properly. (Interviewee 16.)

> I would recommend this form of learning because it develops independent thinking (some people can't work on their own, they always rely on somebody else's work and don't do exercises or even tests on their own). (Interviewee 11.)

> People like new things and experiments and it may attract attention. (Interviewee 8.)

Among the disadvantages of the blended learning course, the students most frequently mentioned some technical problems related to the functioning of the equipment. They also stated that, for some of them, it was difficult to complete tasks online systematically if there was no teacher present who would at all times monitor their work. Some of the participants explained that in several cases the tasks were too long and monotonous in the online course and the page source was too easily available, leaving lazy students the opportunity to find answers and copy them. The following excerpts illustrate some of these points:

> It is easy to find answers to the online tasks. I think it should be changed as it is tempting to use the prompts. I would also delete the movies as they are sometimes too long and boring. (Interviewee 7.)

> I am a little disappointed with this way of learning. In the beginning, my attitude was very positive but with time I started to be irritated with it. (Interviewee 8.)

> Unlike traditional classes, there is no teacher with us all the time. This way, we can make mistakes and, being unaware of them, we can make them for the second time. (Interviewee 11.)

> Having access to online classes for the whole day we do the tasks at the last moment; it is difficult to work regularly for some students. (Interviewee 12.)

> Sometimes, there are some technical problems with the equipment. Although it's usually possible to overcome the difficulties, this can sometimes be cumbersome. (Interviewee 14.)

> The main disadvantage is that while doing the online exercises you are alone and there's nobody to help you; in the classroom there is always a teacher present who can support you. (Interviewee 16.)

> Online classes lacked discussions which are always available in the classroom with the teacher. What is more, less emphasis was put on speaking or listening. Tasks mainly concentrated on completing texts or reading, I would add more speaking tasks because speaking is the most important and useful aspect of FL learning for me, e.g. when talking to someone abroad. (Interviewee 18.)

When asked about their attitude towards the blended learning course, most of the respondents agreed that it was rather positive and that, at the end of the semester, they were satisfied with the fact that they had classes conducted in such an environment, which can be exemplified by the following comments:

> At the beginning of the semester I had a negative attitude towards blended learning because I thought it would be a worse way of learning than a traditional one; at the end of the semester, I can say that my attitude is positive. (Interviewee 3.)

> I used to have classes conducted by means of this method in my secondary school but I wasn't very satisfied with it because of the fact that they were not well-prepared. That's why, in the beginning I was sceptical about the classes. However, my attitude changed into positive feelings because the content of the classes was very interesting. (Interviewee 4.)

> I was curious, fascinated, and a little worried about how it would look like because I hadn't participated in classes like this before. Finally, the anxiety changed into fun. I remember when we had to do Speaking Task 1 in the lab and I was very worried about it. I didn't know what to say and how to behave. At the end of the semester, we had to complete Speaking Task 2 and, to my astonishment, it was no problem for me. (Interviewee 7.)

> In the beginning, I was afraid of it because I didn't know what I should expect, but with time my attitude changed into positive feelings and now I am very pleased with participating in classes like this. (Interviewee 13.)

> At first, I was a little excited or even intrigued but from the very beginning I expected that it had to be something that would work properly and that I would be satisfied with the classes. Now, I think that I am not disappointed. I have learnt how the system works. To summarize, I had positive expectations, which didn't change. My attitude is still positive and I am glad with how the system works. (Interviewee 14.)

> I was curious but scared at the same time because it was very novel for me and I didn't know if I would manage to complete the tasks on my own, but later I realized that everything was ok. (Interviewee 20.)

It is interesting to note that, one of the participants represented an entirely different point of view. He stated that when the semester started and the blended learning course was introduced to the T-learners he was very enthusiastic and ready to participate in the online classes. However, in the course of time he was less and less in favour of the online tasks because, in his view, they were monotonous. He also expressed the opinion that the speaking

and listening tasks appealed to him the most. It was very useful information for the researcher as it was a signal that probably some of the online tasks needed to be modified in the future, but also it alerted her to the fact that individual variation might play a part in the students' approach to FL learning. The participant's point of view is illustrated in the following quote:

> In the beginning, I was very optimistic about this new approach to learning but then I was irritated and bored because each module was similar in respect of types of tasks, i.e. in most of the tasks the students were supposed to read and complete texts with suitable words or phrases. Personally, I prefer speaking or listening tasks. (Interviewee 8.)

The interviewees were also asked about other students' opinions about the course. This information was very important, mainly because of the fact that usually in the classroom learners do not feel comfortable talking about negative aspects of the teaching process. Sometimes, they are afraid of what the teacher will think of them or simply they do not want to disappoint the instructor. They are, however, more open and honest when talking to other students outside the classroom, e.g. in the university corridors while waiting for the classes. The interviewees agreed that other learners believed that the novel way of learning was useful for them. Some of the participants stated:

> In my opinion, other students had positive feelings about the course. Nowadays, young people believe that it's easier to learn using the computer than to attend traditional classes. (Interviewee 5.)

> To be honest, I didn't talk to other students about the course but I also didn't hear any negative opinions. Our timetable was prepared at the beginning of the semester; everyone got used to it and nobody complained about it. (Interviewee 9.)

> In my group, students had a positive attitude to the course. The greatest advantage that everyone mentioned was time saving. (Interviewee 11.)

The subjects were also asked if the course motivated them to learn English and their opinions were mixed in this respect. Some of the participants felt that blended learning encouraged them to study English; while others stated that they were even curious about what would happen next, i.e. what they were going to learn in the next online module. Some of the respondents claimed that the most motivating aspect of their learning English online was the fact that they received individualized feedback, which allowed them to work on

their mistakes and correct them quickly. The interviewees expressed their sentiments in the following way:

> I feel that blended learning motivated me to learn English, especially because of the fact that there were a number of resources (Word files, pdf files, handouts) that I could download, print and use later on or share with other students. I must admit that I waited for each module to be opened with willingness to learn something new and with curiosity what the new module would consist of. (Interviewee 16.)

> I was motivated because I received feedback in real time or very quickly and, in comparison to traditional tests, I didn't need to wait to see the result of my work for a week or two. (Interviewee 18.)

> When I attended blended learning classes I felt motivated to use additional sources of information or using different online dictionaries to find translations of new words, especially while solving crosswords. I learnt many meanings of one word, starting with general and business language and finishing with specialized language. (Interviewee 20.)

The participants were also asked if all the instructions accompanying the online course were clear. All of the students agreed that, apart from minor problems, all the provided guidelines were explicit and comprehensible, with the effect that they experienced no difficulty in completing the tasks. Some of the subjects explained that the crosswords were complicated at the beginning of the course as this type of task was new to them; other participants reported having general problems with the level of difficulty of some of the tasks. Examples of such opinions are provided below:

> Crosswords were unclear for me in the beginning. However, after completing the first module, everything became clear. (Interviewee 1.)

> Most of the tasks were clear; some tasks lacked pictures but, in my opinion, it didn't influence completing the tasks. (Interviewee 8.)

> All the tasks were designed in such a way that they were student-friendly and everything was clear from the very beginning. Personally, I found no problems with the instructions, however some tasks were too difficult for me to complete. (Interviewee 14.)

Another theme that was identified in the interview data was the extent to which the teachers assisted the E-learners in the online course. As was mentioned in section 4.6. of Chapter 4, there were six teachers involved in the study together with the present researcher. The E-learners were asked if the teachers conducting English classes were helpful in solving any problems during the online component of the course and it should be stated that

the majority of the interviewees explained that if any problems arose, their teachers were always ready to help them. There was also a student who expressed a more firm opinion and went even further stating that, as all the instructions to the online course were straightforward, the teacher was unnecessary. The interviewees' sentiments are illustrated in the following excerpts:

> The instructor was constantly available online while we were completing the tasks. We could write to the teacher and receive answers in real time. (Interviewee 11.)

> If there were any technical problems (e.g. something didn't work properly or there was a technical break) we were immediately informed about that via email. (Interviewee 18.)

> In my opinion, the teacher's assistance is unnecessary in online courses as everything is clear. (Interviewee 5.)

As regards the four language skills, i.e. listening, reading, speaking and writing, the participants were asked to explain which of those skills were most successfully developed during online classes and which of them were better practised during traditional classes. Although the students' responses were diversified, the majority of them admitted that online classes certainly aided them in developing reading comprehension skills, whereas during traditional classes they could speak more, which is not surprising given the limitations of CALL in this respect. The following statements illustrate some of these trends:

> During traditional classes we developed speaking and reading comprehension skills because a lot of time was devoted to reading specialized texts. Then, we discussed these texts and this way our utterances were corrected by our teacher and our friends. Reading aloud was also very useful because the teacher corrected our pronunciation and mistakes. (Interviewee 3.)

> As far as the online classes are concerned, it was certainly reading comprehension that was most successfully developed because we completed many tasks such as True/False, open-cloze, or matching exercises. (Interviewee 8.)

> During classroom learning we mainly developed speaking skills. Conversations were conducted only in English so we had a possibility to use and listen to a foreign language all the time. (Interviewee 11.)

The learners were also asked about their attitudes towards completing particular tasks, such as recording their speech and uploading the files onto the *Moodle* platform. As it turned out, there were considerable differences in the students' perceptions in this respect. Most of the participants used the following negative adjectives to indicate the emotions that were

present before and during completing these tasks: *inhibited*, *difficult*, *stressful*, *worried*, *embarrassing*, *unwilling*, *problematic*, and *reluctant*. The following opinions illustrate this standpoint very well:

> My attitude was negative because I don't like being recorded and I hate listening to my recordings later on. It takes a lot of time for me to complete tasks like this, that's why I am very reluctant to do these tasks. (Interviewee 5.)

> I must admit that I didn't like those tasks very much as we had to sit and talk to the microphone. The most embarrassing thing for me was a feeling that other students could hear my speech. (Interviewee 11.)

It should be noted that there were also some students who expressed more positive opinions about the speaking tasks that they were requested to perform and upload. The respondents stated that, as speaking is a very useful and necessary skill, they would participate in any exercise in order to have as much practice as possible. Some learners also confessed that they were willing to complete the speaking tasks as, in their opinion, it was quite a novel approach to learning English. Other students reported being anxious in the beginning as, in their opinion, a number of people dislike speaking aloud in a foreign language. However, after a few trials, they were able to overcome their inhibitions and they were ready to record their utterances. This is visible in the following comments:

> In the beginning, I did not treat the speaking tasks very seriously, but with time I found it very useful. I hope this type of learning will be continued and developed in the future. Speaking is very important for me, that's why I found those tasks very helpful, especially in respect of practising my pronunciation. (Interviewee 13.)

> I approached these tasks with curiosity. For me it was an opportunity not only to practise receptive skills but productive skills as well and see how I deal with tasks like this. To be honest, I was satisfied with the fact that the instructor of the course designed those tasks in such a way (recording my speech in English and then listening to it) because I had never done anything like this before and it was something completely new for me. (Interviewee 14.)

> I did it for the first time in my life and it was completely novel for me. In the beginning, it was very stressful—the time was limited, that's why I was unsure if I wouldn't talk too little or too much or if I would be well understood by the listener. I was afraid of the quality of the recording and whether my utterances were clear, but for the second time (Speaking Task 2) I wasn't stressed and I found no difficulties answering the questions. (Interviewee 16.)

It is worth pointing out that some of the responses drew particular attention of the researcher because, although it was not the main focus of the interviews, they were concerned with the students' learning style preferences. One of the participants, for example, talked about

using colours to enhance his learning even though he might have been unaware of his learning style preference. He explained his view in quite a detailed and interesting way, as illustrated in the following excerpt:

> Interviewee: Maybe it's not the most important thing but for me it's very useful. In my opinion, the themes of the course need to be altered. What is more, I would change the characteristics of the platform, e.g. colours which, to my mind, are very useful features of learning a foreign language.
>
> Teacher: What do you mean by 'characteristics'?
>
> Interviewee: I mean, the aesthetic side of the platform.
>
> Teacher: Do you think it is so much important?
>
> Interviewee: (a nod) For me yes. I pay much attention to colours while learning foreign languages but I don't know how it is for other students. (Interviewee 13.)

Although each module of the online component of the course was enriched with colourful figures, photographs, charts, or graphs, the present researcher did not realize how important it could have been for some of the students; therefore, the comments quoted above were considered extremely useful for her. Other participants mentioned that, generally speaking, learning English is easier and more comfortable at particular times, e.g. in the morning or late at night, yet others also said that they prefer eating/drinking something during learning or having frequent breaks. Some of them stated that during the semester there were sometimes situations in which they needed to stay at the university all day without a longer break e.g. for dinner; they were tired and unwilling to participate in the English classes because of hunger or tiredness. Therefore, it was convenient for them to complete online tasks in time and places most comfortable for them. The following excerpts illustrate this point:

> Blended learning is very attractive for me because it allows me to adjust my time to my learning English, e.g. I can choose the most suitable part of the day for me to learn a FL (…). (Interviewee 12.)
>
> (…) We can also do many different things while learning, e.g. eating or drinking; when we are tired we can take some rest and then return to doing exercises (…). (Interviewee 16.)

As Croker (2009: 18) claims, "The greatest challenge in interviewing is getting the interaction with the participant right, by recognizing that interviews are jointly constructed

encounters". In the opinion of the present researcher, this requirement was met as the students were willing to participate in the interviews, ready to answer questions, as well as unafraid to express doubts about the instructions in the online course or enumerate the disadvantages of this way of learning. All the subjects appeared to be honest in their responses, open and talkative while being interviewed. Consequently, the conversations met the researcher's expectations, especially those with participants who were taught by different teachers in the course of the study and the interview was the only opportunity to talk to them. Although in the beginning there were some problems with organizing the interviews related to finding the right place, adjust the researcher's time to the participants' timetable, preparing reliable equipment etc., generally speaking, the interviews enriched the researcher's knowledge about the issues under investigation and provided her with the opportunity to familiarize herself with learners from different groups.

All in all, it should be stated that the data collected by means of the interviews confirmed that there were more pros than cons of having adopted the blended learning approach. Firstly, it helped the students to develop their self-confidence, overcome their weaknesses in learning English as a FL and lower the level of their anxiety. Secondly, it facilitated the respondents' understanding of English grammar structures and vocabulary knowledge which is connected with the fact that they were presented in a more user-friendly way. It also increased the level of motivation of some learners and provided them with fun experiences while completing the online tasks, even in the case of exercises which appeared to be too novel or complicated at the very beginning.

