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The Strategic EFL Digital Learner.

Shaping and Managing a Video-based Language Experience in
an Independent E-learning Context.

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Abstract

The web-based opportunities to learn English independently, actively and significantly need to be matched to a variety of self-regulatory processes in which the purposeful, appropriate and self-specific employment of strategies plays a key role. This paper discusses the creative and meaningful interaction with the computer throughout the learning process in terms of online language learner strategies. A case study of QUAL→quan type has been carried out to explore the strategic behaviour adopted by 53 Italian EFL learners to assist their learning and to compensate for limitations as they deal with an online authentic video-lesson. To do this, a structured e-journal was designed to let subjects report each strategy used. A psychometric questionnaire was also administered to assess the participants' metacognitive control over the task at hand. Finally, background information about subjects was collected. Despite differences in the types of activities that metacognitive strategies trigger, intermediate and advanced EFL learners spontaneously used a great deal of mental and web-based concrete strategies mainly to solve language-related problems and to focus on the input. Not only does this study show that online resources allow language learners to express their agency and reach their goals through strategy use, but it also stresses the need to prepare them for the favourable exploitation of digital experiences to learn in a personally-defined and self-directed way.

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Introduction

In these times, Internet technology advances broaden the scope for accessing and working on English content in a learning perspective. The innumerable opportunities offered on the Web to continue to learn independently in a purposeful, self-specific, efficient and successful way, however, need to be matched to a variety of self-regulatory processes in which the conscious and appropriate orchestration of strategies plays a key role. Since the early 1970s, the impact of the learner's self-initiated, conscious, goal-oriented and contextually-appropriate activities on the learning process and on its outcomes has attracted increasing interest among researchers working in the field of Second Language Acquisition (SLA). In view of the more recent advancements of technology and the World Wide Web, moreover, the strategy research domain has been expanding to include also computer-assisted and computer-enhanced learning environments, in connection with both the development of specific (Web-based) programmes and self-directed learning. This thesis discusses the creative, meaningful and self-regulated interaction with the computer throughout a task-based learning process in terms of personally-defined strategies which foreign-language (FL) learners employ to the advantage of the interlanguage development and individual experience. In the attempt to provide insights into this matter, a case study of QUAL→quan type has been carried out to explore the conscious strategic behaviour adopted by 53 English-FL Italian learners to assist their learning and to compensate for limitations as they deal with an online authentic video-lesson. Essentially, not only will we try to understand how self-directed learners go about FL-related experiences in a strategic learning perspective, but the use of medium-specific resources will be also examined. In accordance with the learning context our study examines, 'foreign language' – and not 'second language' – will be maintained throughout the paper as the label identifying the relationship between English (the target language) and the subjects involved in our investigation.

Before presenting the research project and discussing the results produced, the theoretical line followed in this thesis to explain how learner strategies are conceived is described in chapter 1. In particular, the focus will be narrowed down to the regulatory role of metacognitive awareness in regard to successful, flexible, self-tailored and self-

directed language learning and use. In addition to this, previous works will be referred to so as to outline the empirical background to our paper. Chapter 2 will detail how our study was designed to respond to the research questions we framed to tackle the issue under investigation. The analysis of the data collected from the participants will be reported in chapter 3, where the results concerning strategy adoption will be connected to the subjects' level of conscious metacognitive control over the activity itself. In chapter 4, eventually, our findings will be opened up for a descriptive discussion and the research questions will be answered. Despite the limitations we recognised and far from being generalisable to the whole population of EFL digital Italian learners, the picture emerging from this study might support further reflections upon strategic language acquisition in Web-based self-directed learning environments. Implications for language teaching may also be derived, in connection with the scholars' indications delineated in the initial part of this thesis.

1. Theoretical framework, literature review and purposes of the study

The present chapter outlines the concept of learner strategies as it has been developed in the literature dedicated to Second Language Acquisition studies. In particular, the first section will be focused on the active role of the learner in shaping and giving personal meaning to language exposure, especially by means of strategies which realise the learner's will to achieve. The second section will be centred on metacognition as the crucial component for efficient self-directed learning in terms of task analysis, monitoring, regulation and continuous evaluation of performance in process and outcomes. Then, the principles described will be adapted to the World Wide Web as an open-access learning context. As the Internet empowers English as a Foreign Language (EFL) learners to exploit a wealth of resources freely and creatively to design their own learning experiences, the research project of this thesis, dedicated to online learner strategies, will eventually be introduced in the concluding section of the present chapter.

1.1 Focus on the learner

In fulfilment of the principles upon which cognitivism is based, individuality, cognitive traits and operations, personal characteristics and environmental circumstances have been investigated as intertwining factors determining behaviour and, as a consequence, learning (Dörnyei, 2005; Skehan, 1998; Wenden, 1987). As we learn from Dörnyei (2005), alongside the description of the general characteristics of the human mind, the branch of differential psychology focused on how individuals respond to stimuli in a manifold fashion, making experience unique. In the field of Second Language Acquisition (SLA), the progressive cross-fertilisation of psychological, linguistic and educational theories and assumptions has revealed the centrality of the learner's active engagement in noticing and processing information and in making personal sense of language exposure (O'Malley and Chamot, 1990; Oxford, 2003; Skehan, 1998; Williams and Burden, 1997, Wenden and Rubin, 1987). Ellis (1994) and Skehan (1989) inform us that, additionally, researchers soon realised that individual

differences mirror also a very large set of interrelated factors¹ which, eventually, exert their influence on learning outcomes and language use.

As Dörnyei (2005) explains, in spite of the acknowledgement of humans' inherent variability, in the early days of educational psychology it was believed that when more individuals form a community, as is in the case of learners of a common subject, internal differences could be minimised and classified in broad categories. One interpretation of this tenet gave rise to the psychometric approach, whose purpose is essentially to measure individual abilities and traits in order to group and label learners on the basis of emerging similarities. In turn, generalisations could be made about the chances of success one might have, provided that he or she possesses certain 'favourable' characteristics (Dörnyei and Skehan, 2003). As opposed to this highly product-oriented, fixed and unchangeable view of humans, in the constructivist and humanistic perspective, individuality is regarded as the necessary condition to fruitfully engage in activities which are perceived as meaningful, relevant, tailored to one's own style and competence, achievable, controllable, goal-oriented and challenging (Rogers, 1969; Williams and Burden, 1997). Moreover, all these self-specific mechanisms are expected to emerge in the form of actions and to change from situation to situation, producing differences in the learning impact. All in all, a group of learners might produce the same learning outcomes yet by means of different processes, which are actually unique to each individual. By gaining insights into the learner's self-initiated contribution to meaningful and personally-valuable learning experiences, then, researchers might understand and speculate about how to learn (more) effectively, potentially in lifelong perspective.

As indicated by Dörnyei (2005), Macaro (2006), Wenden (1987), since the early 1970s, the nature and the conscious employment of appropriate tactics and concrete procedures in foreign language learning and communication to succeed has aroused increasing interest among researchers. In the early stages, Rubin (1975: 42-44) noted that because psychological traits such as aptitude and motivation are not (easily) malleable, committing oneself to creating, seizing and using opportunities to practice the target language by means of cognitive processes is the only possibility to take

1 E.g. aptitude, motivation, learning styles and preferences, beliefs, affective states, personality, previous experience, etc.

control over the language effectively and successfully. In turn, by working on and through the language the learner might change his or her own aptitude towards the language in general as well as sustain motivation. Consequently, by investigating how learners select and direct their attention to relevant information from the input, and how they use learned material, researchers have been able to uncover diverse *modus operandi* specifically adopted with the aim of starting the learning process and improving knowledge and skills (Dörnyei, 2005). As a result, the existence of language learner strategies has been revealed.

As specified by Wenden (1987) and Ellis (1994), various interpretations might be attributed to the concept of strategy, though. In the literature, production strategies are treated differently from communication strategies and, again, from learning strategies. As far as the first type is concerned, the development and the efficient use of the interlanguage system (Selinker, 1972) is believed to hang on universal processing strategies which can be detected in the wording produced by foreign language learners (Taylor, 1975 and Richards, 1975, as cited in Wenden, 1987). Of course, Macaro (2006) points out, production strategies are important also in learning perspective, since the changes resulting from their regular and automatised activation leads to the improvement of language skills. Alternatively, communication-strategies researchers associate particular features of language use with compensatory mechanisms to overcome linguistic limitations on the part of learners at all levels of competence (see for example Dörnyei and Scott, 1997; Canale, 1983; Canale and Swain, 1980; Faerch and Kasper, 1983; Paribakht, 1985; Poulisse, 1993; Tarone and Yule, 1989). Be that as it may, if we are to adopt a learner-centred perspective with respect to language learning and use, the learner's personal acknowledgement, discovery, development and purposeful exploitation of strategies as both compensatory and non-compensatory information-processing habits assumes overriding importance. Hence, the strategies intentionally employed to solve language-related problems and to build one's own (communication) competence in the broadest sense will be the focus of attention in the present thesis.