5.3. Results of proficiency tests

As discussed in section 4.5. of Chapter 4, different tests were used in order to measure the participants' proficiency in English with respect to the four language skills: listening, reading, speaking, and writing, administered at the beginning and at the end of the semester (February—pretest and June—posttest). This section is devoted to presenting the results of the following proficiency measures: *BULATS tests*, *Speaking Tasks*, and *Writing Tasks*. In all the types of tests, the descriptive statistics were calculated and the statistical significance of the observed differences was determined by means of independent and paired-samples *t-tests* for between-group comparisons and within-group comparisons, respectively.

5.3.1. BULATS tests

Descriptive statistics for the *BULATS* tests, versions EN000 and EN000A, are shown in Table 5.7. and Table 5.8. As can be seen from the data, the total average number of points for all the learners on the *Bulats0* amounted to 47.80 (SD=18.46), whereas on the *Bulats0A* it was equal to 59.91 (SD=20.55). The minimum scores were 14 (*Bulats0*) and 20 (*Bulats0A*) and the maximum scores amounted to 99 (*Bulats0*) and 106 (*Bulats0A*).

Table 5.7. Descriptive statistics for Bulats0.

	Bulats0											
	all participants (N=142)				experimental group (N=115)				control group (N=27)			
	min	max	Mean	SD	min	max	Mean	SD	min	max	Mean	SD
Listening	5	48	24.20	9.29	6	42	25.13	9.12	5	40	20.26	9.16
Reading and Language Knowledge	6	54	23.59	10.11	6	54	24.30	10.25	8	35	20.59	9.09
Total	14	99	47.80	18.46	20	99	49.42	18.36	14	75	40.85	17.58

Table 5.8. Descriptive statistics for Bulats0A.

	Bulats0A											
	all participants (N=127)				experimental group (N=102)				control group (N=25)			
	min	max	Mean	SD	min	max	Mean	SD	min	max	Mean	SD
Listening	10	48	29.29	9.12	11	48	30.33	9.22	10	38	25.04	7.41
Reading and Language Knowledge	6	59	30.61	12.11	9	59	32.05	12.46	6	40	24.76	8.50
Total	20	106	59.91	20.55	25	106	62.38	20.97	20	78	49.8	15.27

The tests results were also analysed separately for the experimental group and the control group to allow gauging the impact of the intervention in the form of including the CALL component. As presented in Figure 5.5., the total mean scores in the experimental group were: M=49.42, SD=18.36, min.=20, max.=99 for the *Bulats0* and they were equal to M=62.38, SD=20.97, min.=25, max.=106 for the *Bulats0A*. In the control group, the total mean scores were as follows: M=40.85, SD=17.58, min.=14, max.=75 (*Bulats0*), and M=49.8, SD=15.27, min.=20, max.=78 for the *Bulats0A*. It was also observed that the

standard deviation scores were high in the experimental group, both on the pretest (SD=18.36) and the posttest (SD=20.97), which may indicate that the data were spread out over a relatively large range of values and were reflective of considerable individual variation.

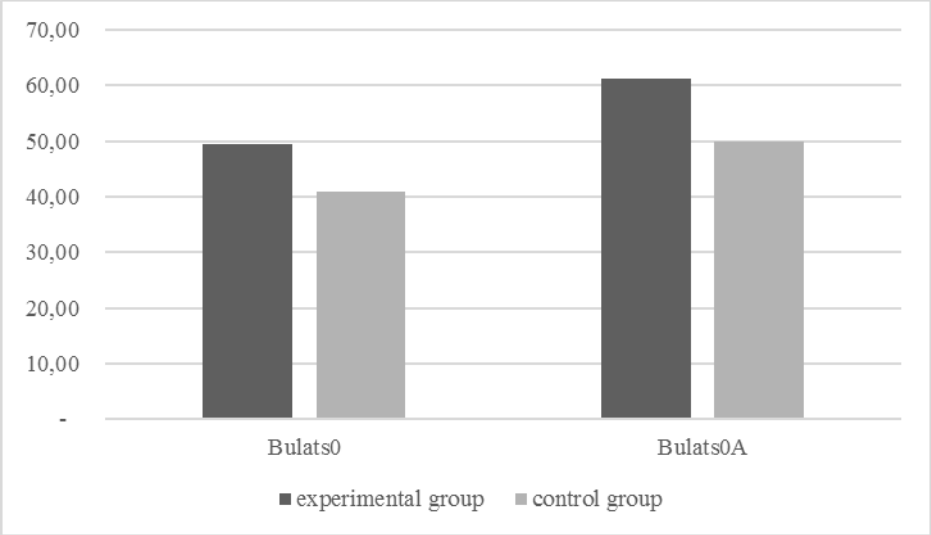

Fig. 5.5. Bulats tests results.

Table 5.9. The means and independent samples t-tests for the BULATS test (between groups).

	Independent samples t-tests						
pretest	experimental (N=115)		control (N=27)		t	p	Effect size (eta squared)
	Mean	SD	Mean	SD			
	49.42	18.36	40.85	17.58	2.20	.90	.03
posttest	experimental (N=102)		control (N=25)				
	Mean	SD	Mean	SD	2.81	.006*	.06
	62.38	20.97	49.80	15.27			

* $p<.05$

Table 5.10. The means and paired samples t-tests for the BULATS test.

group	Paired-samples t-tests					
	pretest		posttest		t	Effect size (eta squared)
	Mean	SD	Mean	SD		
experimental (N=102)	49.86	18.16	63.10	20.78	-8.18*	.40
control (N=25)	42.43	19.09	49.69	15.87	-3.72*	.38

* $p<.05$

As can be seen from Table 5.9., which presents the means and *t-test* values for the BULATS pretest and posttest, not only was the experimental group better than the control group in the very beginning (a difference of 8.57), but this initial advantage was maintained on the posttest (a difference of 12.58), with the caveat that only the second divergence turned out to be statistically significant ($p<.05$; the magnitudes were small and moderate, as indicated by the eta squared effect size values that were equal to .03 and .06, respectively). When it comes to the results of the analysis of the progress that the learners in both groups made over the course of the treatment and which are presented in Table 5.10., the mean value in the experimental group increased by 13.24 from the pretest to the posttest, whereas the mean score in the control group rose by 7.26 from the pretest to the posttest. It should be emphasized that in both cases the differences reached statistical significance and their magnitudes were quite large (the etas squared were much higher than .14 and were equal to .40 in the case of E-learners and .38 in the case of T-learners).

5.3.2. Speaking tasks

As can be seen from Table 5.11., which presents descriptive statistics calculated for *Speaking Tasks 1* and *2*, the total mean number of points among all participants (N=150) was M=20.28 (SD=2.77) on the *Sp1* and M=21.29 (SD=2.91) on the *Sp2,* with the standard deviation values indicating that all the scores were very close to the mean.

Table 5.11. Descriptive statistics for Speaking Tasks 1-2.

	Speaking Tasks 1-2											
	all participants (N=150)				experimental group (N=120)				control group (N=30)			
	min	max	Mean	SD	min	max	Mean	SD	min	max	Mean	SD
Sp1	15	27	20.28	2.77	16	27	20.33	2.56	15	26	20.06	3.52
Sp2	14	28	21.29	2.91	14	28	21.35	2.62	14	26	21.06	3.70

As regards the experimental group (N=120), the mean values were equal to M=20.33 (SD=2.56), with minimum and maximum values amounting to 16 and 27, respectively, for *Speaking Task 1*. The mean value was slightly higher on *Speaking Task 2*, reaching the value of M=21.35 (SD=2.62), with comparative values of the minimum equal to 14, and maximum equal to 28. When it comes to the control group (N=30), the mean values were as follows: M=20.06 (SD=3.52), min.15, max.=26 on *Speaking Task 1*, and M=21.06 (SD=3.70), min.=14, max.=26 on *Speaking Task 2*. As was the case with the *BULATS* test, independent samples, and paired samples *t-tests* were conducted for the *Speaking Tasks* in order to inspect whether statistically significant differences between- and within- groups existed.

Table 5.12. The means and independent samples t-tests for the Speaking Task (between groups).

	Independent samples t-tests						
pretest	Experimental (N=120)		Control (N=30)		t	p	Effect size (eta squared)
	Mean	SD	Mean	SD			
	20.33	2.56	20.06	3.52	.47	.63	.002
posttest	Experimental (N=120)		Control (N=30)				
	Mean	SD	Mean	SD	.48	.000*	.001
	21.35	2.62	21.06	3.70			

* $p<.05$

Table 5.13. The means and paired samples t-tests for the Speaking Task (within groups).

group	Paired-samples t-tests					
	pretest		posttest		t	Effect size (eta squared)
	Mean	SD	Mean	SD		
experimental (N=120)	20.33	2.56	21.35	2.62	-9.15*	.41
control (N=30)	20.06	3.52	21.06	3.70	-4.91*	.45

* $p<.05$

As illustrated in Tables 5.12. and 5.13., the patterns observed on the *BULATS* test were to a large extent mirrored on the *Speaking Task*, with the caveat that the differences between the experimental group and the control group were much smaller throughout the study. It should be noted that only the results of the independent samples *t-test* for the post-test proved to be significant ($p<.05$) and that the magnitudes were very small (etas squared ranged between .001 and .002). To be more precise, the mean score for the E-learners was mere 0.27 higher than for the T-learners on the pretest and the value was very similar on the posttest amounting to 0.29. The pattern for the improvement of the participants in the two groups was almost identical to that which could be observed on the *BULATS* test. The means in both the E-learners and T-learners increased from the pretest to the posttest by 1.02 and 1.0, respectively, with both of these gains being significant and of large effect magnitude (etas squared amounting to .41 and .45, respectively).

5.3.3. Writing tasks

As can be seen from Table 5.14., which includes descriptive statistics for *Writing Tasks 1* and *2* (pretest and posttest), the total mean score for all the participants (N=150) was equal to M=9.09 (SD=1.66), with the minimum and maximum values ranging from 5 and 12 respectively for *Writing Task 1*, whereas the mean value amounted to M=9.89 (SD=1.44) with the minimum value equal to 6 and maximum value equal to 13 for *Writing Task 2*. The standard deviation values, generally speaking, were not very high, which means that there was relatively little variation in the performance of the participants.

Table 5.14. Descriptive statistics for Writing Tasks 1-2.

	Writing Tasks 1-2											
	all participants (N=150)				experimental group (N=120)				control group (N=30)			
	min	max	Mean	SD	min	max	Mean	SD	min	max	Mean	SD
Wr1	5	12	9.09	1.66	5	12	9.20	1.56	5	12	8.63	1.93
Wr2	6	13	9.89	1.44	6	13	9.98	1.40	7	13	9.53	1.54

As far as the two groups are concerned (N=150), the mean value of the pretest for the experimental group was equal to M=9.20 (SD=1.56), with minimum and maximum values ranging from 5 to 12, while the values for the posttest were as follows: M=9.98 (SD=1.40), with minimum and maximum scores amounting to 6 and 13, respectively. In the control group, the mean scores of the writing tests were M=8.63 (SD=1.93) and M=9.53 (SD=1.54), respectively, with minimum and maximum scores amounting to min.=5, max.=12 for the pretest, and, min.=7, max.=13 for the posttest.

Table 5.15. The means and independent samples t-tests for the Writing Task (between groups).

	Independent samples t-tests						
pretest	Experimental (N=120)		Control (N=30)		t	p	Effect size (eta squared)
	Mean	SD	Mean	SD			
	9.20	1.56	8.63	1.93	1.71	.07	.01
posttest	Experimental (N=120)		Control (N=30)				
	Mean	SD	Mean	SD	1.53	.24	.01
	9.98	1.40	9.53	1.54			

* $p<.05$

Table 5.16. The means and paired samples t-tests for the Writing Task.

group	Paired-samples t-tests					
	pretest		posttest		t	Effect size (eta squared)
	Mean	SD	Mean	SD		
experimental (N=120)	9.20	1.56	9.98	1.40	-7.00*	.29
control (N=30)	8.63	1.93	9.53	1.54	-4.95*	.45

* $p<.05$

As can be seen form Tables 5.15. and 5.16., the situation on the *Writing Task* did not mirror that on the *BULATS* test and the *Speaking Task* because the differences between the two groups did not reach statistical significance in the course of the study. Even though the experimental group was superior to the control group at the very outset, the difference of 0.57 did not reach statistical significance and was of small magnitude (eta squared equal to .01). The divergence between the groups decreased marginally to 0.45 but again it did not reach statistical significance and was of small magnitude (eta squared equal to .01). At the same time, the learners in both groups did make headway after the treatment, with both

the differences between the pretest and posttest being significant and of large magnitude (etas squared were equal to .29 in the case of the experimental group and .45 in the control group).

5.4. Relationship between variables

As mentioned in Section 4.7. of Chapter 4, the relationship between variables was examined in two ways and the procedures were only applied to the experimental group. Firstly, correlation analysis was used in order to determine the extent to which there was a relationship between various factors, that is ID variables, beliefs about CALL, and proficiency tests outcomes. Secondly, regression analysis was employed with a view to identifying the relationship between dependent variables, which in the case of the current research were proficiency tests scores, and a number of independent variables, namely language learning strategies, learning styles, beliefs about Computer Assisted Language Learning, motivation, and foreign language aptitude.

5.4.1. The outcomes of the correlation analysis

Correlation analysis results obtained for the experimental group are shown in Tables 5.17. and 5.18. Table 5.17. shows that the correlations between the variables investigated in the study were small and medium, with some of them being positive and others negative. It is interesting to note that the correlations that were statistically significant (p<.05) ranged from .220 to .478. As presented in Table 5.17., the highest positive correlations were found between the *SILL* and the *CALL* (r=.478), between the *SILL* and the *MB* (r=.455) as well as between the *LSS* and the *MB* (r=.454), with the variables accounting for about 23%, 21%, and 21% of the variance in each other, respectively. These strongest correlations for the E-learners group are also represented graphically in Figures 5.6.–5.8.

Table 5.17. Correlations for all the variables in the experimental group.

		SILL	LSS	CAL	MB	TUN	Sp1	Sp2	Wr1	Wr2	B0	B0A
SILL	r											
	N	118										
LSS	r	.28*										
	N	114	116									
CAL	r	.48*	.10									
	N	118	116	120								
MB	r	.46*	.45*	.13								
	N	116	116	118	118							
TUN	r	.045	-.19	-.07	-.02							
	N	98	97	98	97	98						
Sp1	r	.16	-.03	.06	.09	.36*						
	N	118	116	120	118	98	120					
Sp2	r	.06	-.05	.00	.05	.36*	.89*					
	N	118	116	120	118	98	120	120				
Wr1	r	-.01	.17	-.01	.07	.17	.30*	.25*				
	N	118	116	120	118	98	120	120	120			
Wr2	r	.07	.13	.01	.14	.10	.32*	.27*	.67*			
	N	118	116	120	118	98	120	120	120	120		
B0	r	.28*	-.01	.24*	-.03	.32*	.48*	.45*	.12	.21*		
	N	114	111	115	113	95	115	115	115	115	115	
B0A	r	.235*	-.07	.29*	-.08	.22*	.24*	.23*	-.05	.06	.67*	
	N	100	98	102	100	86	102	102	102	102	99	102

*p<.05

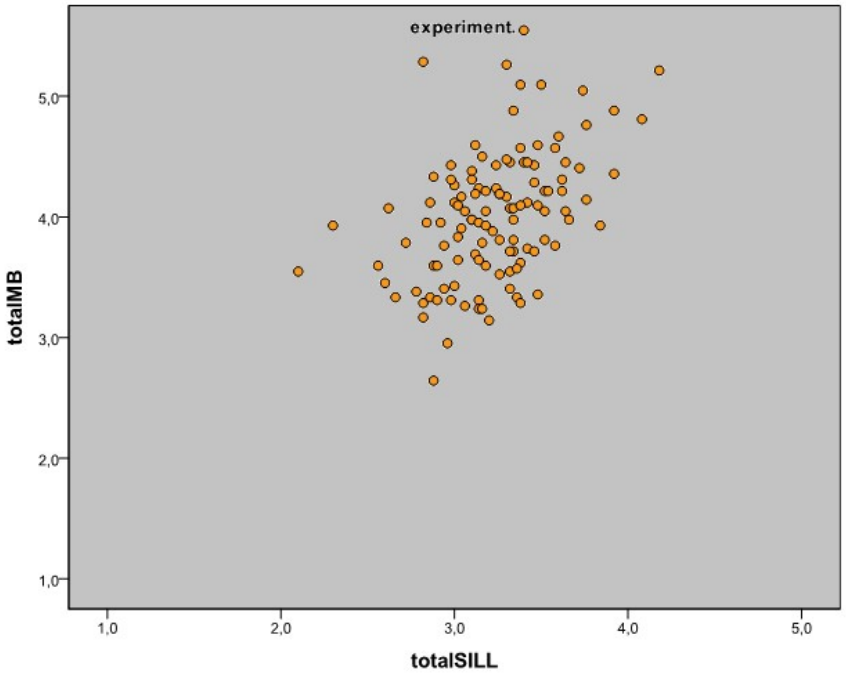

Fig. 5.6. A scatterplot presenting correlation between the SILL and the CALL in the experimental group.

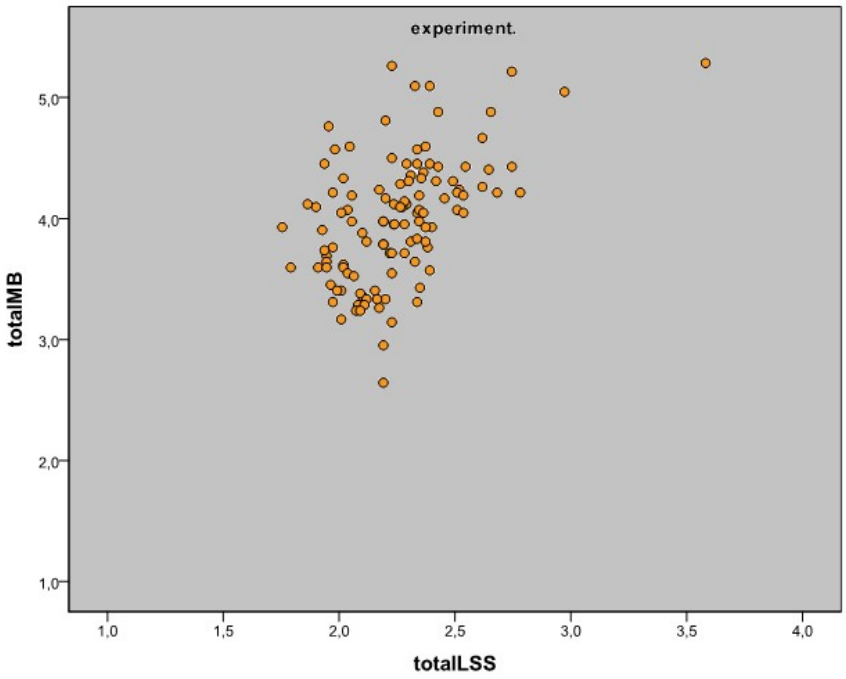

Fig. 5.7. A scatterplot presenting correlation between the MB and the LSS in the experimental group.

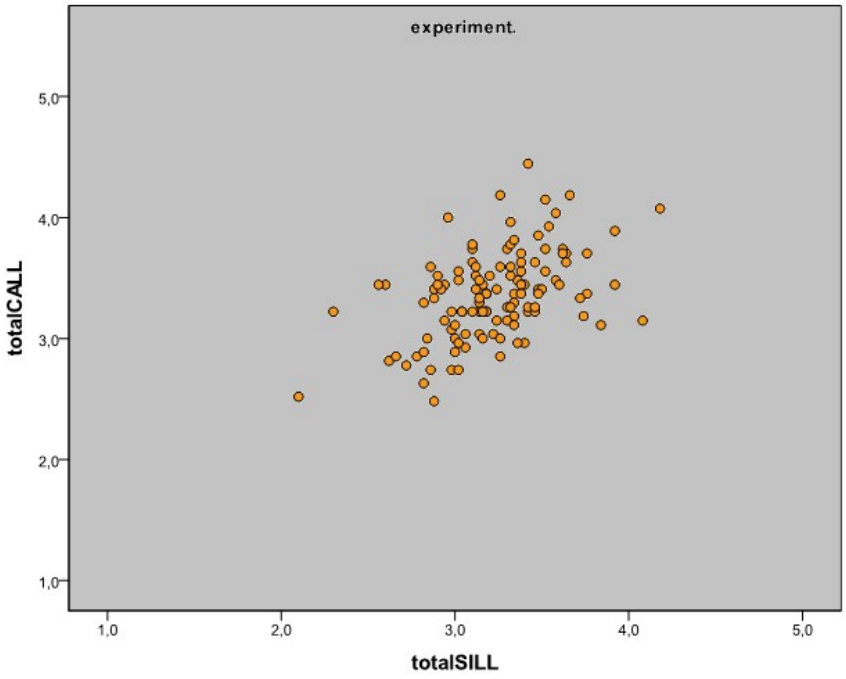

Fig. 5.8. A scatterplot presenting correlation between the SILL and the CALL in the experimental group.

When it comes to medium-length correlations between the variables, they were detected between the *TUNJO* and the *Sp1* (r=.364), between the *TUNJO* and the *Sp2* (r=.360) and between the *TUNJO* and the *Bulats0* (r=.316), with the variables accounting for about 13%, 13%, and 10% of the variance in each other, respectively. Apart from that, weak correlations were also observed between the following variables: the *CALL* and the *Bulats0A* (r=.287), the *SILL* and the *LSS* (r=.28), the *SILL* and the *Bulats0* (r=.279), the *CALL* and the *Bulats0* (r=.239), the *SILL* and the *Bulats0A* (r=.235), as well as the *TUNJO* and the *Bulats0A* (r=.220), with the variables accounting for about 8%, 8%, 8%, 6%, 5%, and 5% of the variance in each other, respectively. Generally speaking, the *SILL* and the *TUNJO* appeared to be the instruments which were positively correlated with most of the other variables. However, since correlations only indicate the relationship between different variables without determining causality, it can only be hypothesized that the participants who reported using a number of language learning strategies and the students whose level of foreign language aptitude is high, can obtain higher scores on achievement tests, with the caveat that the relationship could in fact be reciprocal.

Table 5.18. Correlations for particular SILL components in the experimental group.

strategies	B0 (N=114)	B0A (N=99)	Sp1 (N=118)	Sp2 (N=118)	Wr1 (N=118)	Wr2 (N=118)
memory	.09	-.01	.04	-.03	.06	.01
cognitive	.40*	.35*	.25*	.16	-.12	.08
compensation	.26*	.17	.11	.05	-.01	.04
metacognitive	.18	.23*	.07	-.04	.02	.06
affective	-.01	.04	.09	.07	.06	.03
social	.14	.16	.05	-.05	-.02	.03

*p<.05

Table 5.18. above presents the relationships between the reported use of the six different categories of language learning strategies and the achievement measures selected for the purpose of the study, namely the *Bulats0*, the *Bulats0A*, the *Sp1*, the *Sp2*, as well as the *Wr1* and the *Wr2* in the experimental group. It should be stated that the correlations between the variables investigated in the study were small and medium, with some of them being positive and others negative. It is interesting to note that statistically significant (p<.05) correlations ranged from .23 to .40. As presented in Table 5.18., the highest correlations were revealed between *cognitive strategies* and the *Bulats0* (r=.40) and between the same group of strategies and the *Bulats0A* (r=.35), with the variables accounting for about

16% and 12% of the variance in each other, respectively. Small correlations were detected between *compensation strategies* and the *Bulats0* (r=.26), between *cognitive strategies* and the *Sp1* (r=25), and between *metacognitive strategies* and the *Bulats0A* (r=.23), with the constructs accounting for about 1% of the variance in each case. What comes as a surprise is the fact that the relationship between the use of *memory strategies*, *affective strategies*, *social strategies*, and the achievement measures proved to be extremely weak and statistically insignificant, and in quite a few cases negative correlations were identified.

5.4.2. Multiple regression

The main objective of multiple regression analysis used in the present study was to predict the students' scores on proficiency tests on the basis of their scores on several predictor variables. Furthermore, multiple regression was also employed to determine which variable in a set of variables could be the best predictor of the outcomes on the proficiency tests. The analysis involved the data obtained by means of the following instruments: the *Beliefs about CALL Questionnaire* (CALL), the *Strategy Inventory for Language Learning* (SILL), the *Learning Style Survey* (LSS), the *Motivation Battery* (MB), and the *Foreign Language Aptitude Test* (TUNJO), which were independent variables. The dependent variables were the results of the data obtained from the *Bulats* tests as well as the *Speaking* and the *Writing Tasks*.

As discussed in section 4.7. of Chapter 4, preliminary analyses were conducted to ensure no violation of the assumptions, among which *normality*, *linearity*, *homoscedasticity* and *multicollinearity* were the most crucial ones. All the models tested for the purpose of the study included the *SILL* (learning strategies), the *LSS* (learning styles), the *CALL* (Computer Assisted Language Learning), the *MB* (motivation) and the *TUNJO* (foreign language learning ability) as predictor variables, which were entered into the equation simultaneously using the *Enter method*. Six analyses were performed, separately for the *Bulats0*, the *Bulats0A*, the *Sp1*, the *Sp2* as well as the *Wr1* and the *Wr2*. Only for the first five dependent variables (Bulats0, Bulats0A, Sp1, Sp2 and Wr1) did the model reach statistical significance ($p<.05$), which means that in the case of the sixth variable, namely the *Wr2*, the results should be treated with caution.

Table 5.19. A summary of multiple regression analysis for the Bulats0.

			ANOVA		Standardized coefficients		
	R Square	Adjusted R Square	F	Sig.			
	.238	.205	7.125	.000*[a]	Beta	t	Sig.
SILL					.142	1.283	.202
LSS					.088	.976	.331
CALL					.252	2.549	.012*
MB					-.144	-1.508	.134
TUNJO					.343	4.142	.000*

*p<.05
a. Predictors: TUNJO, MB, CALL, LSS, SILL

Table 5.20. A summary of multiple regression analysis for the Bulats0A.

			ANOVA		Standardized coefficients		
	R Square	Adjusted R Square	F	Sig.			
	.132	.089	3.093	.012*[a]	Beta	t	Sig.
SILL					.152	1.210	.229
LSS					.054	.520	.604
CALL					.179	1.621	.108
MB					-.127	-1.160	.249
TUNJO					.230	2.455	.016*

*p<.05
a. Predictors: TUNJO, SILL, LSS, MB, CALL

Table 5.21. A summary of multiple regression analysis for the Sp1.

			ANOVA		Standardized coefficients		
	R Square	Adjusted R Square	F	Sig.			
	.151	.115	4.236	.001*[a]	Beta	t	Sig.
SILL					.110	.961	.339
LSS					.006	.066	.947
CALL					.101	.996	.321
MB					-.041	-.408	.684
TUNJO					.349	4.075	.000*

*p<.05
a. Predictors: TUNJO, MB, CALL, LSS, SILL

Table 5.22. A summary of multiple regression analysis for the Sp2.

			ANOVA		Standardized coefficients		
	R Square	Adjusted R Square	F	Sig.			
	.142	.105	3.924	.002*[a]	Beta	t	Sig.
SILL					-.027	-.231	.818
LSS					.019	.202	.841
CALL					.153	1.509	.134
MB					-.003	-.029	.977
TUNJO					.360	4.177	.000*

*p<.05
a. Predictors: TUNJO, MB, CALL, LSS, SILL

Table 5.23. A summary of multiple regression analysis for the Wr1.

			ANOVA		Standardized coefficients		
	R Square	Adjusted R Square	F	Sig.			
	.098	.060	2.575	.030*[a]	Beta	t	Sig.
SILL					-.039	-.329	.742
LSS					.229	2.374	.019*
CALL					.037	.352	.725
MB					-.001	-.009	.993
TUNJO					.247	2.791	.006*

*p<.05
a. Predictors: TUNJO, MB, CALL, LSS, SILL

Table 5.24. A summary of multiple regression analysis for the Wr2.

			ANOVA		Standardized coefficients		
	R Square	Adjusted R Square	F	Sig.			
	.080	.041	2.067	.074[a]	Beta	t	Sig.
SILL					.013	.108	.914
LSS					.199	2.043	.043*
CALL					.063	.604	.547
MB					.026	.250	.803
TUNJO					.178	1.994	.048*

*p<.05
a. Predictors: TUNJO, MB, CALL, LSS, SILL

As can be seen from Tables 5.19.–5.24., which present the results of multiple regression analyses, the *Adjusted R Square* (Adjusted R^2) values indicate that the tested model accounts for 20.5% of the variance in the *Bulats0* (F=7.125, p=.000, Adjusted R^2=.205), 8.9% in the *Bulats0A* (F=3.093, p=.012, Adjusted R^2=.089), 11.5% in the *Sp1* (F=4.236,

p=.001, Adjusted R^2=.115), 10.5% in the *Sp2* (F=3.924, p=.002, Adjusted R^2=.105), and 6% in the *Wr1* (F=2.575, p=.030, Adjusted R^2=.060). It is interesting to note that the only one variable that appears in all models is the *TUNJO*. Standardized Beta Coefficients (β) confirm that the *TUNJO* constituted a significant predictor of the *Bulats0* (β=.343), the *Bulats0A* (β=.230), the *Sp1* (β=.349), the *Sp2* (β=.360) and of the *Wr1* (β=.247). It should be emphasized that in all the theme cases, the significance level was determined as $p<.05$. The other variables that turned out to be significant predictors of attainment, as measured by the tests included in the present study, were the *CALL* and the *LSS*. Standardized Beta Coefficients confirm that the CALL constitutes a significant predictor of the *Bulats0* (β=.252) and the *LSS* constitutes a significant predictor of the *Wr1* (β=.229) where $p<.05$. It is worth mentioning that each of the predictors was positively related to the dependent variable.