As reported in the works by Anderson, 1991; Cohen, 2011, 2007; Dörnyei and Skehan, 2003; Ehrman et al., 2003; Oxford & Nyikos, 1989; Vann and Abraham, 1990,

on the whole, experts converge on the fact that the adoption of appropriate strategies can indeed benefit the quality, the quantity and the product of the language learning process² (see Gillette, 1994 and Rees-Miller, 1993 for objections to this claim). To make an example, we can claim that the amount and the quality of the cognitive processes activated to memorise new vocabulary will affect the result of learning. In turn, the development and use of strategies and skills to continue to learn in a lifelong perspective, i.e. learning how to learn, reflects indeed the cardinal principles on which the cognitive approach to education is based. As Cohen (2012) reminds us, among the many specific kinds of behaviours and attitudes which might be identified as strategic, language learners appear to develop and combine tactics in a very personalised way. That is to say, those who strive for meaningful and successful language-related experiences take advantage of a chain of strategies according to personally-relevant criteria. Despite being a sign of individual difference, strategy use is not an innate attribute. Rather, as Benson and Gao underline (2008), it is developed through social experience and it is conditioned by contextual factors concerning the learning environment. In spite of this inherent difference among learners in terms of learning and language use, academic speculation and research on this issue have actually shed light on strategic patterns underlying learning in terms of accessibility and change, as suggested by Cohen (1991) and Rubin (1987). In other words, as Wenden and Rubin state in the dedication page of their volume (1987), a lot can be learned indeed from learners; not only to advance the field of Second Language Acquisition by gaining a better understanding of the workings of the mind, but also to inform practitioners about the adequate practices to adopt to empower their students.

1.1.1 Language learner strategies

As Rubin indicates (1987), Carton's (1966; 1971) system of inference as a peculiar kind of problem-solving represents the precursor of the concept of strategy in the field of foreign/second language learning. Drawing upon this initial viewpoint, Rubin (1975) was the first who actually systematically observed and reported on the

2 As Macaro (2006) underlines, however, it is still not clear if this hangs on the conscious and flexible adoption of mutually-supportive combinations of strategies, on the type of strategies followed or on the frequent use of a vast array of strategies.

cognitive, communicative and social habits which could be associated to personal, outstanding achievement in language learning and performance. More specifically, the operations of clarification, monitoring, memorisation, guessing, deductive reasoning and rehearsal are detailed by Rubin (1981 in O'Malley and Chamot, 1990: 3-4) as cognitive strategies which affect learning directly; social and communicative strategies, on the other hand, are described as having indirect impact on learning, for they refer to the creation of chances for practising the language and to compensatory mechanisms.

Concurrently, Naiman et al. (1978) based their own research on Stern's (1975) speculations to provide alternative evidence to define the characteristics of "the good language learner". Interviews and classroom-observation protocols were carried out to explain the predisposition of both successful and poor language learners through the strategies they say they use. To interpret the data collected, personal, contextual, instructional and environmental variables were taken into account for their impingement on the learning outcome (Naiman et al., 1978/1996: 1-8). Despite acknowledging that the classification proposed is not complete, five general patterns were listed by Naiman and colleagues as essential strategies to adopt to succeed in language learning. To start with, learners must recognise their active role in the learning process; learners must realise that the language works as a system and monitor the development of their interlanguage; they must take chances to use the language in (authentic) communicative situations and be able to control the affective challenges of language learning (*idem*, 225). In addition, a number of techniques were reported as concrete means to fulfil the aforementioned strategies (*idem*, 33-37). Only one year later, Wesche's contribution to the matter suggested that the success of the strategic learner, rather than on single behaviours, might actually depend on the exploitation of a set of tactics which relate to the task at issue (Wesche, 1979 in Rubin, 1987). Instead of focusing on the performances of successful language learners only, O'Malley and Chamot's (1990) work offered a theoretical explanation about how strategies work in terms of cognitive information processing mechanisms. Drawing upon existing models of cognition concerning communicative competence and second language acquisition (*idem*, 8-13), the two researchers clarified the role that mental processes could play in these respects. As a result, O'Malley and Chamot (1990) conclude that not only was second language

learning contextualised in and harmonised with a broader theoretical framework of reference, but many behaviours could be also interpreted coherently. A thorough description of their own research findings – resulting from different methods of data collection – was provided by the authors in order to validate the theory presented and to produce a classification of the strategies identified in both ESL and EFL³ contexts. Although social mediation is included in the strategies described, O'Malley and Chamot (1990) claim that, ultimately, two broad types of processes assist language learning: cognition and metacognition. In other words, strategies are part of our procedural knowledge – and manifest themselves in *if-then* decisions –, therefore they entail control over the direct manipulation of pieces of information stored as declarative knowledge. What made O'Malley and Chamot's contribution complete was, eventually, the account of instructional models including strategy training and their practical advantages to give learners the chance to develop complex cognitive skills and to become aware of how to transfer them to other contexts. Last but not least, Oxford's (1990) comprehensive synthesis of earlier studies, both in the realms of psychology and SLA, paralleled O'Malley and Chamot's categories of cognitive, metacognitive and social-affective strategies. However, other three groups were added in the system of learner strategies, namely: memory-related, affective and compensation strategies. In Oxford's view, strategies are explained in less theoretical terms, in fact they are related to the development of skills, i.e. the increase of proficiency in the target language⁴. In this sense, Oxford's taxonomy distinguishes direct learning strategies, which requires the skilful manipulation of language material (i.e. cognitive, memory and compensation strategies), and indirect strategies, in which personal, cognitive and situational resources and supports are managed to ease language learning and use (i.e. social, affective and metacognitive strategies). This influential typology will be described in detail later in this section.

In line with the observations of experts such as Griffiths (2008) and Oxford and Cohen (1992), since the publication of all these pioneering works, various and inconsistent definitions of the concept of strategy have been provided in the literature. Furthermore, different productive practices which can directly and indirectly boost

3 English as a Second Language and English as a Foreign Language, respectively.

4 The six categories produced were mainly elaborated upon Rigney's (1978) definition of strategies.

learning have been identified for specific skills and contexts of language use (Wenden and Rubin, 1987). Consequently, and because of the many epistemological orientations of single researchers, lots of identification and classification criteria exist to interpret the nature and the purpose of strategies (although many often overlap – as indicated in Cohen, 2012, 2011, 1996b; Oxford and Cohen, 1992). In regard to this, Ellis' (1994: 533) commented that “[d]efinitions of learning strategies have tended to be *ad hoc* and atheoretical” (italics in original).

Following Dörnyei's (2005), Dörnyei and Skehan's (2003) and Rees-Miller's (1993) considerations, the persistent lack of precision and agreement among experts, as well as the ambiguity of strategies in observational terms, foment criticism about learner strategy research. In Stevick's (1990: 144) terms⁵, problems can be related to the vagueness of strategies in terms of breadth and abstractness of phenomena and to the actual correspondence between multifaceted cognitive functions and single behaviours. In spite of the lack of a consensus on many (crucial) aspects, researchers continue to investigate into how the learner actively interacts with the target language to sustain learning and acquisition.

In harmony with the position taken by authors like Chamot (2001), Cohen (2012, 2011, 1998), Ellis (1994), Griffiths (2008), Macaro (2006), O'Malley and Chamot (1990), Oxford (2003), Wenden and Rubin (1987), in the matter of this thesis the line followed can be recapitulated by saying that a strategy can be essentially explained as being, at the same time:

- a) a concrete or mental behaviour⁶ intentionally adopted – in connection with others – to cope with a cognitive problem concerning learning or the use of the (target) language. Learners, then, use strategies when they need to facilitate their performance, to monitor their performance and to improve language skills. Indeed, strategies can both be aimed at learning and ultimately lead to this, indirectly;

5 Cited in Macaro (2006: 322).

6 In order to overcome the limit of the term “action” (Macaro, 2006), Griffiths (2008: 85) proposes to use the word “activity” to describe both mental and observable behaviours.

- b) a purposeful activity or tactic explicitly recognised as such by the learner himself or herself. That is, strategies are necessarily goal-oriented and conscious⁷ ⁸. The consciousness principle might not always hold up in the long run, though. As Ellis (1994) points out, sometimes a given strategy may become automatised, i.e. it is finally only potentially conscious. For this reason, scholars like Cohen (2012, 1996d) and Macaro (2006) suggest following Schmidt's (1994) indications, whereby a strategy receives either the focal attention or the peripheral attention of the subject. As a consequence, when learners are not able to acknowledge the use of a strategy in what they do or think, the behaviour is interpreted just as a process;
- c) a chosen technique which must be appropriate to the context and in harmony with the personal characteristics and preferences of the individual in order to be effective. In fact, strategies do not all suit all learners and, in Wenden's (1987: 8) words are "amenable to change". Scholars like Dörnyei (2005) accept appropriateness as the distinctive feature to distinguish learning from strategic learning, as Winne (2001) and Riding and Rayner (1998) advocate (both cited in Dörnyei, 2005). In the end, Ehrman et al. (2003) highlight, this conception justifies agency and uniqueness in language learning.

As previously discussed, different categorisations are available in the literature to interpret learner strategies. Cohen (2012, 2011, 1998, 1996a) explains that a practical distinction can be made between the strategies employed in the process of learning itself and those involved in the use of the (foreign/second) language to communicate. Language learning strategies directly affect one's knowledge of the language, while language use strategies require the exploitation of the learner's interlanguage. As Cohen (1996b) specifies, retrieval and rehearsal operations, cover⁹ and communication

7 After all, as Oxford and Cohen (1992: 12) note, consciousness is also the result of explicit strategy training.

8 Macaro (2006) locates the origin of strategic actions in working memory (Baddeley's model, 1997), onto which the central executive maintains its control. Ultimately, he justifies this by claiming that "whereas a mental action might be subconscious, an action undertaken with a goal and evaluated against a learning situation can only be conscious" (*idem*, 327).

9 According to Cohen (1996: 4), cover strategies reflect those compensatory mechanisms adopted by the learner who does not want to allow his or her linguistic deficits or limitations to be seen explicitly.

strategies are all examples of the latter case. In spite of Oxford's (2011) remark that language learning occurs as a consequence of language use, especially in FL contexts this differentiation seems convenient to interpret learners' behaviours. Similarly, Cohen (2011) adds, because language learning and use involves different abilities, classifying strategies by skill area might be helpful too, particularly in strategy training perspective¹⁰.

As anticipated earlier in this section, a third common classification concerns the many functions which learner strategies can serve, and it is presented and discussed in the works by Chamot (1987), Cohen (2012, 1998, 1996b) and Oxford (2003, 1990; 1989). As reviewed by Ellis (1994) and Oxford (1990), there are limitations and blurred boundaries even with this respect. Apropos this, Dörnyei (2005) and Macaro (2006) suggest that if we accept that strategies are somehow exclusive to each learner, drawing up an inventory to see which strategies learners use the most and the least might not mirror the purposes of an investigation into strategy adoption. However, in the matter of this thesis it appears useful to make clear how certain behaviours are commonly interpreted in the literature, also because the powerful and widely accepted distinction between metacognition and cognition is going to be referred to in the subsequent sections of this work. To begin with, cognitive and memory-related strategies typically aim at manipulating learning material directly by enhancing the process itself in terms of quantity and quality. Essentially, these include the processes of perception, reasoning and/or conceptualisation which might be also translated into concrete actions. Compensatory strategies¹¹ include the gestures, circumlocutions, paraphrases or the creative formation of new words which allow learners to get their message across despite a limited knowledge on a specific occasion. All these operations are particularly favoured by the implementation of affective and social strategies. It is not merely about creating frequent and significant opportunities to perform the foreign language actively and in different situations. By fostering experiential learning and by reducing anxiety levels, for instance, learners might help themselves overcome language deficiencies (through compensatory strategies, for example) and, in any case, support the cognitive

10 See also the *Language Strategy Use Survey* developed by Cohen A.D., Oxford R.L. Chi J.C., (2002).

11 This group of strategies is often known as 'communication strategies' (see Bialystok, 1990; Dörnyei and Scott, 1997; Paribakht, 1985; Poulisse 1993).

activity to develop their interlanguage system. Be that as it may, according to the experts (see section 1.2) it is the conscious control of one's own learning, skills, strengths, preferences and needs that actually makes the difference. Metacognitive strategies, therefore, encompass all those actions and conscious thoughts concerning the planning, the monitoring and the evaluation of one's own learning process and outcomes. In this sense, as summarised by Wenden (1987a), metacognitive awareness represents the necessary condition for the exploration, the appropriate choice, the orchestration, the profitable use and the assessment of cognitive¹², socio-affective and other learner strategies. For this reason, we feel that the impact of metacognition deserves a deeper analysis. First, however, it is important to consider which other variables make strategies work successfully.

1.1.2 Factors determining strategy choice

As far as learner strategies are concerned, many individual factors appear to contribute to strategy choice. In particular, the issue is discussed in the works by Chamot (2004), Cohen (2012, 2010), Ehrman et al. (2003), Ehrman and Oxford (1989), Ellis (1994), Green and Oxford (1995), Locastro (1994), Macaro (2006), Oxford and Cohen (1992), Oxford (1989), Oxford and Nyikos (1989). Learning styles, the nature and the learner's perception of the task are frequently mentioned as closely and highly influential variables in this sense. In addition to these, many other characteristics appear to be relevant, such as the language being learned, the level of proficiency in the target language, the linguistic and cultural background, demographic variables¹³, motivation¹⁴, attributions and self-efficacy, the teaching methods the learner has been exposed to and

12 Criticism has been raised over the sometimes fuzzy distinction between cognitive and metacognitive strategies, in particular. Cohen (2012) argues that this might be due to the simultaneous employment of these two types of strategies, which is often the case on the part of 'good' language learners.

13 As far as gender is concerned, previous studies suggesting that females are better than males – at least in language learning – (see Green and Oxford, 1995; Oxford, 1996; Oxford, Nykos and Ehrman, 1988; Young and Oxford, 1997) have been completely contradicted with more recent research evidence. According to what Ehrman and Oxford (1995), Nyikos (2008), Shmais (2003 cited in Benson and Gao, 2008) and Vandergrift (1997) report, no significant difference exists in strategy use between males and females.

14 Following Cohen's (2012) and Macaro's (2006) remarks, as the learner engages in action more effectively through the use of appropriate strategies, he or she is likely to be willing to renew the effort and persist in learning. This, in turn, implies further exposure to the foreign language and experimentation with (new) strategies.

the education stage reached. The resulting complex web of interrelated aspects conforms with the theoretical framework embraced with cognitivism, because it corroborates the tenet that each learner is unique. As indicated by Benson and Gao (2008) and by Dörnyei and Skehan (2003), the interaction between attributes has been primarily investigated in quantitative terms through correlational analysis. Despite considering it particularly informative and revealing, the authors conclude that this field of research has mainly produced binary, scattered, non-comparable and context-insensitive findings. As a result, no consensus has been reached to establish definite patterns of influence with respect to individual differences in (language) learning. From the strategy point of view, Dörnyei (2005: 162) claims that since strategic actions and thoughts are part of processes, they cannot be treated as if they were stable individual differences, nor they can be correlated to other psychological attributes with which, however, they interact. This seems to tie in well with the argument supported by Ellis (1994) and Macaro (2006), according to which the learner is able to develop and select appropriate learning strategies if he or she takes control over many of the aforementioned factors. Taking Macaro's (2006: 330-331) observations into account, considering one's own previous experience in a certain situation appears to be first step towards strategic behaviour. That is, the individual can build on past achievements or failures to improve his or her performance by means of other known or new strategies. Drawing upon Bandura (1993), Macaro acknowledges that this can be greatly influenced by self-efficacy beliefs and attribution, as confirmed also by White (2008a) and Yang (1999). However, he stresses that the learner who exerts control over his or her decisions will be able to reshape these very components as a consequence of future experience and its effects. Apart from this, Skehan (1998) reveals the power of matching one's own learning and communicative needs and related goals with engaging activities. More precisely, he underlines (1998:95) that learning is particularly favoured – and motivation substantially strengthened – when subjects decide to engage in and complete a meaningful task by solving possible communication problems which somehow reflect authentic contexts and which can be finally assessed by means of the outcome produced. With reference to this, Long and Crookes (1991 cited in Skehan, 1998: 97) advise that learners welcome the chance to work directly on real language

samples by activating cognitive processes. Using Oxford's words, the learner is eventually free to coordinate behaviours in a strategic manner, so as to "make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990: 8).

The centrality of tasks as regards strategy use is discussed also by Benson and Gao (2008: 30-33) in sociocultural terms. Referring to a number of studies (e.g. Levine et al., 1996; Bedell and Oxford, 1996), they highlight the fact that, like other psychological manifestations, strategies are specifically aimed at achieving explicit learning goals and are deep-rooted in a definite situational circumstance. Culture and the learning environment, they note, exert the greatest influence on this. As a consequence, the repeated and long-term exposure to the language across similar and different contexts could shape the learner's preferred ways of dealing with tasks and language-related situations. Benson and Gao (2008) underline that this perspective has been subsequently substantiated with qualitative pieces of research (e.g. Carson and Longhini, 2002; Gao, 2006; He, 2002; Parks and Raymond, 2004) which, ultimately, accentuate the necessity to investigate variation in strategy use within and among learners from a micro-contextual and developmental point of view.

As for learning styles, Dörnyei and Skehan (2003), Ehrman et al. (2003), Nel (2008), Oxford (2003) and Wong and Nunan (2011) indicate that the major dimensions traditionally embraced by this concept refer to the cognitive style for processing information, personality, sensory preferences and biological factors. As reported by Cohen, (2012, 2011; 2010), Oxford (2003), Ehrman et al. (2003) and Ehrman & Oxford (1989), it is believed that not only do these general characteristics condition information processing in problem-solving perspective, but they can also predict the use of congruous types of strategies. Accordingly, Cohen (2010) and Oxford (2003) suggest that learners acknowledge their own preferred ways to learn, even trying to stretch their natural approach beyond their comfort zone, in order to orientate towards the 'right' strategies. However, Cohen (2012) and Nel (2008) reveal that a clear and consistent correspondence between style and effective strategy use have not been demonstrated yet. Although some studies attempted to establish this at a general level (e.g. Ehrman and Oxford, 1990; Paige et al., 2002; Rossi-Le, 1995; Wong and Nunan, 2011) or by

investigating how these factors intersect in relation to a specific task (e.g. Gallin, 1999; Chi, 2001), Nel (2008) underlines that what is known in this matter is not precise nor unanimous. According to Curry (1991; 1990 cited in Nel, 2008), Dörnyei and Skehan (2003) and Skehan, (1998), this may be essentially due to the existence of various models for determining styles and because of the limitations concerning the multiple definitions and classifications of learner strategies currently available (see paragraph 1.1.1). Moreover, learning styles are very likely to operate on interlocking continua, as maintained by Dörnyei and Skehan (2003), Oxford (2003) and Reid (1987) and, as the study of Wong and Nunan (2011) suggests, attitudinal patterns towards the language seems to be far more relevant than styles as a key factor determining success in language learning and use. Similarly, Dörnyei and Skehan (2003) report that empirical evidence shows a low correlation between second language proficiency and specific cognitive characteristics (e.g. Witkin's 1962 field dependence vs. field independence). Macaro (2006: 331) offers an alternative perspective concerning styles and strategies. He claims that it is the recurrent use of a certain chain of strategies to process information which shape the general direction of learning approaches and preferences, and not vice-versa. Hence, he rejects the existence of predetermined cognitive characteristics and overturns the sequence of influence. This view appears consistent with Chapelle and Roberts' (1986) assumption that successful learners' styles are somehow malleable because they can adapt them to every learning situation (in Nel, 2008: 53). Since it is not the purpose of this thesis to clarify this issue, it is accepted that the intersection of strategy use, learning style and task benefits from awareness and supervision, as supported by Cohen (2003) and Oxford (2003). Moreover, this connects with the issue of strategy transferability discussed in Chamot (2004), O'Malley and Chamot (1990), Wenden (1998). Provided that the personally-defined chain of strategic actions needs to mirror expectations and goals, successful learners know what to do to cope with language-related experiences appropriately. In regard to this, Macaro (2006: 329) proposes the following axiom: "*if* in a learning situation/task X, *and* when the learning goal is Y, *then* try mental action Z" (italics in original). Macaro observes that this view finds a link with automaticity of strategies and conscious control of their use, too. That is, even if a given strategy becomes automatised, the conscious learner is able

to regain control over it with selective attention when the learning context changes, when the goal is different or when the outcome is not as satisfactory as expected (*ibidem*). Mindful of this, it seems that the point at issue can be narrowed down by focusing on the role of metacognition.