5.5. Discussion

The discussion included in this section refers to the research questions presented in Section 4.2. of Chapter 4, with the caveat that the results of statistical analyses and qualitative research are accompanied by other research findings. It should also be kept in mind that, as elucidated in Chapter 4, only the fourth research question was related to both groups, i.e. E-learners and T-learners. The remaining part of the upcoming discussion, however, is devoted exclusively to the experimental group. On the whole, it should be stated that the picture that emerges from the findings reported in sections 5.1.–5.4. of the current chapter is exceedingly complex and in some cases relatively difficult to interpret. Furthermore, although the data collected for the purpose of this research project did not always yield the kind of insights into the issues under investigation the current author would have hoped for, they were still sufficient to provide responses to the aforementioned research questions, some of which were more definitive than others.

As regards the first research question concerning the learners' beliefs about Computer Assisted Language Learning, the present researcher used two types of instruments to address this issue, that is questionnaires, and semi-structured interviews, which enabled her to collect both quantitative and qualitative data in order to ensure a multifaceted perspective on the issues under investigation. The analysis of the responses to the CALL questionnaire demonstrated that the learners manifested quite favourable attitudes towards learning Eng-

lish aided by the computer. Most of the students stated that learning English was easier and more appealing using the computer. They were of the opinion that this learning tool enabled them to gain access to information and helped them to extend foreign language vocabulary knowledge. The participants also expressed a strong preference for online or electronic dictionaries as well as websites in English in order to learn this foreign language. The most frequent situations in which they used the computer for FL learning purposes were: watching films, sitcoms, reading instructional materials and technical articles, using computer programmes, playing computer games, listening to music, using e-books, singing songs in English, looking for useful information, or even writing songs texts in English. Such results should not be surprising, given the fact that they were students of one of the most prestigious technical universities in Poland who had abundant access to latest technologies.

As for the data gathered by means of the interviews, after a careful examination of the participants' responses several conclusions can be drawn. Firstly, the results of the CALL questionnaire were by and large confirmed due to the fact that the interviewees displayed positive opinions about CALL in general and *blended learning* in particular. Secondly, the aspects of BL that the subjects appreciated the most were: the opportunity to save the time, comfort of learning at the time and place that suits them and allows flexibility as well as the ability to manage time in a more effective way, having access to novel methods of learning, materials, online dictionaries or translators. The E-learners also stated that in the online course they could see more rapid improvement and more visible progress and they could focus their attention only on themselves, not on other students in the group. Some learners reported being motivated by the course to learn English and claimed that especially the online component provided them with a 'dose of curiosity' of what would happen during their next class. Other advantages of the course that were mentioned by the subjects were clear instructions and the assistance of the teachers who conducted the blended learning classes. The students also stated that their classmates' opinions about the English classes aided by the computer were positive. When asked about the particular skills they developed during the classes, the learners agreed that in the classroom they had more opportunities to speak. During the online classes they developed their reading comprehension skills to a greater extent, which is in line with the results of the CALL questionnaire, in which the students stated that CALL did not help them to develop their speaking skills. It should be emphasized that most of the participants did not appreciate the online speaking

tasks, especially at the beginning of the semester since, for them, performing them was too innovative, stressful or problematic and they felt inhibited, worried, reluctant and embarrassed. There were, however, some learners for whom this type of task was thrilling, which means that they felt excited when they were asked to do entirely new tasks. When it comes to the disadvantages of the blended learning course, the greatest drawback specified by the subjects was technology dependence and some technical problems that occurred on several occasions. There was also one student who stated that he became bored, disappointed or even infuriated at the end of the semester because of monotonous types of tasks used in the online part of the course. All in all, the subjects expressed a highly positive opinion about the blended learning classes, often praising the teachers for their ability to focus exactly on their needs and involve them in the online and face-to-face activities.

One possible interpretation of such findings which immediately comes to mind when we are confronted with the E-learners' statements reported above is that there are grounds for optimism since not only did the respondents report having positive beliefs about computer-aided FL learning but they also appeared to be aware of the need to learn in a variety of different ways. In fact, such a conclusion would not be overly surprising in light of the fact that we are dealing here with ESP learners who have considerable experience in having access to new technologies. On the other hand, the findings have to be viewed through the prism of the subjects' responses to the interviews concerning their feelings about blended learning presented in detail in Section 5.2. of this chapter. Even though a possibility that the combination of online and FtF lessons was so engaging cannot be ruled out, a more plausible explanation of such findings is that at least some of the respondents were trying to please the course instructor with their answers rather than provide an accurate assessment of the blended learning course realities. However, it should be noted that, generally speaking, the results of the interviews turned out to coincide with the researcher's four-month observations, with the caveat that there were some aspects of the blended learning course which surprised the researcher, one example being a situation when one student mentioned that the overall design of the online course was very important for him as colours are helpful in foreign language learning.

The findings reported above add to a growing body of literature on how learners perceive foreign language learning aided by new technologies. The finding that most of the students manifested positive attitudes towards using computers in learning English as a L2 is in line with the results of other research projects, such as those conducted by e.g. Liu

(2013), Warschauer (1996b), Akbulut (2008), Sagarra and Zapata (2008), Wu (2013), Felix (2004), and at the same time it stands in contrast to others, for example, this undertaken by Stracke (2007b). Furthermore, given the nature of the programme and the type of university, it should not come as a surprise that most of the respondents recognized the importance of the teacher as one of the leading figures in the FL course, which is consistent with the findings of Okan and Torun (2007). It can be speculated that the participants of the current study were overwhelmingly in favour of teacher presence in the classroom because of the fact that he/she can create classroom environment that is more conducive to FL learning and meets the learners' academic needs.

Much more difficult to address is the second research question dealing with the relationship between the E-learners' beliefs about CALL, selected individual variables (i.e. language learning strategies, learning styles, foreign language aptitude, and motivation) and FL attainment on the three pre- and post-tests, for the simple reason that some of the observed correlations were negligible and did not reach statistical significance. In the first place, it was found that the students' beliefs about CALL were related to their language learning strategy use, a finding that can be accounted for by the fact that both variables refer to FL learners' autonomy development or 'taking charge' of their own learning process. Therefore, it is not surprising that there exists some kind of interrelationship between these two factors. When it comes to the other individual factors, no statistically significant correlations were detected between CALL and learning styles, which at the same time corroborates the findings of Felix (2004), and which stands in contrast to previous research findings, e.g. Chapelle and Heift (2009). Additionally, no meaningful correlations were found between the E-learners' beliefs about CALL and motivation, which is puzzling taking into account the interviewees' accounts and previous research findings such as those reported by Warschauer (1996b), who holds that CALL should be integrated into the FL learning process in order to enhance motivation. In fact, not only do the results indicate that the E-learners' beliefs about CALL did not relate to the above-mentioned IDs, but also that there was an inverse relationship between CALL and foreign language aptitude test scores. Although the latter correlation did not reach statistical significance and it was extremely weak, such a result is disconcerting due to the fact that it indicates that more frequent use of CALL is likely to be accompanied by lower level of FL aptitude. However, this finding cannot be compared with other empirical evidence as, to the best knowledge of the present researcher, such studies have not been conducted to date.

As regards the relationship between the E-learners' beliefs about CALL and FL attainment, the results can be regarded as more promising as small, positive and statistically significant correlations were found between the *CALL* variable and *Bulats* tests scores, with the caveat that the direction of the impact cannot be assumed on the basis of correlation analysis. When it comes to the plausible relationship between the participants' beliefs about CALL and the other measures of attainment, i.e. *Speaking* and *Writing Tasks*, only extremely small correlations were detected, one of which was negative (i.e. the *CALL* and *Writing Task 1*) but all of which failed to reach statistical significance. At first blush, these research findings might be viewed as inexplicable since, also in line with the results of previous research on the relationship between beliefs about CALL and oral proficiency (e.g. Blake et at. 2008) or writing outcomes (e.g. Sullivan and Pratt 1996; Jafarian et al. 2012), it could be assumed that students' preferences should have a bearing on their ultimate level of attainment. In fact, such an assumption might be overly simplistic given that different types of instruction, e.g. *face-to-face*, *online* or *blended learning* may be viewed as equally beneficial in various situations by the very same participants, which makes it extremely difficult to pinpoint a direct link with FL achievement.

As far as research question three is concerned, its main focus was to explore the relationship among a set of cognitive (i.e. aptitude, language learning strategies and learning styles) and affective (i.e. motivation) learner variables as well as the link between these IDs and FL attainment in the experimental group. It should be noted at this point that this research question is the most complicated, problematic and complex of all the five research questions posed in the current thesis, simultaneously being extremely interesting and challenging. As has already been stated in Chapter 3, the relationship between the aforementioned individual learner factors has been poorly investigated in the CALL environment and, therefore, hypothesizing about the relationship among one another as well as the link between them and FL attainment can only be tentative. It should be stated, however, that the results obtained in the course of the current study can be regarded as promising because a number of interesting correlations were found, with the caveat that some of them were positive and some were negative, only several of which were statistically significant. As regards the relationship among the distinct IDs represented by the E-learners, the strongest correlation was established between motivation and the use of language learning strategies, which is in line with previous research in this area such as that conducted by Chang (2005, 2007). Another interesting relationship was revealed between language learning strategies

and learning styles, which accords with Felix's (2001) research findings. The results of the current study also show that there appears to exist a link between motivation and learning styles preferences, a finding, however, that is not supported by empirical evidence from other studies. On the basis of these results, it could be argued that those E-learners who are motivated to learn a FL, use a wide range of language learning strategies and, perhaps, the relationship is reciprocal as being a more active language learner translates into greater motivation. In addition to this, it seems that students with different learning styles preferences may be motivated to learn a FL and use a wide range of learning strategies. However, a real conundrum is a lack of a meaningful relationship between the set of IDs and foreign language aptitude as well as the fact that in most cases the correlations were negative. Perhaps, the most surprising outcome of the study is the negative correlation between foreign language aptitude and motivation, which could mean that the more gifted a learner is, the less motivated he or she becomes, a result that appears to be extremely difficult to interpret or even inexplicable.

Moving on to the relationship between the different individual learner factors and FL achievement in the experimental group, it was determined that there is a relationship between the use of language learning strategies and two measures of FL attainment, i.e. *Bulats0* and *Bulats0A*. In fact, this research outcome is not very surprising taking into consideration other researchers' findings which revealed that there exists a link between the use of language learning strategies and FL proficiency in the CALL environment, e.g. Blake et al. (2008), Sullivan and Pratt (1996), Jafarian et al. (2012), Naba'h et al. (2009), Payne and Whitney (2002) or, the most recently, Ghonsooly and Seyyedrezaie (2014). Moreover, four positive statistically significant correlations were found between foreign language aptitude established by means of the *TUNJO* and four measures of FL attainment, i.e. *Speaking Task 1*, *Speaking Task 2* as well as *Bulats0* and *Bulats0A*, which is in line with Payne and Whitney's (2002) research outcomes. In fact, the real concern is a lack of statistically significant correlations between the remaining IDs, such as, for example, learning styles and motivation. At first blush, these results may be viewed as exceedingly difficult to explain since, also on the basis of previous research on learning styles (e.g. Wu 2011; Akbulut 2007) and motivation (e.g. Ushida 2005), it could be speculated that students' learning style preferences and the level of motivation should have an impact on their performance and ultimate level of attainment. Such a conjecture, however, may be overly simplistic because of at least two reasons. First of all, while the assumption about the value

of the aforementioned two IDs could indeed be related to FL achievement, such relationships may not be the case for the CALL environment instruction, and *blended learning* in particular, since different types of instruction may be viewed as useful for some students, whereas it might not be the case for others. Therefore, it may be difficult to pinpoint a direct link with FL achievement. At the same time, the culprit for the lack of statistically significant relationships could be a considerable degree of individual variation among the E-learners, which is predictable in the case of students representing mixed FL proficiency levels. This is in line with the principles of the *Chaos*/*Complexity Theory* (Larsen-Freeman 2013: 5), according to which "(…) individual difference factors, such as motivation, do not function as a state but rather a dynamic process, characterized by motivational ebbs and flows", with the effect that any change in a complex system is non-linear. It is also congruent with recent conceptualizations of motivation as a factor that is perceived as operating under the influence of numerous other variables (Dörnyei 2005a), for example anxiety in the CALL environment (Ushida 2005).

As mentioned earlier, the second part of the third research question concerned the relationship between the use of different categories of language learning strategies and the three achievement measures, namely *Bulats tests 1-2*, *Speaking Tasks 1-2* as well as *Writing Tasks 1-2* in the experimental group. What comes as a surprise, taking into account the findings of previous research and the confident claims of experts quoted in Section 3.2. of Chapter 3, e.g. Ganjooei and Rahimi (2008) or Chang (2007), the relationship between the use of the six categories of learning strategies and FL attainment proved to be extremely weak and mostly statistically insignificant, with the caveat that in many cases negative correlations were identified, in particular for *Speaking Task 2* and *Writing Task 1*. In the first place, the strongest positive relationship was found between the use of *cognitive strategies* and both *Bulats* tests, *compensation strategies* and *Bulats test 1*, *metacognitive strategies* and *Bulats test 2* as well as between the application of *cognitive strategies* and the outcomes of *Speaking Task 1*. It should be kept in mind that no meaningful correlations were identified between the use of the six categories of language learning strategies and *Speaking Task 2*, *Writing Task 1* as well as *Writing Task 2*. A pertinent question to ask at this point is not only why the investigation failed to reveal stronger relationships between the use of the types of language learning strategies and FL attainment but also why so many negative, albeit weak, correlations were detected. One possible explanation for the predominance of weak relationships and the occurrence of a considerable number of negative cor-

relations is that the aforementioned data collection instruments, i.e. *Speaking Task 2*, *Writing Task 1* as well as *Writing Task 2* might not be fully adequate measurement tools to provide valid information concerning the measurement of FL attainment. Therefore, having this in mind, in future studies of this kind, it might be advisable to seek a relationship between the use of language learning strategies and the scores of different subcomponents of these achievement measures with a view to detecting more meaningful relationships.

The fourth research question addressed the issue of the difference in the impact of the two types of instruction, i.e. traditional learning and blended learning on attainment in English. It should be stated that this necessarily involved the comparison of the performance of the two groups of learners, i.e. T-learners who, as mentioned earlier, attended classes of English only in the EFL classroom, whereas the E-learners who formed the experimental group followed the same course syllabus but the students had 30% of the classes conducted online. As regards the differences between the respondents in the two groups, it was found that not only did the E-learners represent a higher level of FL proficiency measured by the *Bulats* test and the *Speaking Task* at the outset but also this initial advantage was maintained on the posttest, with the qualification that the differences were much smaller for the *Speaking Task* and in both cases the pretest difference was not statistically significant and of small magnitude. Attention should also be given to the difference between the two groups on the *Writing Task*, which did not reach statistical significance in the course of the study and was of small magnitude, although the experimental group was superior to the control group. As regards the analysis of the paired-samples *t-tests*, both E-learners and T-learners did make progress on all of the attainment measures, and the differences between the pretests and posttests were significant and of large magnitude. On the basis of the research findings discussed in detail in Section 5.3. of the present chapter, it could be argued that, contrary to the initial expectations of the current researcher, no considerable differences were detected between the E-learners and T-learners in several respects. First of all, taking into account the attainment results, it was proved that different types of instruction have the potential to be equally effective in learning a FL, which is in accordance with the results of some studies (Blake et al. 2008; Beauvois 1995) and in opposition to the findings reported by Ghonsooly and Seyyedrezaie (2014), according to which face-to-face learning is more effective than learning aided by the computer. Thus, the face-to-face environment, as suggested by its supporters, appears to be less convoluted and more familiar to average computer users. By contrast, there are research findings, according to which CALL instruc-

tion proved to be more effective than traditional learning (Sullivan and Pratt 1996; Jafarian et al. 2012; Naba'h et al. 2009; Payne and Whitney 2002). Secondly, although it was not the main focus of this research question, the findings of the current research show that the samples, i.e. the experimental group and the control group did not differ in respect of language learning strategies use, and both of them were instrumentally motivated, which is in line with other experts' findings, for example those reported by Ganjooei and Rahimi (2008), and Akbulut (2008), respectively.

Finally, as regards the last research question, the main aim of which was to explore which of the learner variables in question, that is language learning strategies, learning styles, foreign language aptitude, motivation, and students' beliefs about CALL is the most powerful predictor of FL attainment operationalized by the six measures of achievement in the CALL environment. First of all, as discussed in Section 5.4. of the present chapter, foreign language aptitude constituted the most powerful predictor of FL attainment and this refers to such measures as the *Bulats0*, the *Bulats0A*, *Speaking Task 1*, *Speaking Task 2* as well as *Writing Task 2*. Moreover, the E-learners' beliefs about CALL turn out to be a quite good predictor of *Bulats0* while learning styles positively affected *Writing Task 1* and *Writing Task 2*, with the caveat that the second model did not reach statistical significance. Although the findings of the study are tentative and should be treated with circumspection because of the fact that this research project is, to the best knowledge of the current researcher, the first of its kind in the Polish educational context, it still provides interesting insights. Certainly, the most crucial finding is that foreign language aptitude appears to be most promising factor to be explored.

While the main strength of the study lies in that it explored a number of individual learner variables, used several diversified measurement tools, and employed a great number of participants at distinct levels of FL proficiency, it suffers from a few weaknesses that merit brief consideration at this point. In the first place, some of the measurement tools used to collect quantitative data, such as *Speaking* and *Writing Tasks*, are clearly in need of further development and refinement, both in terms of criteria according to which they should be assessed and the wording of the items, a task that may necessitate performing factor analysis. However, it was obvious from the very beginning that these instruments were far from perfect on several accounts such as their length when compared with the other achievement measures, i.e. the *Bulats* tests. Another shortcoming of the study is connected with the fact that the reported use of language learning strategies, learning styles prefer-

ences or the participants' beliefs about CALL may sometimes be a far cry from their actual use, preferences or beliefs. It might be possible that the choice of the statements reflected wishful thinking of the respondents rather than the real situation. It could be argued that the assessment of students' strategy use, learning styles preferences or their beliefs about CALL could be determined through the analysis of the recordings and transcripts of the interactions in which the learners engage. However, taking into account the complexity of the variables in question, this would certainly have required more time and effort. What is more, it appears that some of the questionnaires' items, for example statement 41 and 43, in particular, of the *SILL* which are "I give myself a reward or treat when I do well in English" and "I write down my feelings in a language learning diary", respectively, should be replaced, reformulated or even deleted as they caused considerable confusion among the respondents.

Furthermore, it should be borne in mind that there was a considerable disparity in the size of the groups who were taught by several different teachers. It can be speculated that the inclusion of a more homogenous sample and only one instructor could have enhanced the validity of the study, although it should be made clear that diversified approaches are adopted by different experts and reliance on the research design employed in the current study is certainly a viable option. Additionally, it should be emphasized that, being students learning English for Specific Purposes and having the benefit of regular access to recent technologies, the respondents represented a quite distinctive group of FL learners, which means that the results of the study are very unlikely to be generalized to other samples for whom computer-aided language learning is hardly a priority. Finally, monotony and boredom of the tasks in the online component used in the current study about which some of the E-learners complained, might be a sign for the present researcher that there is a need to improve and develop the software used in the current research project and diversify the types of exercises. This problem could be overcome by incorporating more interactive tasks that make use of social networks, games or mobile technology, and which, could thus be more appealing for the new generation of *digital natives*.

Conclusion

The main aim of the present chapter has been to present the results of the study exploring the effectiveness of the blended learning instruction as well as to examine the role of individual learner differences in learning English as a foreign language. Sections 5.1.–5.5. provided a quantitative-qualitative account of the two groups of participants, i.e. T-learners and E-learners, which was followed by a discussion as well as a description of limitations of the research project. The study was motivated by the present researcher's interest in individual differences among students as well as the observed discrepancy between the level of learners' FL attainment with respect to face-to-face and computer-aided learning. The question concerning the manner in which students should be taught in a more effective way, that is blended or the so-called traditional instruction, has not only generated considerable interest among theorists and researchers but it can also be perceived as having the greatest relevance to everyday teaching practice taking into account the ubiquity of computing. As the foregoing discussion has demonstrated, the selection of the mode of learning and teaching does not take place in a vacuum but it is influenced by a number of variables enumerated, classified, and described in Chapter 1. Obviously, the choice is also intricately interwoven with other issues, such as those discussed by the present researcher elsewhere (Olejarczuk 2014a).

In fact, the picture that emerges from the discussion presented in Section 5.5. of the current chapter is extremely complex and far from clear on account of the fact that although several generalizations and recommendations are certainly warranted, methodological difficulties abound and a number of crucial questions are still left unanswered, with the effect that there is a vital need for more meticulously designed research projects. One of the most crucial areas that are in need of empirical investigation is, for example, the intricate interplay between the different categories of language learning strategies, FL attainment and students' beliefs about CALL. Major improvements also have to be made with respect to research methodology, which is connected with using reliable measurement tools, the choice of appropriate treatments or endeavors to combine the quantitative and qualitative data collection procedures. It should be emphasized that the directions for further research proposed above are only tentative. An attempt to examine and discuss the conclusions, implications stemming from the research findings provided in this chapter as well as future directions will be made in the final part of the present thesis.

Conclusion

Although there have been numerous studies on the role of individual differences in learning and teaching a foreign language, only a handful of them have addressed this issue in the CALL environment. The empirical investigation reported in the present thesis has sought to remedy this situation by adopting a combination of quantitative and qualitative research paradigms. Obviously, the current study represents merely the first step in this direction as it is one of the initial ones to investigate this problem. The main aim of this dissertation has been to explore the relationship between a range of learners' cognitive and affective factors and FL attainment in a blended learning environment. More specifically, grounded in psychological and SLA theories and utilizing data triangulation, the research project reported in this thesis sought to examine such individual learners factors as language learning strategies, learning styles, foreign language aptitude, and motivation, and their impact on FL learning. Additionally, it aimed to explore the effectiveness of two types of FL instruction, i.e. blended learning and traditional learning. Finally, it looked at learners' beliefs about Computer Assisted Language Learning and their relationship with FL achievement.

In accordance with these objectives, the preliminary theoretical considerations included in Chapter 1 provided insight into basic terminology and the most crucial concepts and issues connected with individual differences in learning of a L2, focusing in particular on the learner factors that were the main theme of the current study. Chapter 2 was dedicated to resolving the terminological confusion surrounding the notion of Computer Assisted Language Learning by presenting its possible definitions. Then, the focus was shifted to discussing the different CALL environments and applications as well as presenting the main research directions into computer-aided instruction and FL outcomes. Chapter 3, in turn, was intended to discuss the importance of individual learner factors in contemporary

CALL, as well as to provide an overview of empirical research and the main findings in this area. In view of the scarcity of research tapping into the relationship between cognitive and affective variables and FL achievement in the CALL environment, it was decided to pay particular attention to such IDs as language learning strategies, learning styles, foreign language aptitude, and motivation, as they were the main focus of the present study. It should be noted that Chapter 3 served as an introduction to the two empirical chapters that provided an account of the outcomes of the research project described in the current dissertation together with the discussion and interpretation of the results. The key findings of the study are summarized below, with the emphasis being placed on the contributions that this research project makes to the field.

The most important finding of this research project is that, as proved by numerous researchers (e.g. Blake et al. 2008; Sullivan and Pratt 1996; Jafarian et al. 2012; Naba'h et al. 2009; Payne and Whitney 2002; Payne and Ross 2005), some cognitive characteristics of the individual are related to FL learning aided by the computer. In particular, the empirical evidence indicates that, in the case of technical university students who learn English for Specific Purposes, attainment is influenced by cognitive factors, such as language learning strategies, in particular cognitive, compensation, and metacognitive strategies, and foreign language aptitude. In contrast, the analysis demonstrated that such factors as learning styles preferences and motivation played no major role in FL gains. Additionally, as multiple regression analysis revealed, foreign language aptitude was the most powerful predictor of FL success in the CALL environment in comparison with the other cognitive and affective variables examined in the study, with the caveat that learning styles can also explain some variance when it comes to writing skills. Another finding of this empirical investigation is that there is an interplay between some individual learner factors in a blended learning environment. To be more precise, motivation appears to be related to both language learning strategies and learning styles preferences, whereas, as earlier evidenced by Felix's (2001) study, language learning strategies are linked with learning styles. On the other hand, no statistically significant relationships were determined between such ID variables as, for example, foreign language aptitude and learning styles or motivation. As discussed earlier, such a phenomenon could be accounted for in terms of the assumptions of the *Chaos/Complexity Theory* (Larsen-Freeman 2013: 1), referring to dynamic systems which:

> (…) are sensitive to initial conditions, a characteristic popularly referred to as the *butterfly effect*, whereby even the flapping of a single butterfly's wing in one part of the world can have an effect on a weather system in another. It is the sensitivity to initial conditions that makes complex systems *chaotic*—they can change in unpredictable ways.

Yet another crucial finding of the current research project is that, as postulated by some experts (e.g. Blake et al. 2008; Beauvois 1995) and, contrary to the expectations of the present researcher, no major differences were observed in the effectiveness of the two types of instruction, i.e. face-to-face and blended learning. More specifically, both groups, i.e. the experimental group and the control group performed comparably on the achievement measures. Thus, the fact that the E-learners manifested slightly higher gains on the attainment tests probably cannot be attributed to the experimental manipulation and, therefore, it can be concluded that both types of instruction can be equally effective. Finally, as regards the E-learners' beliefs about CALL, the study revealed that the respondents were positively inclined towards computer-aided foreign language learning, which is in line with the findings of previous research projects (e.g. Liu 2013; Warschauer 1996b; Akbulut 2008; Sagarra and Zapata 2008; Wu 2013; Felix 2004). Moreover, as the outcomes of the current study suggest, the positive beliefs about CALL appear to be related to FL attainment as well as the use of language learning strategies. In addition to this, the E-learners' beliefs about CALL constitute a powerful predictor of FL achievement scores, which was confirmed by the regression analysis.

Last but not least, it is also worth mentioning that the data gathered by means of the interviews showed that the E-learners were keen on learning by means of ubiquitous computing, experimenting with new ways of learning, as well as applying recent technologies to adopt their own learning styles. It is not surprising in view of the fact that computer technology is omnipresent nowadays. However, it may not be particularly good news for teachers who are still reluctant to use modern technologies in their teaching practice as they will sooner or later be confronted with the need to incorporate ICT into their daily practices. On the other hand, what may be comforting is the E-learners' unanimous opinion that, in their view, the teacher is still an indispensable figure in the FL learning process. This may supposedly stem from the fact that one of the most important aspects of FL learning is socializing and a combination of verbal and non-verbal communication, which needs to involve the *human factor*. Furthermore, it is evident that the existing technologies available for average teachers are not developed enough to allow communication that would be high-

ly interactive; therefore, it appears that teachers are not very likely to be replaced by the computer in the near future.

This dissertation would surely be incomplete, were it not to offer certain implications for FL instructors wishing to enhance their teaching practice as well as researchers striving to establish the relationship between various IDs in the process of FL learning aided by the computer. However, this is a task that poses a formidable challenge in view of the fact that decisions made in this respect are exceedingly complex and often depend on external factors that are beyond the teachers and researchers' control. As regards FL teachers, the results of the current study offer useful insights into the issue as to how cognitive and affective learner variables influence FL achievement. The findings of the study might provide a basis for a critical evaluation of foreign language curricula, helping to formulate teaching objectives and to select the most suitable teaching methods, in particular taking into consideration the widespread access to computers and the Internet. Generally speaking, it should be reiterated at this point that teachers need to be aware of the fact that the pedagogic intervention they devise should be part of a broader instructional agenda rather than a one-shot undertaking. In addition to this, it appears obvious that learners should be equipped with skills and knowledge necessary to select the most appropriate ways of learning for them. What is more, EFL teachers should incorporate recent technologies into their instructional practices in order to create a FL learning environment that would enhance the chances of satisfying their learners' individual needs and facilitate autonomous learning. Moreover, learners should also be encouraged to develop a greater range of strategies and to use a foreign language outside the classroom. They should, in short, be instructed to think about the processes underlying their own learning, and to see that, ultimately, they are responsible for their own learning process themselves. Last but not least, the findings of this research project indicate the need for teachers and instructors to update their knowledge of the degree to which their students differ in terms of language learning strategies or learning styles preferences. Teachers should inspect their own classroom practices to identify their learning styles preferences and the strategies that they themselves favour, which may contribute to a greater understanding of the students' needs and, as a consequence, enhance their FL learning outcomes.