1.2 The role of metacognition in language learning

In the light of the previous discussion, an always-effective and ready-to-use combination of learner strategies does not seem to exist. Ultimately, as stated by Chamot (2004) and Oxford (2003), there is no right or wrong strategy, as long as it reflects a systematic and well-organised course of action which is consciously and flexibly followed to overcome a given problem in a personally-defined successful and convenient way. Since strategies work if tailored to other personal traits, individual and learning factors specific to each learner, we stress the weight of metacognition in the following argumentation.

As we learn particularly from the works by Anderson (2008, 2002), Chamot (2004, 2001), Flavell (1979), Nunan (1999), Oxford (2003), O'Malley and Chamot (1990), Rubin (1987), Wenden (1987a), consciousness of (one's own) knowledge and thinking is believed to be the first crucial step to gain control over the learning process and to enhance it favourably. Wenden (1998) explains that, in order to be used really efficiently and purposefully, explicit knowledge about the target language must be accompanied with mastery of its use and with a higher-level understanding of one's own processes in cognitive terms, belief system and abstract representations of personal experience. In the early days of academic speculation on this matter, Flavell (1979: 906) claimed that, generally speaking, metacognition presides cognitive activities without manifesting itself explicitly to the individual. Thus, its influence can be potentially traced in every kind of behaviour: from attention and memory processes, language production and comprehension, language acquisition and problem-solving, to personality development, self-regulation, social cognition and learning. Flavell's theoretical sub-categorisation of metacognition includes self-knowledge and experience, strategy knowledge and task-related variables and goals. These components, he notes, interact and combine to monitor the cognitive activity. The following example illustrates

the model proposed: “you might believe that you (unlike your brother) should use Strategy A (rather than Strategy B) in Task X (as contrasted with Task Y)” (Flavell, 1979: 907).

In a learning perspective, moreover, Flavell (1979) stresses that metacognition might also be intentionally activated and used to good advantage by effective learners when a challenging task is dealt with, either due to its nature or because it triggers a particularly demanding learning process which the subject must attend to carefully in order to go through it accurately, profitably and successfully. Similarly, the author adds, the deliberate operationalisation of metacognition can produce a stream of conscious experience, too. Not only can this trigger new cognitive activities to monitor, but, again, this could be fruitful also to revise or select new learning objectives, tasks and/or strategies (*idem*, 908). As explicitly recognised by Wenden (1998)¹⁵, Vann and Abraham (1990), Zhang and Goh (2006) this kind of meta-awareness characterises the exceptional performance and outcomes of successful learners across many and various tasks. As we learn from Flavell (1979), being a “body of knowledge” which needs to be acquired, metacognition is not free from shortcomings. “[I]t can be inaccurate, can fail to be activated when needed, can fail to have much or any influence when activated, and can fail to have a beneficial or adaptive effect when influential” (Flavell, 1979: 908). As will be suggested later, metacognition can in fact be used as the key-word to diagnose persistent failure on the part of unsuccessful learners.

In view of these considerations, we understand that metacognition is not just a matter of knowing about knowing. Rather, as Brown et al. (1983 cited in Wenden, 1998) and Rubin (1987) observe, metacognitive knowledge can be concretely exploited as a resource through metacognitive strategies, resulting in activities. According to Anderson’s description, metacognition reflects the “healthy reflection and evaluation of thinking that may result in making specific changes in how learning is managed, and in the strategies chosen for this purpose” (2008: 99). However, Oxford and Nyikos (1989) as well as Wenden (1987b) maintain that no sooner does the learner become aware of his or her preferences, needs, abilities, actions and milestones, than he or she has responsibility, autonomy and control in respect of his or her own learning even outside

¹⁵ The author draws upon a number of studies dedicated to this matter, e.g. Dickinson (1995), Zimmerman and Bandura (1994), Schommer et al. (1992), Pintrich et al. (1993), among others.

formal learning contexts. Hence, strategy implementation fits in with control over one's own learning process, meaningful learning and adequate and successful problem-solving. Besides, meta-awareness allows also to compensate for any learner weaknesses through the use of appropriate strategies. Consequently, the learner who uses his or her tactics to create a personal understanding of the target language and make it an ordered system is likely to facilitate interlanguage development. In turn, this has to do with the knowledge of the self, the personalisation of processes and the ability to use the favourite ones in the right moment, in the right contexts, according to one's own purposes. With regard to this, Dörnyei (2005) and Skehan (1998) suggest that the strategic learner is ultimately expected to know which strategies can be used to accomplish a given task, how strategies work, why and when they can be used in a systematic way. Vann and Abraham's (1990) study provides evidence on the fact that effectiveness in learning is to be attributed to metacognition. Their results reveal that using the strategies employed by successful language learners does not seem sufficient for poorer ones to do better. The authors explain that it is not that poor learners are utterly inactive in the learning process. Rather, they might use even the same strategies as their successful peers, yet these are often randomly chosen in a non-concatenated and non-goal-oriented formula. In their piece of research, for instance, the analysis of activity outcomes and think-aloud protocols carried out by (unexpectedly) unsuccessful learners, as regards a given learning context, revealed that they lacked planning and control over their performance as well as the ability to evaluate and adjust it progressively. To use Rubin's words "it is not the *presence* or *absence* of a strategy that leads to effective learning; rather, it is *how* that strategy is used (or not used) to accomplish tasks and learner goals" (Rubin, 2008:11-12, italics in original). Apparently, this may hold true even for strongly unmotivated unsuccessful learners, as Rubin and McCoy's (2005) review indicates. Drawing upon Williams and Burden (1997), we understand that not only does the clever use of strategies provide the learner with increased proficiency in the target language, but major educational goals can be also pursued. These include:

- a) the learner's sense of agency (i.e. perceived locus of causality and locus of control) and self-determination;

- b) knowledge of self, self-esteem and the learner's perceived self-efficacy;
- c) the learner's active participation in the learning process;
- d) autonomy and a self-directed problem-solving attitude, in life and in lifelong education;
- e) goal-orientation;
- f) motivation to persist in learning the target language.

In view of this, our discussion about metacognition is conducive to an exploration of self-directed learning contexts. To put it in other terms, it appears that metacognition can be fully manifested with the greatest strength in self-regulation, as Wenden (1998) claims. Especially when left on their own – either in mental experiences or in concrete ones –, successful learners are expected to activate the learning process responsibly by choosing, supervising and evaluating their aims, tasks and strategies according to their own motives, interests and abilities. In line with Flavell (1979: 908), only through metacognition can individuals actively search for “the meaning and behavioral implications” of their own learning experiences.

In self-regulation terms, Wenden (1987a) proposes Brown’s (1982) account to delineate the functions which metacognition fulfils. Brown made a distinction between pre-planning skills (i.e. getting ready by establishing goals, choosing and analysing task, evaluating one’s own capabilities and predicting obstacles) and planning-in-action skills (i.e. monitoring, assessing and adjusting performance with further pre-planning). Drawing upon follow-ups, Wenden (1998) informs us that planning, monitoring and evaluating have been accepted and merged with theoretical models of metacognition as the necessary components of self-regulated learning. In more recent years, Anderson (2008, 2002) has presented his ‘kaleidoscopic’ model to explain metacognition and self-direction through five distinct yet interconnected and interactive modules (see Figure 1):

- a) preparation and planning. Setting a goal and working out how to expand on previous knowledge and experience;
- b) strategy choice. As previously discussed, the ability to select the appropriate strategies among the vast array of possibilities available is governed by metacognitive control;

- c) process monitoring. The learner recognises and gets to grips with problems;
- d) strategy orchestration. Mutually-supportive strategies are used in combination;
- e) assessment of outcomes and effects. Supervising the learning process entails being able to reflect on and evaluate one's own performance.

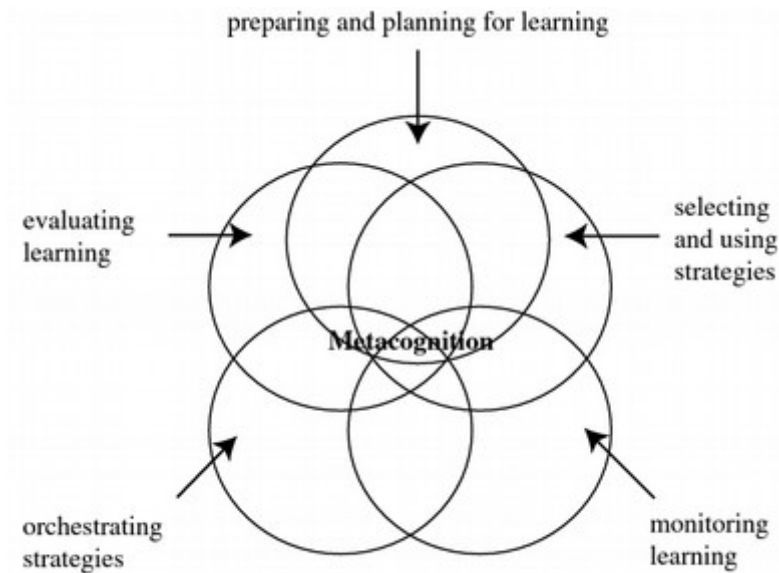


Figure 1: Anderson's model of metacognition (taken from Anderson in Griffiths, 2008: 100).

At this point, the discourse about learner strategies appears to revolve around one dominant idea: in order to work properly, strategies must be used in combination and be governed by one's metacognition. The relationship between metacognitive awareness and the exploitation of learner strategies has been statistically measured by Nosratinia et al (2014). In their study, 143 EFL university students filled in three questionnaires to quantify their sense of self-efficacy, their metacognitive awareness and the use of strategies when learning English, respectively. To this end, Schwarzer and Jerusalem's (1996) General Self-Efficacy Scale, Schraw and Dennison's (1994) Metacognitive Awareness Inventory and Oxford's (1990) Strategy Inventory of Language Learning were used. Secondly, the correlation between these variables, analysed in pairs, was determined through Pearson's coefficient. Additionally, regression analyses were conducted. Statistical significance was reported especially for the relationship between (all six factors of) strategy use and (all eight components of)

metacognitive awareness, which was the focus of their first and fourth research questions. More importantly, the researchers claimed that, as opposed to self-efficacy, metacognition could be used as a predictor of strategy use.

From a learner-centred psychological perspective, Dörnyei and Skehan (2003: 611) propose that strategies essentially mirror “the learner's conscious and proactive contribution to the enhancement of her or his own learning process”. As Dörnyei (2005) and Weinstein et al. (2000) underline, scholars working in the field of cognitive and educational psychology nowadays prefer to include strategy use within self-regulating mechanisms¹⁶. Thus, it is paramount now to provide a definition of self-regulation in language learning to see how it relates to strategy use. Specifically, the discourse will be adapted to the learning contexts created as a consequence of the digital revolution in the Information Age. The following paragraphs, therefore, are essential in this thesis to introduce the 21st-century strategic learner.

1.3 Self-regulation in language exposure

As previously introduced, the inquiries regarding language-related strategies started in parallel with the investigations regarding self-directed learning¹⁷. In order to fully understand the point where these two aspects of learning meet, the two facets of self-direction must be taken into account. On the one hand, it can be interpreted in technical, organisational terms. According to what Dörnyei (2005), Holec (1987), Oxford (2008) and Wenden (1987) reveal, the self-regulating (language) learner identifies his or her learning needs, translates them into specific goals, determines the contents and the learning path, selects the appropriate methods and resources to achieve them, monitors the progression and, eventually, is able to assess and reflect upon the results of his or her efforts. On the other hand, Wenden (1987) considers Brookfield's (1985) perspective known as the ‘reflective approach’. Wenden explains that the self-directed learner has become familiar with alternative ways of achieving his or her learning goals and is able to make the right choice to maximise the result of his or her

16 See Boekaerts, Pintrich, Zeidner (2000) for an overview of self-regulation.

17 As we learn from Wenden (1991), in cognitive psychology, the terms self-direction, self-regulation, self-management and the like are often used interchangeably to refer, basically, to the same umbrella concept: metacognition.

actions in a responsible manner. In other words, the learner is expected to go through many and different learning experiences (see section 1.2) before reaching meta-awareness. As Holec interprets it, good and autonomous learners essentially “know how to learn” (Holec, 1987:147). Together, these two perspectives match with Winne’s (1995: 173) broad psychological description of self-regulation reported by Dörnyei and Skehan (2003: 612). In short, Winne claims that the self-aware learner regulates his or her own performance by consciously controlling motivational aspects, existing knowledge and beliefs as well as by selecting suitable strategies in relation to the learning outcomes desired. Ultimately, these appear to be the requisites for dealing efficiently with a given task and improving both knowledge and motivation.

Regardless of the many inconsistencies in language learner strategy research, Barnard-Brak et al. (2010), Oxford (2008), Rubin (2001, 1987) and Wenden (1991) accept that strategies play a key role in self-directed learning, for they are inherently linked with the flexible and responsible management of the learning process in terms of will and skills. As indicated by Dörnyei (2005) and Dörnyei and Skehan (2003), in recent years educational psychologists have therefore embodied the concept of learner strategies, and other interconnected factors, into the general term self-regulation to express the complexity of process-like, dynamic and metacognition-driven mechanisms entailed in self-direction and task-control more convincingly. In spite of this, Cohen, (2011), Macaro (2006) and McDonough (2001) confirm that, in the field of SLA, the notion of strategy is still maintained. Griffiths, for instance, addresses the following issue:

if the term self-regulation is to be useful in any practical sense, the next question must surely be: “What do learners do in order to regulate their own learning?” In other words: “What are their strategies?” [...] The self-regulation concept, therefore, does not remove the need for a strategy concept, neither does it do anything to resolve the battles over definition. (Griffiths, 2008: 85)

Following this position, the term strategy will not be discarded in this thesis, although it will be included, now and again, in the umbrella notion of self-regulation (and synonyms) too¹⁸.

1.3.1 Independent language learning and use

Rubin's (1975) good language learner is the one who welcomes the chances to practise and learn the target language also in independent settings, i.e. without the formal guide of a teacher. In order to link this view with the previous discussion, we can say that creating or taking the opportunity to develop the interlanguage system by selecting and processing relevant information in a controlled and purposeful manner appears to be indeed a key variable in learners' success in lifelong perspective. Actually, in Oxford's (2003; 1990) taxonomy, this social disposition is considered itself a strategy. As advocated by Sheerin (1997) and White (2008b), moreover, the learner-centred philosophical and psychological frameworks reach their climax precisely with independent learning. Drawing upon Candy (1991) and Paul (1990)¹⁹, this is not just in terms of aims, but also in relation to the processes involved. According to White's (2008b) interpretation, in this perspective the independent language learner is able to assess the perceived 'affordance' within language contact and is free to choose the experiences he or she becomes eager to go through, fundamentally to meet language-related needs and objectives. White argues that, however, increasing the exposure to the target language does not automatically nor naturally advance skills and knowledge. In order to exploit the resources available fruitfully, the input must be selected, attended to and manipulated, i.e. *processed*, adequately and meaningfully (White, 2008b). As Cohen pinpoints, success is not accidental: it mirrors the conscious control over the learning process, in harmony with one's individual profile, and the dynamic adoption of strategies which are appropriate to the task at hand (Cohen, 1991: 109). Thus, we can say that strategies represent the added value to comprehend, memorise and use the selected pieces of information in a relatively quick and productive manner. According to what we learn from McDonough (1981), moreover, tactical supports are required to convert episodic information into semantic units, so as to be stored in the long-term

18 This position is in line with Cohen's (2012) and Oxford's (2011).

19 Both cited in White (2008b).

memory system. Hence, we can conclude that the learner needs to adopt those strategies which allow him or her to organise and represent knowledge in such a way that is consistent to previous experience and personal understanding of things, both in terms of meanings and linguistic (formal) aspects. As Sheerin (1997) suggests, learning independence cannot be fed just with a favourable disposition: The learner needs to devise a method. To make intention and practice work in a self-regulation sense, however, it is necessary to make use of metacognitive strategies, like the studies of White (1997) and Hurd (2001) confirm (cited in White, 2008b).

Starting from Holec's (1987) contribution to this matter, we focus now on the identification of the learning needs and the goal-setting passage from which the learner is likely to benefit before choosing the appropriate strategies in order to give meaning to the opportunities seized. In the first decades of research on how learners take charge of learning, Holec (1987) described the decision-making process of a group of adult English learners tape-recorded during classroom activities. Holec noted that, on the whole, establishing objectives appeared to be the most difficult step to overcome for learners. According to the author, two main reasons were attributed to this: First, the general unawareness of the actual chance learners have to select their own objectives in a responsible manner; Second, learning goals tend to be confused with needs (Holec, 1987: 149). As a consequence, Holec concluded, the selection of tasks, contents, strategies, the monitoring of performance and the evaluation of outcomes in the light of progress were inevitably compromised. At most, he added, assessment was given to the quality of materials and to one's own performance. In view this, we can say that the risk in independent language learning is that learners do not align learning needs with fitting goals and, because of this, are not able to work on suitable material, employing compatible and effective strategies. We do not find any references to claim that learners will only succeed if they are entirely responsible, independent and aware of what they choose to do. In spite of the fact that some aspects of the learning process might remain out of the scope of the not-yet-autonomous individual's conscious decisions, Oxford (2008) highlights the role of establishing goals in connection with strategy use. After all, as explained in Oxford (2003, 1990) and Oxford and Cohen (1992), the employment of the suitable combination of strategies is inherently goal-oriented (see paragraph 1.1.1),

and this purposefulness is incorporated in the etymon of the word ‘strategy’ itself. Although the term does not bear the same bellicose meaning as the ancient Greek word *strategia* in language learning, it does represent a controlled, (potentially) conscious move towards a goal (Oxford, 2003: 8; Oxford and Cohen, 1992: 4-5)

Taking one step back, we learn that self-management must be always contextualised, for the interaction between the learner and experience to be successful. As Rubin (2001) stresses, contextual knowledge is part of the subcategories from which metacognition draws to direct behaviour in a controlled way. Hence, we can claim that learning needs and objectives are almost inevitably established according to the learning situation. For this reason, the discussion on self-regulation and strategy use is now diverted to a very particular, familiar, popular, tremendously dynamic and stimulating learning environment: the Internet.