As regards FL researchers, the findings of the present research project make an important contribution to scholarship on the relationship between learners' cognitive and affective characteristics and the level of FL attainment in a blended learning environment and

to the still scant body of research in this area for several reasons. Firstly, this study has specified a range of IDs, such as language learning strategies, learning styles, foreign language aptitude, and motivation, that play a crucial role in successful FL learning. Secondly, it has presented students' beliefs about Computer Assisted Language Learning in the form of quantitative and qualitative data. Thirdly, it has yielded valuable insights into the effectiveness of computer-aided instruction among ESP technical university learners.

The results of the study unambiguously demonstrate that there is an urgent need for more meticulously designed research as numerous important questions are still left unanswered in the area of individual learner variables, the effectiveness of CALL instruction, and FL achievement. In subsequent studies of this kind, it might be advisable to seek a relationship between the use of different categories of language learning strategies, learning styles preferences and subcomponents of foreign language aptitude in the hope of detecting more meaningful relationships. Furthermore, the outcomes of other studies show that the list of learner variables affecting FL attainment in the CALL environment includes many more factors than the ones investigated in this research project, such as, for example, anxiety (Ushida 2005; Tallon 2009; Huang and Hwang 2013; White 2014). Thus, exploring the intricate interplay between individual learner variation and computer-aided FL instruction could be interesting; however it is clearly indispensable to carry out relevant studies in settings to which their findings will eventually be applied. Finally, because of the fact that numerous researchers have used various instruments, statistical tools, software, as well as different samples to investigate the role of IDs in learning a FL aided by CALL, it is not easy to conclude which learner variables are likely to constitute the strongest predictors of success in this aspect. However, irrespective of the setting in which the FL is taught and learnt, the level of L2 achievement appears to be determined by some special ability, labelled differently by various researchers, i.e. special *talent*, *gift*, *knack*, *flair for languages* (Cohen 2010), or FL aptitude resulting from being endowed with certain inborn set of characteristics.

Although research into the role of various IDs and the effectiveness of computer-aided FL instruction is an arduous task in view of the fact that it has to be longitudinal, it requires the use of special software and the development of specific online and face-to-face tasks, entailing meticulous analysis of copious amounts of quantitative and qualitative data, it is clearly a worthwhile undertaking that is bound to benefit foreign language instruction in different educational contexts.

SUMMARY

The main aim of the present work is to investigate the relationship between selected cognitive and affective individual learner variables and to explore the effectiveness of two pedagogical options, i.e. *face-to-face* and *blended learning*, in the process of learning *English for Specific Purposes* (ESP) in the Polish educational context. The preliminary theoretical considerations included in Chapter 1 provide a discussion of relevant literature on the nature of individual learner factors accounting for differential success in FL learning, with particular emphasis being placed on such variables as *language learning strategies*, *learning styles*, *foreign language aptitude* and *motivation*. Chapter 2, in turn, presents an overview of the most crucial developments in the area of *Computer Assisted Language Learning* (CALL) with particular attention being given to blended learning, which is the main theme of the study described in this work. In Chapter 3, the focus of attention is shifted to the presentation and discussion of empirical investigations into the role of specific IDs in foreign language learning aided by CALL, which serves as an introduction to the empirical part of the thesis. More specifically, the main aim of Chapter 4 is to outline methodological considerations of the current study; whereas the primary objective of Chapter 5 is to present in detail and discuss the results of the research project described in this dissertation. The two empirical chapters are followed by conclusions, pedagogical implications, and suggestions for further research in the investigated area. Although absolute predominance of either of the two approaches was not established in the course of the experimental intervention, a number of observations were made as to the differential effects of the treatments on the students' FL attainment. In addition, valuable insights were obtained into the intricate interplay between different IDs and FL achievement in a CALL environment.

STRESZCZENIE

Głównym celem niniejszej pracy było zbadanie związku pomiędzy wybranymi czynnikami kognitywnymi i afektywnymi oraz porównanie efektywności zastosowania dwóch podejść do nauczania języka obcego specjalistycznego, tj. podejścia *tradycyjnego* oraz *blended learning* w polskim kontekście edukacyjnym. Wstępne rozważania teoretyczne, zawarte w Rozdziale 1., poświęcone są przeglądowi odpowiedniej literatury dotyczącej natury różnic indywidualnych odpowiadających za odnoszenie sukcesu w nauce języka obcego, ze szczególnym uwzględnieniem takich czynników jak *strategie uczenia się*, *style uczenia się*, *uzdolnienia* i *motywacja*. Z kolei Rozdział 2. przedstawia najważniejsze osiągnięcia w dziedzinie komputerowego wspomagania nauki języków obcych ze szczególnym naciskiem na metodę blended learning, która stanowi główny przedmiot badania opisanego w niniejszej pracy. W Rozdziale 3. uwaga została skupiona na omówieniu wyników badań empirycznych dotyczących roli rozmaitych czynników indywidualnych w *nauce języka obcego wspomaganej komputerowo*, co stanowiło wstęp do rozdziałów badawczych. Tak więc głównym celem Rozdziału 4. było przedstawienie kwestii metodologicznych związanych z omawianym badaniem, podczas gdy głównym założeniem Rozdziału 5. było zaprezentowanie szczegółowego opisu wyników badania przeprowadzonego dla celów niniejszej pracy doktorskiej. Wyżej wymienione rozdziały zostały uzupełnione o podsumowanie, implikacje pedagogiczne oraz sugestie co do kierunku dalszych prac w tej dziedzinie. Chociaż w toku badania nie udało się wykazać ponad wszelką wątpliwość przewagi któregokolwiek z dwóch zastosowanych podejść dydaktycznych, poczyniono wiele spostrzeżeń dotyczących wpływu obu rodzajów instrukcji na poziom opanowania języka obcego. Ponadto przedstawiono liczne wnioski dotyczące skomplikowanej zależności między różnymi czynnikami indywidualnymi a sukcesem w nauce języka obcego wspomaganej komputerowo.

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Appendix A

Kwestionariusz dotyczący nauki języków obcych

Szacowany czas: 30 min.

Uprzejmie proszę o wypełnienie kwestionariusza dotyczącego nauki języków obcych, będącego częścią moich badań w tej dziedzinie. Ponieważ kwestionariusz ten nie jest testem, nie ma „poprawnych" lub „błędnych" odpowiedzi. Bardzo proszę o rzetelne jego uzupełnienie, gdyż tylko szczere odpowiedzi mogą gwarantować sukces moich badań. Dziękuję za współpracę i poświęcony czas na wypełnienie kwestionariusza.

Wszystkie informacje z tego kwestionariusza pozostaną w pełni anonimowe. Pomimo tego, że autorka prosi o podanie imienia i nazwiska na pierwszej stronie, jest to związane wyłącznie z koniecznością powiązania informacji z kilku ankiet przeprowadzonych w późniejszym czasie.

Imię i nazwisko studenta _____

Część I Ogólne informacje

A. Ogólne informacje o studentach

Proszę wyrazić opinię lub udzielić odpowiedzi na następujące pytania wstawiając znak „X" w odpowiednim miejscu.

1. Płeć
□ mężczyzna □ kobieta

2. Wiek, proszę określić _____

3. Profil studiów

□ stacjonarne □ niestacjonarne

4. Język, którego używa się w domu
□ polski □ inny, proszę określić_____

5. Rok studiów
□ pierwszy □ drugi □ trzeci

6. Semestr nauki języka obcego na uczelni
□ pierwszy □ drugi □ trzeci □ czwarty

7. Kierunek studiów (proszę zaznaczyć jedną opcję)

□ Architektura i planowanie przestrzenne	□ Informatyka
□ Edukacja Artystyczna	□ Matematyka
□ Inżynieria Biomedyczna	□ Inżynieria Bezpieczeństwa
□ Mechanika	□ Logistyka
□ Zarządzanie i Inżynieria Produkcji	□ Transport
□ Elektronika i Telekomunikacja	□ Technologie Ochrony Środowiska
□ Automatyka i Robotyka	□ inny, proszę określić _____

B. Ogólne informacje na temat nauki języka angielskiego

Proszę wyrazić opinię lub udzielić odpowiedzi na następujące pytania wstawiając znak „X" w odpowiednim miejscu.

1. Powodem, dla którego uczę się języka angielskiego jest fakt, że (można zaznaczyć kilka odpowiedzi)

□ jest on przedmiotem obowiązkowym na mojej uczelni	□ chciał(a)bym wyjechać za granicę
□ lubię uczyć się tego języka	□ chciał(a)bym dostać dobrze płatną pracę
□ chciał(a)bym mieć certyfikat językowy	□ chciał(a)bym mieć dobre oceny
□ inny, proszę określić _____	

2. Używam języka angielskiego (proszę określić gdzie)
□ podczas zajęć na uczelni
□ uczęszczam na prywatne lekcje
□ uczęszczam na zajęcia do szkoły językowej
□ wyjeżdżam za granicę
□ rozmawiam z kolegą/ koleżanką z innego kraju
□ inny, proszę określić _____

3. Używam języka angielskiego (proszę określić jak często i w jakim celu)
□ co dzień w celu_____
□ raz w tygodniu w celu_____
□ dwa razy w tygodniu w celu_____
□ inny, proszę określić _____

4. Czy Pan/Pani pracuje?
□ tak □ nie

5. Jeśli tak, czy w pracy używany jest język angielski?
□ tak □ nie

6. Do nauki języka angielskiego służą mi (można zaznaczyć więcej niż jedną odpowiedź)

□ programy telewizyjne
□ radio
□ Internet
□ ogladanie filmów
□ czytanie książek
□ czytanie czasopism, gazet
□ programy komputerowe
□ wykonywane rozmowy telefoniczne
□ gry komputerowe
□ mail
□ videokonferencje
□ inne, proszę określić _____

7. Językiem wiodącym, na którego zajęcia uczęszczam na uczelni jest język

□ angielski □ niemiecki □ hiszpański
□ francuski □ rosyjski

8. Czy zna Pan/ Pani inne języki obce?

□ tak □ nie

9. Jeśli tak, jaki to język/ języki? (można zaznaczyć kilka odpowiedzi)

□ angielski □ niemiecki □ hiszpański
□ francuski □ rosyjski □ inny, proszę określić _____

10. Czy kiedykolwiek był(a) Pan(i) w kraju angielskiego obszaru językowego?

□ tak □ nie

11. Jeśli tak, jak długi był pobyt? Proszę określić_____

12. Jak długo uczy się Pan(i) języka angielskiego? Proszę określić _____

13. Czy posiada Pan(i) jakikolwiek certyfikat potwierdzający znajomość języka angielskiego? (np. a certyfikat biznesowy lub certyfikat Cambridge)

□ tak □ nie

14. Jeśli tak, jaki certyfikat Pan(i) posiada?

□FCE
□CAE
□CPE
□BULATS
□TELC
□TOEFL
□TOEIC
□ inny, proszę określić _____

Część II Komputerowe wspomaganie nauki języków obcych

A. Ogólne informacje dotyczące użycia technologii

Proszę wyrazić opinię lub udzielić odpowiedzi na następujące pytania wstawiając znak „X" w odpowiednim miejscu.

1. Od jak dawna używa Pan(i) komputera? Proszę określić _____

2. Czy ma Pan(i) komputer w domu?

□ tak □ nie

3. Jeśli tak, ile godzin spędza Pan(i) używając komputera tygodniowo? Proszę określić _____

4. Czy ma Pan(i) dostęp do łącza internetowego z szybką transmisją danych?

□ tak □ nie

5. Jeśli tak, proszę określić gdzie

□ w domu □ na uczelni □ w pracy
□ inne, proszę określić _____

6. Ile godzin spędza Pan(i) tygodniowo używając Internetu? Proszę określić_____

7. Do czego najczęściej używa Pan(i) Internetu biorąc pod uwagę naukę języków obcych? (można zaznaczyć kilka odpowiedzi)

□ zbieranie informacji □ granie w gry komputerowe □ prowadzenie rozmów
□ uczenie się gramatyki, słownictwa itp. □ czytanie □ inne, proszę określić_____
□ pisanie i czytanie maili □ przygotowywanie prezentacji

8. Czy kiedykolwiek wziął/wzięła Pan(i) udział w kursie e-learningowym języka angielskiego?

□ tak □ nie

9. Jeśli tak, kto organizował kurs?

□ uczelnia □ szkoła językowa □ inne, proszę określić _____

B. Użycie CALL

*Termin **CALL** (Computer Assisted Language Learning) określa komputerowe wspomaganie nauki języków obcych.*

Proszę uważnie przeczytać poniższe twierdzenia i zaznaczyć z jaką częstotliwością wykonuje Pan(i) dane czynności. Proszę wybrać jedną z odpowiedzi z przedziału od „zdecydowanie się nie zgadzam" do „zdecydowanie się zgadzam".