1.3.2 Self-direction and the Internet

In the era of the Internet, innumerable opportunities to “work through the information” (Rubin, 1987: 17-19) and to construct one’s own meaningful experiences are given to individuals. Like many other languages, authentic English contents pervade the digital world of information and web-based EFL learning can be an interesting area of study for SLA researchers²⁰. As a matter of fact, on the web subjects are given the chance and are somehow encouraged to take charge of their learning to continue to practise English in lifelong and self-regulation perspectives. The learner’s active role in the learning process, as a result of exposure to new and continuous online experiences, encompasses a number of aspects. As observed by Azevedo et al. (2010), Barnard-Brak et al. (2010), Hannafin and Hannafin (2010), Land et al. (2012), Rubin (1987), Winters et al. (2008), these include: the responsible planning and the self-accessed exploitation of the authentic resources available to meet learning needs; an active, goal-directed and problem-solving attitude (hypothesis formulation and testing, exploration, feedback appreciation) towards materials, paving the way for meaningful ‘internalisation’; the metacognitive ability to monitor and regulate the processes involved when handling

20 According to the surveys published by Q-Success Web-based Services’s statistical division called W3Techs – World Wide Web Technology Surveys, approximately half of the top 10 million websites analysed uses English as content language (see website link to Q-Success in References).

relevant task-related problems, making the difference with respect to the learning outcomes.

Following Azevedo et al. (2010), Devolder et al. (2012) and Mayer (2005), we underline the fact that, apart from those web-sites, platforms, social-network pages or applications specifically designed to promote foreign language learning, on the web innumerable pieces of non-linear structured information are shared in various representational formats in many languages, also in combination (written texts of different nature and style, hypermedia, films and videos, images, audio files, etc.). As suggested by Land et al. (2012) and Hannafin and Hannafin (2010), when it comes down to working and learning online through another language, the tenets of the information processing theory, the learner-centred constructivist perspective and the interlanguage theory merge and, together, escalate. That is to say, on the World Wide Web innumerable chances to learn in a self-directed, interest- and need-based way are offered. Apropos this, we refer to Winters et al. (2008) when we say that the language learning process depends on the managerial skills of the learner which he or she can exploit or develop to manipulate experiences and information. In other words, even if the Internet represents an invaluable opportunity for EFL learners to improve, it is necessary for them to possess adequate competence to deal with this special computer-based learning environment, also to avoid getting lost in cyberspace, as Hannafin and Hannafin (2010) reminds us. It is not just a matter of knowing how to use the web favourably by shaping experience. In the volume edited by Mayer (2005)²¹, we learn that the representational system of contents might be itself problematic to cope with, since it can lead to cognitive overload and, as a consequence, hinder learning. Drawing upon a number of empirical studies and theoretical assumptions, Hannafin and Hannafin (2010) reveal that metacognitive and motivational factors allow the self-regulating learner to respond to the challenges posed in web-based learning contexts effectively and successfully.

According to Azevedo et al. (2010), Devolder et al. (2012), Pintrich (2000) and Winters et al. (2008), scholars adhere to the view shared by pioneers like Pintrich (2000), Winne and Hadwin (1998) and Zimmerman (2001) whereby self-regulation

21 In particular, see the chapters by Sweller and Mayer, respectively (Mayer, 2005).

models cover four main aspects in computer-based learning environments, namely: the context, motivation, behaviour and cognition. According to this theoretical framework, each of these foci enters a four-step dynamic and adaptive mechanism. We find consistency with the modules of Anderson's (2008) metacognition model for language learning (displayed in section 1.2) and the characteristics mentioned to describe self-regulation in psychological terms (see section 1.3). To begin with, the context is evaluated to identify needs, to plan objectives and activities and to activate existing knowledge. Metacognition is therefore stimulated to monitor the variables of experience in process. As a result, these are regulated in harmony with the learner's goals, mainly by means of strategies. Finally, the context, the task, performance and achievement are constantly assessed through reflection. What is new in this respect is that the technological setting allows the learner to support all these processes to his or her advantage by means of digital resources, as noted by Greene et al. (2015) and Land et al. (2012). That is to say, the environment itself can be exploited to maximise self-regulation, i.e. the learning process and its outcomes. The supports, guides, prompts and tools available are commonly termed 'scaffolds' in the computer-assisted learning literature (Devolder et al., 2012; Hannafin et al., 1999; Hill and Hannafin, 2001). In traditional learning contexts, these refer to the external assistance offered by an expert, generally the teacher, which the learner interacts with in the learning process to complete a task. Fischer (2007) and Sharma and Hannafin (2007) observe, instead, that for technology-enhanced learning the computer itself provides various kinds of supports to the learner's cognition and metacognition, specifically designed by human experts in the form of various kinds of software components or digital tutors. In self-regulatory terms, however, it is the learner himself or herself who decides to exploit the scaffolding available²² or to enhance the learning process through personally-defined strategies and self-created scaffolds, as Azevedo et al. (2010), Hauck and Hampel (2008) and Oxford (2008) acknowledge. In this sense, the use of certain kinds of supports can be translated into concrete (combinations of) behaviours consciously and autonomously displayed to facilitate contents understanding and learning in a problem-solving, goal-directed and process-oriented approach. Furthermore, these activities are inherently subjective and

22 According to Fischer's (2007) review, tracking data reveal that the actual use of help options at the learners' disposal is not obvious whatsoever.

tailored to the learner's preferences, skills, characteristics and to the task at hand. This explanation meets the features of language learner strategies presented in section 1.1.1. As Hannafin and Hannafin (2010) highlight, to some extent human cognition has been replaced, integrated and sometimes even upgraded by technological tools. The most convincing feature of scaffolds, which will be called strategies from now on, is precisely that they need to be sought for on the part of the learner.

To the best of our knowledge, the use of additional and/or external resources and tools on the part of the strategic language learner is rarely mentioned in the literature concerning language learner strategy use. For example, in their strategy inventory called Language Strategy Use Survey, Cohen, Oxford and Chi (2002) include the use of a dictionary to look unknown words up as a reading strategy. Griffiths (2008) discusses the matter more in depth as a consequence of the findings she reported about a study on learner strategies conducted among 131 international students attending an English course in Auckland, New Zealand. Griffiths stresses the fact that, out of the fifteen strategies that students reported adopting very frequently, four were related to external resources: With the exception of the teacher, the others concerned watching TV in English, watching films in English and using the dictionary as a learning tool to establish meaning (even on the part of advanced students). Thus, one can argue that the learner must be aware of the existence of useful resources to exploit favourably to boost the learning process as expected. Moreover, just as it is claimed for 'offline', i.e. traditional learner strategies, there are various supports to use (preferably in combination), yet their convenience and effectiveness hangs on the single individual and his or her metacognition-based strategic control.

In sum, we can say that unlimited resources of various types triggering strategic behaviour are available on the Internet, and this could be used as an opportunity to develop and use (new) learner strategies. As will be detailed in the following section, from a cognitive point of view the concrete manipulation of the input through the adoption of strategies, and its subsequent transformation into material to be processed – and learned –, appears to depend primarily on the attentive and conscious mechanisms of the individual. We find that it is important to report what experts claim about the role

of awareness in this respect, in anticipation of the research project presented with this thesis.

1.3.3 Activating processes

An up-to-date issue in information-processing learning theories concerns the concept of *noticing* (Schmidt, 2001; Skehan, 1998). As we learn from Robinson et al. (2012), in the 1990s the initial, Krashesian SLA cognitive account whereby (comprehensible) input automatically implies meaning extraction and, as a consequence, interlanguage development, was challenged by new approaches. In particular, VanPatten's research on input processing in a learning perspective shed light on the role of attentional resources²³ in creating associations between inferred meanings and variations of forms *noticed* in the input, i.e. in the material available to be processed (VanPatten, 2012; VanPatten, 1996 cited in Skehan, 1998). Robinson et al. (2012) stress that since meanings and forms cannot be dealt with simultaneously, after processing the input for meaning²⁴, forms should be attended to consciously on the part of the language learner to facilitate learning and to regulate his or her actions. While Schmidt (1990) and Peters (1998) hold that this is valid for every aspect of the language (morphosyntactical, semantic, phonological, pragmatic, etc.), Robinson et al. (2012) reveal that more recent studies show that morphosyntactic details are hard(er) to spot. More precisely, Schmidt's (2001; 1990) *Noticing Hypothesis* was based on the assumption that selective attention needs to be directed to relevant features of the input to activate all the processes regarding language more powerfully: not only comprehension and production, but especially interlanguage development. According to Schmidt, the effectiveness of noticing is influenced by the quality of input (e.g. frequency and saliency of a form or aspect in the input; guidance in noticing), the type of task and 'internal factors'. He specifies that, broadly speaking, these mirror one's personal disposition in terms of alertness and favourable processing abilities (e.g. working memory capacity) to bridge the gap between existing knowledge and incoming

23 Schmidt (2001; 2010) points out that attention refers to a complex system of psychological constructs which interact to improve the information processing performance.

24 VanPatten (2012) explains that, according to scholars and following empirical findings, content words are processed, i.e. connected to meanings and functions in the sentence, before function words and morphemes in the input.

material. In this sense, noticing implies the activation of top-down flows of information, and individual differences are at play also in this respect (Schmidt, 2010; Skehan, 1998)²⁵. Most importantly, Schmidt argues, awareness maximises the effect of noticing, for it allows to control, attend to and process information consciously and in problem-solving perspective through appropriate cognitive operations, i.e. the continuous analysis and synthesis of new and existing representations. Attention and (metalinguistic) awareness are believed to be so tightly fastened that we attend to the things we become aware of, eventually. Schmidt (2001) points out that the mechanism of noticing concerns the material detected within selective attention in the working memory system, where the chance to accommodate the intake (i.e. the input noticed²⁶ and further processed – Schmidt, 1990: 139) into the long-term memory and to use it in a generative, flexible, fluent and controlled manner is enhanced (Robinson et al., 2012; Skehan, 1998). Schmidt himself acknowledges the existence of implicit and inattentive (i.e. unaware) processing leading to learning, which according to Ellis (1994) is likely to co-occur or even precede explicit operations²⁷. However, only consciousness *as* attention is believed by Schmidt (1990) to support efficient learning, both with regard to the working memory system and the long-term memory system. As Skehan (1998) underlines, noticing does not however substitute the value of practice, i.e. frequent exposure to the target language, which enables both implicit and explicit learning of new particulars of the language.

In the previous section we argued that in online environments non-native speakers of English are often confronted with authentic materials in which formal aspects of the foreign language and contents, i.e. meanings, are obviously combined in a natural way. In view of the present discussion, we can claim that the web represents a valuable source of input for the learner to *notice the gap* between the target language

25 To the best of the author's knowledge, further research is still needed in this sense, to understand how and how much internal factors affect noticing.

26 'Apperception' is another term proposed by Gass (1988 in Robinson et al., 2012) to describe the initial processing stage whereby some peculiarities in the input are comprehended, selected and compared with expectations derived from existing knowledge/experience of the same kind.

27 Ellis (1994) explains that the issue concerning the mechanisms underlying explicit and implicit learning, respectively, has always been difficult to clarify. According to many, because the question of whether learning can occur without attentive engagement does not seem to be unanswerable, the point is to demonstrate that noticing does involve more effective learning in quantitative and qualitative terms.

and his or her own interlanguage system from a formal point of view. In turn, he or she can choose to adopt specific cognitive operations to resolve the mismatch in a strategic, self-correcting way (Truman, 2008). The construct of noticing is therefore a relevant one in the matter of this thesis, for the aim of the study here presented is to find out how EFL learners use the Internet to work on selected features of input to increase their knowledge in every possible language-related domain (see section 1.4). In other words, the focus will not be on subliminal language processing which may equally add up to learning. Rather, the conscious operations to process new or relevant pieces of information successfully selected from the abundant input stream (in our case, a video) will be at the centre of the investigation.

1.4 Online language learner strategies

Thanks to the advancements of the so-called Web 2.0, people are able to connect with native speakers of the foreign language learned (a)synchronously²⁸ by accessing online resources: texts, videos, audio files and other kinds of multimedia materials. As far as English as a foreign language is concerned, the learning process is potentially activated every time English is accessed in technology-mediated environments. Since the user usually has total and creative control over the information flow and its presentation formats, Heift and Chapelle conclude that

[t]he Web therefore provides an unprecedented amount and quality of target language opportunities for input, help, information and interaction for learners who know how to use them. (Heift and Chapelle, 2012: 556)

As introduced earlier on in the chapter (see section 1.3.2), as soon as the learner engages in concrete or mental activities with the purpose of achieving a learning goal in a self-regulated way, also by means of the interaction with the technological tools available, we could claim that he or she is using a strategy.

Among the types of interactional patterns between the human and the computer identifiable (see Chapelle, 2003 for a thorough analysis of the human-technology interaction and its pedagogical value), in the matter of this thesis the interest lies in

²⁸ See Warschauer and Healey (1998: 63-64).

those cases when the learner acknowledges a deficiency or has a doubt concerning language use and gets help autonomously to construct meaning and cope with the problem by creating new learning opportunities. The standpoint adopted is in harmony with Heift and Chapelle's position:

Developers of CALL materials can intentionally provide these opportunities for learners, but learners who are able to use *strategies* for getting help on the Internet and in word processing software can create valuable computer-learner interactions beyond pedagogical software. (Heift and Chapelle, 2012: 557, emphasis added)

Essentially, the learner who surfs the Net to actively undertake additional activities concerning the learning of language material is believed to be self-regulating, i.e. metacognitively involved. Hence, online learner strategies can be regarded as activities elicited as a consequence of one's own metacognitive control over the learning process. Additionally, these are to be associated with subsequent (strategic) cognitive operations aimed at dealing with the learner's problem effectively.

Although computer-assisted and computer-enhanced (language) learning are prolific research areas, authors like Hauck and Hampel (2008: 284) and White (2008b: 20) urge empirical research on learner medium-specific strategy use in the domain of technology-enhanced foreign language learning, i.e. in the open online environment. Before introducing the research project presented in this thesis, an overview on relevant previous studies concerning online learner strategies will be offered in the following section.

1.4.1 Relevant findings on online strategies from previous studies

In Warschauer and Healey's (1998) overview on computer-assisted language learning we learn that, in the current era, technology is being integrated into the process of language learning and use by means of the "multimedia networked computer" (Warschauer and Healey, 1998: 58). In the last three decades, research have been published to unveil how people use technology to assist the learning process. According to Warschauer and Healey's (1998: 61), this has been explained by experts especially in terms of software-related interaction, attitude, skill development (especially writing)

and with respect to the benefits of multimedia. On the whole, findings document the highly influential role of technology among language learners in supplementing linguistic and cultural materials and in enhancing the target language learning process.

As a result of the previous discussion we can say that, among the many inherent benefits of the Internet, the learner can explore materials by combining different resources and personal abilities in a strategic way. This opportunity is believed to be governed by self-regulatory mechanisms aimed at supporting and advancing learning and/or at attaining the desired comprehension level by the self-directed learner. Furthermore, Truman (2008) stresses the importance of self-correction in independent learning contexts in the matter of metacognitive strategies employed to self-manage one's own learning. This mechanism, he argues, has been little investigated, probably because of its subtle nature. Rather than an 'introspective activity', he continues, self-correction should be seen as an interactive move involving either learning materials or one's own interlanguage system, whose gaps in regard to the target language has been noticed and filled by cognitive activities by the learner. Thus, Truman encourages further investigation in self-correcting mechanisms in process-oriented and strategic perspective.

As will be explained in the following section, the study presented in this thesis is focussed on listening-related strategy use in open-access technology-enhanced language learning settings. To the best of our knowledge, this skill-specific niche has been little investigated, as confirmed also by Chen et al. (2014), Hauck and Hampel (2008), White (2008b) and Warschauer and Healey's (1998). In spite of this, some studies have been selected to enlighten us about this matter. To begin with, Ulitsky (2000) conducted a mixed-methods study to examine self-regulation in a multimedia environment in terms of strategy use on the part of twenty-seven adult experienced language learners (some of them were also language teachers). Subjects were asked to work independently with either French or Spanish (FL) materials using the facilities provided by the Center for Electronic Language Learning and Research at the University of Albany, State University of New York. A preliminary session was held for the researcher to collect background information regarding the participants through pre-interviews and pre-questionnaires, and for the subjects to understand the nature, purposes and procedures of

the study and to activate previous knowledge as regards language learning and, in particular, language learner strategy use. A laserdisc was given to each participant in which a video and various activities were available to exploit freely to the advantage of one's own learning. Participants were asked to keep a journal and to record their language learning processes, which the researcher coded according to the types of strategies used and upon which she built post-questionnaires and post-interview questions. In the matter of this thesis, the use of what Ulitsky labelled as *context-specific learning strategies* confirms that good language learners do search for external resources to assist their learning, especially to compensate for difficulties and to suit their own learning styles.

In recent years, Chen et al. (2014) analysed listening-strategies use on the part of 82 intermediate-level EFL Chinese university students dealing with a total of 78 unit-specific listening tasks and subsequent activities available on a Web-assisted learning software. In their quantitative study, students were invited to complete all progressively-ordered learning units, for which transitional tests were administered, before responding to specifically-designed forms and having their listening skills assessed. The learners were free to practise on their own within a semester and to exploit online resources to support their activities. Apart from measuring the impact on strategy use of a set of individual factors, as well as the influence of their interaction, Chen et. al relied on a 24-item strategy inventory to uncover the relative frequency of use of learner strategies of cognitive, metacognitive and affective kind on the basis of a 5-point Likert scale. According to the results, students reported a medium use of strategies overall, among which cognitive and metacognitive ones prevailed with high frequency (on average). The researchers propose that some technological functions might have favoured this, e.g. the presence of hypermedia, rewind features and programme-specific facilities such as unit-related goal definition and immediate feedback. Affective strategies, instead, were employed the least. As for the influence of individual factors, Chen and colleagues stress that the higher the learner's motivation, the greater listening strategies appear to be adopted. Similarly, the more comfortable students are about learning with the support of the computer, the more frequently (meta)cognitive strategies are used. When motivation and such learning preferences interact, strategy use increases. On the

contrary, no significant correlations could be found between listening ability and strategy use in terms of frequency and type²⁹. Chen et al. argue that the same can be claimed for gender and strategy adoption. As far as anxiety is concerned, its influence was traced by the researchers only in relation to CALL-related preference and listening performance, respectively. That is to say, Chen et al. were not able to use anxiety as a predictor of strategies.

Two more studies were called upon to look at the use of online resources within the context of the World Wide Web as an open-access environment in which meaningful experiences can be created and the target-language can be improved³⁰. Peters et al. (2011) administered questionnaires and carried out focus group interviews with 71 Canadian university students to investigate the typical information-seeking activities on the Web with reference to French-FL learning. Participants reported a regular use of the Internet to seek additional materials and tasks to engage in and, above all, to consult dictionaries, spell-checkers, grammar forums, and other translation websites as a confirmation tool for formal aspects of the language.

Larson-Guenette (2012) went beyond the simple access to the Internet and analysed what motivations and beliefs the German-FL university students involved in her study had in respect of language learning online. The results of her 71 surveys and 13 interviews show that learners acknowledge the convenience of using the Web to support their learning, the opportunity to expose themselves to authentic linguistic and cultural materials and the usefulness of online tools to check the accuracy of their (formal) knowledge of German. More importantly, some participants in Larson-Guenette's study claimed to be somehow dependent on the Internet and even though it could be possible to do without it to learn the target language, it would be unbearably uncomfortable and time-consuming (2013: 70).