Zdecydowanie się nie zgadzam	Nie zgadzam się	Nie mam zdania	Zgadzam się	Zdecydowanie się zgadzam
1	**2**	**3**	**4**	**5**

1. Bardzo lubię używać komputera do nauki języka angielskiego.	1	2	3	4	5
2. Z łatwością przychodzi mi nauka języka angielskiego przy użyciu komputera.	1	2	3	4	5
3. Moje tempo nauki języka angielskiego przy pomocy komputera jest szybsze w porównaniu do tradycyjnych metod.	1	2	3	4	5
4. Uczenie się języka angielskiego jest efektywniejsze używając komputera niż tradycyjnych metod nauki.	1	2	3	4	5
5. Używanie komputera do nauki języka angielskiego jest tak ważne jak tradycyjne metody nauki.	1	2	3	4	5
6. Informacja zwrotna, którą dostarcza komputer po rozwiązaniu zadania jest czytelna.	1	2	3	4	5
7. Wolę komunikować się z innymi w języku angielskim przez komputer niż w tradycyjny sposób.	1	2	3	4	5
8. Wolę używać komputera niż tradycyjnego podręcznika do nauki języka angielskiego.	1	2	3	4	5
9. Kiedy używam CALL jestem mniej zestresowany(a).	1	2	3	4	5
10. Używając CALL mam łatwiejszy dostęp do dodatkowych informacji.	1	2	3	4	5
11. Środowisko CALL daje mi możliwość rozwijania wszystkich umiejętności językowych (czytanie, pisanie, rozumienie ze słuchu i mówienie).	1	2	3	4	5

12. Środowisko CALL daje mi możliwość rozwijania umiejętności czytania ze zrozumieniem.	1	2	3	4	5
13. Środowisko CALL daje mi możliwość rozwijania umiejętności słuchania ze zrozumieniem.	1	2	3	4	5
14. Środowisko CALL daje mi możliwość rozwijania umiejętności mówienia.	1	2	3	4	5
15. Środowisko CALL daje mi możliwość poszerzenia zasobu słownictwa.	1	2	3	4	5
16. Środowisko CALL daje mi możliwość poszerzenia znajomości gramatyki.	1	2	3	4	5
17. CALL pomogło mi stać się uczniem niezależnym.	1	2	3	4	5
18. Używam słownika internetowego lub elektronicznego (np. na DVD) do nauki języka angielskiego.	1	2	3	4	5
19. Używam edytora tekstu (np. Microsoft Word) do tworzenia dokumentów tekstowych w języku angielskim oraz korzystam z takich funkcji jak sprawdzanie pisowni czy tezaurus.	1	2	3	4	5
20. Używam stron internetowych w języku angielskim (np. gazety online, strony poświęcone rozrywce).	1	2	3	4	5
21. Używam stron internetowych w języku angielskim do czytania artykułów o tematyce naukowej (np. www.sciencedaily.com, www.newscientist.com).	1	2	3	4	5
22. Używam korpusów języka angielskiego (np. British National Corpus) do nauki.	1	2	3	4	5
23. Używam stron internetowych przeznaczonych do nauki języka angielskiego (np. http://www.bbc.co.uk/polish/learningenglish).	1	2	3	4	5
24. Używam języka angielskiego do komunikowania się z innymi ludźmi za pomocą komputera (np. poprzez e-mail).	1	2	3	4	5
25. Używam języka angielskiego do komunikowania się z innymi ludźmi za pomocą komputera (np. poprzez fora dyskusyjne).	1	2	3	4	5
26. Używam języka angielskiego do komunikowania się z innymi ludźmi za pomocą komputera poprzez komunikatory VoIP (np. Skype).	1	2	3	4	5
27. Używam języka angielskiego do komunikowania się z innymi ludźmi za pomocą komputera poprzez portale społecznościowe (np. Facebook).	1	2	3	4	5

28. Czy używa Pan/Pani komputera do nauki języka angielskiego w jakiś inny sposób? Jeżeli tak, proszę wymienić w jaki.

……

Appendix B

Inwentarz strategii uczenia się – wersja polska*

Strategy Inventory for Language Learning, SILL**

Szacowany czas: 30 min.

Kwestionariusz SILL dotyczy strategii uczenia się i jest przeznaczony dla studentów, których drugim językiem lub językiem obcym jest język angielski. Proszę uważnie przeczytać poniższe twierdzenia i zaznaczyć w jakim stopniu są one dla Pana(i) prawdziwe. Proszę wybrać jedną z odpowiedzi z przedziału od „zdecydowanie nie" do „zdecydowanie tak". Ponieważ kwestionariusz ten nie jest testem i nie ma „poprawnych" lub „błędnych" odpowiedzi, proszę o rzetelne jego uzupełnienie.

Wszystkie informacje z tego kwestionariusza pozostaną w pełni anonimowe. Autorka tłumaczenia prosi o podanie imienia i nazwiska na pierwszej stronie, ale jest to związane wyłącznie z koniecznością powiązania informacji z kilku ankiet które zostaną przeprowadzone w późniejszym czasie.

Imię i nazwisko studenta _____

Zdecydowanie nie	Raczej nie	Trudno powiedzieć	Raczej tak	Zdecydowanie tak
1	**2**	**3**	**4**	**5**

Część A

1. Szukam związku pomiędzy tym, co już wiem a nowymi rzeczami, których uczę się w języku angielskim.	1	2	3	4	5
2. Używam nowo poznanych angielskich słów w zdaniu, po to aby je zapamiętać.	1	2	3	4	5
3. Łączę dźwięk nowo poznanego słowa w języku angielskim z obrazkiem lub zdjęciem przedstawiającym to słowo, aby je łatwiej zapamiętać.	1	2	3	4	5
4. Zapamiętuję nowo poznane słowo w języku angielskim wyobrażając sobie sytuację, w której słowo to mogłoby być użyte.	1	2	3	4	5
5. Używam rymów do zapamiętywania nowo poznanych słów w języku angielskim.	1	2	3	4	5
6. Używam kartek z obrazkami do zapamiętywania nowo poznanych słów w języku angielskim.	1	2	3	4	5
7. Odgrywam znaczenia słów w języku angielskim.	1	2	3	4	5
8. Często powtarzam to, czego nauczyłe(a)m się na lekcjach języka angielskiego.	1	2	3	4	5
9. Zapamiętuję nowo poznane słowa w języku angielskim kojarząc ich umiejscowienie na stronie, tablicy czy znaku drogowym.	1	2	3	4	5

Część B

10. Kilkakrotnie wypowiadam lub zapisuję nowo poznane słowa w języku angielskim.	1	2	3	4	5
11.Staram się naśladować sposób mówienia rodzimych użytkowników języka.	1	2	3	4	5
12. Ćwiczę wymowę angielskich dźwięków.	1	2	3	4	5
13. Używam poznanych słów w języku angielskim na różne sposoby.	1	2	3	4	5
14. Rozpoczynam rozmowy w języku angielskim.	1	2	3	4	5
15. Oglądam programy telewizyjne w języku angielskim lub chodzę do kina na filmy anglojęzyczne.	1	2	3	4	5
16. Czytam w języku angielskim dla przyjemności.	1	2	3	4	5
17. Czytam notatki, wiadomości, listy lub raporty w języku angielskim.	1	2	3	4	5
18. Czytając tekst w języku angielskim najpierw przeglądam go pobieżnie, a następnie uważnie go czytam.	1	2	3	4	5
19. Szukam polskich słów, które są podobne do nowo poznanych słów w języku angielskim.	1	2	3	4	5
20. Staram się znaleźć reguły w języku angielskim.	1	2	3	4	5
21. Staram się znaleźć znaczenie nowo poznanego słowa w języku angielskim poprzez podzielenie go na części, których znaczenie rozumiem.	1	2	3	4	5
22. Staram się nie tłumaczyć słowo w słowo.	1	2	3	4	5
23. Podsumowuję informacje, które słyszę lub czytam w języku angielskim.	1	2	3	4	5

Część C

24. Aby zrozumieć nieznane angielskie słowa, zgaduję ich znaczenie.	1	2	3	4	5

25. Kiedy nie mogę przypomnieć sobie słowa w trakcie rozmowy w języku angielskim, używam gestykulacji.	1	2	3	4	5
26.Jeśli nie znam potrzebnego mi słowa w języku angielskim, wymyślam je.	1	2	3	4	5
27. Czytając w języku angielskim nie muszę sprawdzać znaczenia każdego nowego słowa.	1	2	3	4	5
28. Staram się zgadywać, co osoba, z którą rozmawiam w języku angielskim powie dalej.	1	2	3	4	5
29. Jeśli nie mogę sobie przypomnieć słowa w języku angielskim, używam słowa lub wyrażenia o znaczeniu bliskoznacznym.	1	2	3	4	5

Część D

30. Staram się znaleźć możliwie jak najwięcej sposobów użycia języka angielskiego.	1	2	3	4	5
31. Zauważam błędy, jakie popełniam w języku angielskim i używam tej informacji do poprawy moich umiejętności językowych.	1	2	3	4	5
32. Uważnie słucham, gdy ktoś wypowiada się w języku angielskim.	1	2	3	4	5
33. Szukam sposobów na bycie lepszym uczniem w języku angielskim.	1	2	3	4	5
34. Układam sobie plan zajęć w taki sposób, aby mieć dostatecznie dużo czasu na naukę języka angielskiego.	1	2	3	4	5
35. Szukam osób, z którymi mogę rozmawiać w języku angielskim.	1	2	3	4	5
36. Szukam jak najwięcej okazji do czytania w języku angielskim.	1	2	3	4	5
37. Mam jasne cele dotyczące poprawy umiejętności w języku angielskim.	1	2	3	4	5
38. Myślę o postępach, jakie czynię w języku angielskim.	1	2	3	4	5

Część E

39. Staram się zrelaksować za każdym razem, kiedy odczuwam obawy związane z używaniem języka angielskiego.	1	2	3	4	5
40. Zachęcam siebie do mówienia w języku angielskim nawet jeśli obawiam się zrobienia błędu.	1	2	3	4	5
41. Nagradzam się, kiedy dobrze idzie mi nauka języka angielskiego.	1	2	3	4	5
42. Dostrzegam momenty, w których jestem spięty(a) lub nerwowy ucząc się lub używając języka angielskiego.	1	2	3	4	5
43. Zapisuję w dzienniczku swoje odczucia dotyczące nauki języka.	1	2	3	4	5
44. Rozmawiam z inną osobą na temat tego, co czuję kiedy uczę się języka angielskiego.	1	2	3	4	5

Część F

45. Proszę inną osobę, aby zwolniła lub powtórzyła jeśli nie rozumiem jego/jej wypowiedzi w języku angielskim.	1	2	3	4	5
46. Proszę osoby posługujące się językiem angielskim o poprawianie moich wypowiedzi.	1	2	3	4	5
47. Ćwiczę język angielski z innymi studentami.	1	2	3	4	5
48. Proszę o pomoc osoby posługujące się językiem angielskim.	1	2	3	4	5

49. Zadaję pytania w języku angielskim.	1 2 3 4 5
50. Staram się dowiedzieć czegoś na temat kultury osób posługujących się językiem angielskim.	1 2 3 4 5

Dziękuję za wypełnienie kwestionariusza ☺

Jeżeli macie Państwo jakieś pytania dotyczące kwestionariusza, proszę o kontakt:
mgr Edyta Olejarczuk
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*tłumaczenie: Edyta Olejarczuk (2014b)

**autor: Rebecca Oxford (1989)

Appendix C

Kwestionariusz dotyczący stylów uczenia się – wersja polska*

Learning Style Survey, LSS**

Szacowany czas: 30 min.

Kwestionariusz LSS dotyczy stylów uczenia się i jest skonstruowany w celu określenia ogólnego nastawienia do nauki. Nie jest to narzędzie pozwalające przewidzieć zachowanie w każdym przypadku, ale może w jasny sposób wskazać ogólne preferencje dotyczące stylu uczenia się. Proszę uważnie przeczytać poniższe twierdzenia i zaznaczyć z jaką częstotliwością wykonuje Pan(i) dane czynności. Proszę wybrać jedną z odpowiedzi z przedziału od „nigdy" do „zawsze". Ponieważ kwestionariusz ten nie jest testem i nie ma „poprawnych" lub „błędnych" odpowiedzi, proszę o rzetelne jego uzupełnienie.

Wszystkie informacje z tego kwestionariusza pozostaną w pełni anonimowe. Autorka tłumaczenia prosi o podanie imienia i nazwiska na pierwszej stronie, ale jest to związane wyłącznie z koniecznością powiązania informacji z kilku ankiet, które zostaną przeprowadzone w późniejszym czasie.

Imię i nazwisko studenta _____

Nigdy	Rzadko	Czasami	Często	Zawsze
0	**1**	**2**	**3**	**4**

Część 1: W JAKI SPOSÓB UŻYWAM ZMYSŁÓW

1. Zapisywanie pomaga mi w zapamiętywaniu rzeczy.	0	1	2	3	4
2. Robię szczegółowe notatki w trakcie zajęć.	0	1	2	3	4
3. W trakcie słuchania obrazuję sobie sytuacje, numery i słowa.	0	1	2	3	4
4. Wolę używać telewizji lub video od innych mediów do uczenia się.	0	1	2	3	4
5. Używam zaznaczania kolorami w nauce lub pracy.	0	1	2	3	4
6. Potrzebne mi pisemne instrukcje do zadań.	0	1	2	3	4
7. Muszę patrzeć na ludzi, aby zrozumieć co mówią.	0	1	2	3	4
8. Lepiej rozumiem zajęcia, kiedy nauczyciele zapisują informacje na tablicy.	0	1	2	3	4
9. Wykresy, diagramy i mapy pomagają mi zrozumieć, co mówi inna osoba.	0	1	2	3	4
10. Zapamiętuję twarze ludzi, ale nie to jak się nazywają.	0	1	2	3	4

A – punkty _____

11. Lepiej rozumiem różne rzeczy, jeśli omówię je z inną osobą.	0	1	2	3	4
12. Wolę uczyć się słuchając wykładu niż czytając.	0	1	2	3	4
13. Potrzebuję ustnych wskazówek do wykonania zadania.	0	1	2	3	4
14. Dźwięki muzyki w tle pomagają mi w myśleniu.	0	1	2	3	4
15. Lubię słuchać muzyki, kiedy uczę się lub pracuję.	0	1	2	3	4
16. Rozumiem co mówią ludzie nawet wtedy, gdy ich nie widzę.	0	1	2	3	4
17. Zapamiętuję nazwiska ludzi, ale nie ich twarze.	0	1	2	3	4
18. Z łatwością zapamiętuję dowcipy, które usłyszę.	0	1	2	3	4
19. Potrafię rozpoznać ludzi po głosie (np. przez telefon).	0	1	2	3	4
20. Kiedy włączę telewizor, bardziej skupiam się na dźwięku niż na patrzeniu w ekran.	0	1	2	3	4

B – punkty _____

21. Wolę zacząć od wykonywania czynności niż zapoznawania się ze wskazówkami.	0	1	2	3	4
22. Potrzebuję częstych przerw w trakcie pracy lub uczenia się.	0	1	2	3	4
23. Potrzebuję przerwy na jedzenie w trakcie pracy lub nauki.	0	1	2	3	4
24. Jeśli mam możliwość wyboru pomiędzy siedzeniem i staniem, wolę stać.	0	1	2	3	4
25. Robię się nerwowy(a), kiedy zbyt długo siedzę w bezruchu.	0	1	2	3	4
26. Myślę efektywniej, kiedy poruszam się (np. przechadzam się po pokoju	0	1	2	3	4

lub stukam stopami).

27. Bawię się długopisami lub gryzę ołówki podczas zajęć.	0	1	2	3	4
28. Poruszanie przedmiotami pomaga mi w zapamiętywaniu tego, co mówi inna osoba.	0	1	2	3	4
29. Gestykuluję podczas mówienia.	0	1	2	3	4
30. Rysuję wiele obrazków (bazgrołów) w zeszycie podczas zajęć.	0	1	2	3	4

C – punkty _____

Część 2: W JAKI SPOSÓB RADZĘ SOBIE W SYTUACJACH UCZENIA SIĘ

1. Łatwiej przychodzi mi nauka lub praca z innymi niż samodzielnie.	0	1	2	3	4
2. Z łatwością nawiązuję nowe znajomości poprzez rozpoczynanie rozmowy.	0	1	2	3	4
3. Łatwiej przychodzi mi uczenie się w sali lekcyjnej niż z prywatnym nauczycielem.	0	1	2	3	4
4. Z łatwością zapoznaje się z nieznajomymi.	0	1	2	3	4
5. Współpraca z wieloma ludźmi daje mi energię.	0	1	2	3	4
6. Najpierw próbuję różnych rzeczy, a następnie staram się je zrozumieć.	0	1	2	3	4
7. Pobudza mnie świat wewnętrzny (moje wewnętrzne przemyślenia).	0	1	2	3	4

A – punkty _____

8. Wolę gry i ćwiczenia wykonywane indywidualnie lub w parze.	0	1	2	3	4
9. Mam kilka zainteresowań i mocno się na nich koncentruję.	0	1	2	3	4
10. Męczy mnie praca w dużej grupie.	0	1	2	3	4
11. Kiedy pracuję w dużej grupie, raczej nie odzywam się tylko słucham.	0	1	2	3	4
12. Zanim czegoś spróbuję chcę to najpierw dobrze zrozumieć.	0	1	2	3	4

B – punkty _____

Część 3: W JAKI SPOSÓB RADZĘ SOBIE Z NOWYMI SYTUACJAMI

1. Mam twórczą wyobraźnię.	0	1	2	3	4
2. Staram się znaleźć wiele opcji i możliwości aby odkryć przyczynę zaistniałej sytuacji.	0	1	2	3	4
3. Dokładnie planuję przyszłe wydarzenia.	0	1	2	3	4
4. Wolę sam(a) odkrywać różne rzeczy niż kiedy ktoś inny mi je wyjaśnia.	0	1	2	3	4
5. Wychodzę z wieloma oryginalnymi pomysłami w trakcie dyskusji klasowych.	0	1	2	3	4
6. Jestem otwarty(a) na nowe sugestie ze strony moich rówieśników.	0	1	2	3	4

A – punkty _____

7. Skupiam się raczej na rzeczywistej sytuacji, a nie na myśleniu o tym, co mogłoby być.	0	1	2	3	4
8. Czytam instrukcje obsługi urządzeń (np. komputerów lub odtwarzaczy video) zanim rozpocznę używanie danego sprzętu.	0	1	2	3	4
9. Ufam konkretnym faktom niż nowym, niesprawdzonym pomysłom.	0	1	2	3	4
10. Wolę rzeczy przedstawione krok po kroku.	0	1	2	3	4
11. Nie lubię, kiedy kolega/ koleżanka z grupy zmienia plan naszego projektu.	0	1	2	3	4
12. Dokładnie stosuję się do instrukcji.	0	1	2	3	4

B – punkty _____

Część 4: W JAKI SPOSÓB RADZĘ SOBIE Z NIEJEDNOZNACZNOŚCIĄ I Z NIEPRZEKRACZALNYMI TERMINAMI

1. Lubię dokładnie planować naukę języka i odrabiać lekcje na czas lub przed czasem.	0	1	2	3	4
2. Moje notatki, handouty i materiały z zajęć są dokładnie uporządkowane.	0	1	2	3	4
3. Lubię mieć pewność co do tego, co dane rzeczy oznaczają w docelowym języku.	0	1	2	3	4
4. Lubię wiedzieć, w jaki sposób są stosowane zasady i dlaczego.	0	1	2	3	4

A – punkty _____

5. Mam elastyczne podejście co do ostatecznych terminów, jeśli jestem zaangażowany(a) w inne rzeczy.	0	1	2	3	4
6. Gromadzę stosy rzeczy na moim biurku, aby w końcu je uporządkować.	0	1	2	3	4
7. Nie zależy mi na tym aby wszystko zrozumieć.	0	1	2	3	4
8. Nie odczuwam potrzeby przedwczesnego wyciągania wniosków dotyczących danego tematu.	0	1	2	3	4

B – punkty _____

Część 5: W JAKI SPOSÓB ODBIERAM INFORMACJE

1. Wolę szybkie i proste odpowiedzi niż długie objaśnienia.	0	1	2	3	4
2. Pomijam szczegóły, które nie wydają się być istotne.	0	1	2	3	4
3. Z łatwością wyobrażam sobie ogólny plan lub obraz całości.	0	1	2	3	4
4. Mam ogólne pojęcie i to mi wystarcza.	0	1	2	3	4
5. Kiedy opowiadam historię sprzed lat, mam tendencję do zapominania wielu szczegółów.	0	1	2	3	4

A – punkty _____

6. Potrzebuję bardzo konkretnych przykładów aby dokładnie zrozumieć treść.	0 1 2 3 4
7. Przykładam uwagę do konkretnych faktów lub informacji.	0 1 2 3 4
8. Dobrze mi idzie wyłapywanie nowych wyrażeń lub słów, kiedy je słyszę.	0 1 2 3 4
9. Czerpię przyjemność z wykonywania ćwiczeń polegających na uzupełnianiu luk brakującymi słowami ze słuchu.	0 1 2 3 4
10. Kiedy usiłuję powiedzieć dowcip, pamiętam szczegóły, ale zapominam puenty	0 1 2 3 4

B – punkty _____

Część 6: W JAKI SPOSÓB PRZETWARZAM ODEBRANE INFORMACJE

1. Z łatwością przychodzi mi podsumowanie informacji.	0 1 2 3 4
2. Potrafię szybko sparafrazować to, co mówią inni ludzie.	0 1 2 3 4
3. Kiedy tworzę zarys, najpierw biorę pod uwagę najważniejsze punkty.	0 1 2 3 4
4. Lubię czynności, które wymagają zorganizowania czegoś.	0 1 2 3 4
5. Patrząc na całokształt sytuacji, z łatwością potrafię zrozumieć inną osobę.	0 1 2 3 4

A – punkty _____

6. Ciężko mi idzie zrozumienie czegoś, kiedy nie znam każdego słowa.	0 1 2 3 4
7. Kiedy opowiadam historię lub coś wyjaśniam, zabiera mi to dużo czasu.	0 1 2 3 4
8. Lubię skupiać się na zasadach gramatyki.	0 1 2 3 4
9. Jestem dobry(a) w rozwiązywaniu zagadek i łamigłówek.	0 1 2 3 4
10. Jestem dobry(a) w dostrzeganiu nawet najmniejszych szczegółów w zadaniu.	0 1 2 3 4

B – punkty _____

Część 7: W JAKI SPOSÓB ZAPISUJĘ MATERIAŁ W PAMIĘCI

1. Staram się przykładać uwagę do wszystkich aspektów nowego materiału podczas nauki.	0 1 2 3 4
2. Kiedy uczę się na pamięć różnych części materiału językowego, potrafię sobie je z łatwością przypomnieć, zupełnie tak jakby były zaszufladkowane w mojej pamięci	0 1 2 3 4
3. Kiedy uczę się nowego materiału w języku docelowym, robię drobne rozróżnienia między dźwiękami mowy, formami gramatycznymi a słowami i wyrażeniami.	0 1 2 3 4

A – punkty _____

4. Kiedy przyswajam nowe informacje, grupuję dane eliminując lub redukując różnice skupiając się na podobieństwach.	0 1 2 3 4

5. Nie zwracam uwagi na precyzyjny sposób wypowiedzi.	0	1	2	3	4
6. Granice między starymi i nowymi doświadczeniami związanymi z nauką zacierają się w mojej pamięci.	0	1	2	3	4

B – punkty _____

Część 8: W JAKI SPOSÓB RADZĘ SOBIE Z ZASADAMI DOTYCZĄCYMI REGUŁ JĘZYKOWYCH

1. Lubię przechodzić od ogólnych zarysów do szczegółowych przykładów w uczeniu się języka docelowego.	0	1	2	3	4
2. Wolę zaczynać od zasad i teorii niż konkretnych przykładów.	0	1	2	3	4
3. Lubię zaczynać od uogólnień, a następnie doświadczać rzeczy, które się do nich odnoszą.	0	1	2	3	4

A – punkty _____

4. Lubię uczyć się zasad dotyczących języka poprzez używanie przykładów struktur gramatycznych oraz innych funkcji językowych.	0	1	2	3	4
5. Nie interesuje mnie, gdy ktoś tłumaczy zasadę, ponieważ i tak jej dokładnie nie zapamiętuję.	0	1	2	3	4
6. Odkrywam zasady opierając się na obserwacji form językowych w czasie.	0	1	2	3	4

B – punkty _____

Część 9: W JAKI SPOSÓB RADZĘ SOBIE Z WIELOMA INFORMACJAMI

1. Potrafię oddzielić istotne i ważne informacje w danym kontekście nawet wtedy, kiedy przedstawiane są informacje zbędne.	0	1	2	3	4
2. Kiedy tworzę wypowiedź ustną lub pisemną w języku docelowym, upewniam się, że wszystkie struktury gramatyczne są ze sobą zgodne.	0	1	2	3	4
3. Zwracam uwagę nie tylko na gramatykę, ale również na formę, która powinna być oficjalna i grzecznościowa**.**	0	1	2	3	4

A – punkty _____

4. Kiedy wypowiadam się lub piszę tekst myślę, że skupianie się na gramatyce jest mniej istotne niż zwracanie uwagi na informacje zawarte w przekazie.	0	1	2	3	4
5. Skupianie się na przekazywanych treściach, koncentrując się jednocześnie na zgodności gramatycznej (np. z osobą, liczbą, czasem gramatycznym lub płcią) stanowi dla mnie wyzwanie.	0	1	2	3	4
6. Kiedy używam rozbudowanych zdań w języku docelowym rozpraszam się i zapominam o gramatyce i stylu.	0	1	2	3	4

B – punkty _____

Część 10: W JAKI SPOSÓB RADZĘ SOBIE Z CZASEM NA UDZIELENIE ODPOWIEDZI

1. Szybko reaguję w sytuacjach językowych.	0	1	2	3	4
2. Kieruję się intuicją używając języka docelowego.	0	1	2	3	4
3. Włączam się do rozmowy, badam sytuację i zwracam uwagę na błędy, jeśli sytuacja tego wymaga.	0	1	2	3	4

A – punkty _____

4. Muszę przemyśleć niektóre rzeczy przed wypowiedzeniem się ustnie lub pisemnie.	0	1	2	3	4
5. Kiedy zastanawiam się co powiedzieć lub napisać w języku docelowym wolę najpierw poobserwować.	0	1	2	3	4
6. Staram się wykorzystać moją wiedzę zanim zabiorę się do tworzenia wypowiedzi.	0	1	2	3	4

B – punkty _____

Część 11: W JAKIM STOPNIU W DOSŁOWNY SPOSÓB ODBIERAM RZECZYWISTOŚĆ

1. Zauważam, że tworzenie metafory w myśli pomaga mi uporać się z językiem (np. postrzeganie języka jako urządzenia, które może być rozłożone na części).	0	1	2	3	4
2. Uczę się nowych rzeczy poprzez metafory i skojarzenia z innymi rzeczami. Zauważam, że historyjki i przykłady pomagają mi w nauce.	0	1	2	3	4

A – punkty _____

3. Traktuję naukę języka dosłownie i nie używam metafor.	0	1	2	3	4
4. Oceniam rzeczy na podstawie wyglądu dlatego wolę materiał językowy, który jest jasno sprecyzowany.	0	1	2	3	4

B – punkty _____

Dziękuję za wypełnienie kwestionariusza ☺

Jeżeli macie Państwo jakieś pytania dotyczące kwestionariusza, proszę o kontakt:

mgr Edyta Olejarczuk

edyta.olejarczuk@put.poznan.pl

*tłumaczenie: Edyta Olejarczuk (2014b)

**autor: Andrew D. Cohen, Rebecca L. Oxford i Julie C. Chi (2002)

Appendix D

Wywiady ze studentami

Chciałabym Panu/Pani zadać kilka pytań na temat kursu języka angielskiego, w którym Pan/Pani wziął/wzięła udział. Pana/Pani imię i nazwisko pozostanie anonimowe, a odpowiedzi nie będą miały wpływu na ocenę z kursu. Rozmowa nie zajmie więcej niż 20 minut i będzie nagrywana jeśli nie ma Pan/Pani nic przeciwko temu. Czy możemy zacząć?

Pytania:

1. Od jak dawna uczy się Pan/Pani języka angielskiego?
2. Czy nauka języka angielskiego jest dla Pana/Pani przyjemnością czy koniecznością? Czy sprawia Panu/Pani trudności? Proszę uzasadnić.
3. Jak ważny jest dla Pana/Pani język angielski? Dlaczego?
4. Czy w jakiś konkretny sposób lubi Pan/Pani uczyć się języka angielskiego? Jeśli tak, w jaki sposób i dlaczego?
5. Czy lubi Pan/Pani uczyć się języka angielskiego wykorzystując komputer? Jeśli tak, w jaki sposób lubi się Pan/Pani uczyć najbardziej? Proszę uzasadnić.
6. W tym semestrze wziął Pan/wzięła Pani udział w kursie języka angielskiego prowadzonym metodą blended learning, czyli taką, która łączy zajęcia w klasie z zajęciami online. Czy taka forma zajęć jest dla Pana/Pani atrakcyjna? Dlaczego?
7. Jakie są zalety takiej metody? Proszę uzasadnić.
8. Czy są jakieś wady? Jeśli tak, proszę wymienić i uzasadnić swoją wypowiedź.
9. Co zmieniłby Pan/ zmieniłaby Pani w kursie gdyby był Pan/ byłaby Pani nauczycielem? Dlaczego?
10. Czy poleciłby Pan/poleciłaby Pani taką formę zajęć innym studentom? Dlaczego?

11. Czy w przyszłości chciałby Pan/chciałaby Pani uczestniczyć w zajęciach prowadzonych tą samą metodą? Dlaczego?
12. Jaki był Pana/Pani stosunek do kursu blended learning na początku kursu? Czy uległ zmianie w trakcie trwania kurs lub pod koniec kursu? W jaki sposób?
13. Czy kurs motywował Pana/Panią do nauki języka angielskiego? Proszę uzasadnić.
14. Jaka była opinia w grupie na temat kursu?
15. Czy wszystkie zadania/polecenia w kursie online były dla Pana/Pani jasne? Jeżeli nie, co wymagało wyjaśnienia?
16. Czy nauczyciel prowadzący lektorat był pomocny w rozwiązywaniu problemów jeśli chodzi o zajęcia online? Proszę uzasadnić.
17. Która z umiejętności: czytanie, słuchanie, mówienie, pisanie w Pana/Pani opinii była najskuteczniej rozwijana w trakcie kursu online a jaka na zajęciach w sali lekcyjnej? Dlaczego?
18. W trakcie kursu niektóre zadania polegały na tym, aby nagrać swoją wypowiedź i przesłać na platformę Moodle. Jaki był Pana/Pani stosunek do tych zadań?

Nasza rozmowa dobiega końca. Czy jest coś, co chciał(a)by Pan/Pani dodać? Czy chciał(a)by Pan/Pani o coś zapytać?
Dziękuję.