Building on the aforementioned findings, the following study (section 1.4.3) has been designed to explore the strategic use of online resources on the part of Italian

29 This finding contradicts Goh's (1998) and Vandergrift's (1997) results, according to which proficient listeners appear to be more strategic than less-skilled ones as regards frequency and variety.

30 Warschauer and Healey (1998: 64) indicate that web-based language learning has been scarcely investigated, also due to reasons of complexity.

university students in connection with a specific listening-based task in order to assist and increase their knowledge of English.

1.4.3. The focus of the present study and research questions

In the matter of self-directed learning, Knowles highlights the necessity of equipping learners “to continue learning on their own when they leave a formal educational experience” (Knowles, 1976 cited in Wenden, 1987: 9). In the light of Larson-Guenette’s (2013) indication that consulting the Web as the principal source of any kind of information seems to be by now a “reflex”³¹, especially among young people, it would be interesting to understand how Knowles’s view can be adapted to a technology-based society like ours. When it comes to learning English as a foreign language, moreover, the exposure to and the necessity to deal with it appears indeed to be destined to continue in the long run. One of the domains in which the use of English prevails is undoubtedly the World Wide Web, where learners are given the opportunity to make themselves independent learners either in connection with a formal EFL course or in lifelong learning perspective, as Oxford (2008: 57-58) observes. Donaldson and Haggstrom point out (2006: viii in Fischer 2007: 416) that, however, accessing authentic materials (so easily) does not automatically imply that learners will be able to use them profitably, at least in language learning terms. Surfing the Internet autonomously to one’s advantage and in a constructivist learning perspective involves indeed a set of abilities (see Greene et al., 2015 for a review) represented by the construct of metacognition, as we can understand in the light of the previous discussion in this chapter.

In reference to this, Devolder et al. (2012), Fischer (2007) and Winters et al. (2008) reveal that studies show that people commonly lack self-regulation and expertise, i.e. knowledge, self-awareness, and skills, to navigate online resources in a successful, meaningful and self-directed way. Oxford (1995 cited in Fischer, 2007: 416-417) made her claim about the language acquisition stage where learners can manage their learning responsibly and independently. She suggests that only once the initial phase is over (i.e. that of *novices* and *advanced beginners*) can the *competent* learner

31 See also Brabazon (2007), Foster and Gibbons (2007), George (2007), Gibbons (2007) as reviewed by Peters et al. (2011).

start working as autonomously as *proficient* and *expert* learners. Oxford and Nyikos (1989) reach a similar conclusion by analysing strategy choice among 1,200 university students. Their data reveal that students with a four- and five-year experience in foreign language learning (as academic requirement) appear to be significantly more strategic than less experienced learners. What about Italian intermediate and advanced EFL university students, then?

The descriptive study presented in this thesis investigates the conscious and purposeful actions and reflections aimed at resolving language-related problems in a quick and effective (i.e. strategic) manner on the part of EFL independent learners exposed to English authentic material in a web-based environment. In particular, the context under examination concerns a video-based task proposed to 53 university students for whom English is a foreign language. It should be noted that, according to the Italian school system, university students all possess at least an 8-year experience of formal English learning. Additionally, achieving an intermediate-level communicative competence in English is a requisite for obtaining a Bachelor's degree, and this language is increasingly used as the main language of many university courses³². All considered, three key points can be identified to justify the choice to use an English video to see which online strategies EFL Italian university students adopt. Firstly, they are asked to maintain their English 'fresh', for both academic and work purposes, and, somehow, to become independent and lifelong EFL learners. Thus, they are expected to welcome the chance to deal with authentic material by engaging in relatively short and interesting tasks. In turn, it is more likely that they will employ online learner strategies either to assist the comprehension or to freely expand on the contents of the video autonomously and purposefully. Secondly, the largely-accessed Internet is one of the main providers of English authentic contents and materials, hence the activity proposed is assumed to be familiar, if not a routine indeed, to the participants in our study. As observed by Vandergrift (2011; 2008), listening activities are hardly seen as chances to learn. Rather, they are often described as potential sources of trouble, almost a threat, that only relevant strategies will help keep under control. This conception is well

32 On 2nd February 2018, the Italian Ministry of Public Education put out a press release concerning an agreement reached among the Italian university deans, reunited in council, about expanding the offer of courses held in English as a national education goal (see website link to MIUR in References).

reflected also in existing language learner strategy inventories, as Locastro (1994: 412) highlights. However, the video seems to be a good example of the kind of material typically accessible on the Web on the part of Internet users, and it is believed to represent a means to learn. Thirdly, proposing a combination of audio and visuals allows us to increase the chance of suiting many different learning styles and preferences, in line with Mayer's (2005) indications.

In view of the previous discussion, in order to do seize the opportunities to advance the knowledge of English through the task proposed, learners will have to appeal to their self-regulation abilities (i.e. metacognitive strategies), manifested through conscious mental operations and/or concrete online-navigation-based actions. Hence, successful learners are expected to

- a) establish meaningful goals related to the activity proposed;
- b) monitor their performance as listeners-and-viewers;
- c) solve comprehension or self-defined learning problems³³ by selecting strategies in accordance with the contextual and task demands, one's own objectives, personal preferences and characteristics and previous experience;
- d) continuously evaluate the level of comprehension and the strategies employed to meet the standards defined.

In particular, the focus of the present study is on the free and self-initiated strategic interaction of the EFL learner with the computer, aimed at achieving task-related learning goals by taking advantage of the online resources available. The research questions which will guide the investigation are the following:

1. Do EFL Italian university students deliberately interact with the computer in a strategic way to assist the comprehension of an English authentic video?

33 The problem-solving orientation is conceived as a manifestation of self-regulating behaviour, i.e. a symptom of metacognition at work. Especially as far as FL comprehension deficiencies are concerned, it signals a focus of attention on those aspects which can be integrated to develop or adjust the learner's interlanguage system (Truman, 2008).

2. Which online resources do self-regulated EFL Italian university students exploit to increase their knowledge of English, with respect to an English authentic video?
3. Is there any marked difference in strategy use between metacognitively self-aware intermediate EFL learners and metacognitively self-aware advanced ones?

It is important to point out once again that the learner's success in foreign language learning and use hangs on a wide range of variables. Personal traits and experience, cognitive style, social, psychological and emotional factors, the level of competence in the target language, to name a few, all have an impact on the complex profile of the individual. Although strategies are embedded within this 'filter' – as suggested by Cohen, 1996b –, the *choice to be strategic* in concrete and mental activities can be isolated from all these underlying characteristics, as Rubin underlines (1987: 19). In this sense, the present study investigates the causes underlying learner strategies and the operations related to these, while it is accepted that each participant is going to approach the task in a unique way. Moreover, strategies will be treated according to the specificity of the environment under examination and the task proposed, in line with Benson and Gao's (2008), Cohen's (1996b), Ellis' (1994) and Macaro's (2006) call. As will be discussed in the following chapter, the use of written verbal report as the main instrument for data collection is connected to the event-like feature of self-regulation (Azevedo et al., 2010) manifested in the use of consciously-adopted and observable (mental/concrete) strategies during the learning and the problem-solving processes on the part of the individual.

1.5 Summary of chapter one

In the field of foreign/second language acquisition, since the early 1970s the constructivist tenet of learning how to learn in an active, meaningful, purposeful and self-specific way has been interpreted in terms of strategy use. In the present thesis, the theoretical line followed to explain what learner strategies are is centred on the assumption that good language learners consciously and purposefully exploit self-tailored and contextually-appropriate (chains of) mental and observable activities in

order to support and facilitate the learning process, to compensate for language limitations and/or to improve their competence in the target language. As scholars suggest, although cognitive processes are ultimately responsible for input processing, i.e. learning and acquisition, metacognitive awareness represents the necessary condition for the profitable planning, the monitoring and the assessment of the learning process and outcomes, by which strategy choice plays a key role. Anderson's (2008; 2002) model of metacognition was referred to in the chapter to illustrate this, i.e. that the conscious, flexible and goal-oriented control of one's own reflections, actions, skills, learning preference and style, motivation and needs underlies effective learning. In view of this, educational psychologists have recently embodied the concept of learner strategies into the general term self-regulation to express the complexity of the dynamic and metacognition-driven processes entailed in self-directed and successful language learning and use.

With reference to foreign language learning, new independent-learning settings have emerged thanks to the Internet. Innumerable digital materials, resources and tools are available on the Web to be met with learners' learning preferences, interests, learning needs and goals. In accordance with scholars' indications we stressed that, in order to regulate their online learning experience and its outcomes profitably, FL learners are expected to possess knowledge and metacognition-based strategic control to plan, monitor and evaluate their activity and to translate this into actions, both mental and concrete (e.g. use of online tools and web resources). As for language development in the narrow sense, we also used Schmidt's (2001; 1990) construct of *noticing* to underline that online strategy use can be started as long as the individual selects relevant and specific pieces of information from the material he or she is exposed to and processes them with a problem-solving, goal-directed and process-oriented approach. As presented in the chapter, recent studies have demonstrated that good language learners do search for online materials, tasks and resources to assist their learning, especially to compensate for difficulties (dictionaries, spell-checkers, language forums, translation websites, etc.) and to suit their own learning preferences.

On the understanding that strategy use is context-bound and task-specific, the study presented in this thesis was designed to explore the conscious and purposeful

strategies aimed at resolving language-related problems and/or increasing the knowledge of English on the part of EFL independent learners as they watch an authentic video on the web. In this way, not only will we analyse how self-directed learners go about language-related experiences in learning perspective, but the use of medium-specific resources will be also examined.

2. The study

As already introduced in the previous chapter (section 1.4.3), a research project was carried out in order to explore which strategies EFL learners employ to self-regulate their learning experience in an open web-based independent setting, i.e. to ‘disentangle themselves’ from consciously recognised learning-problems or limitations in order to satisfy their task-related purposes. More precisely, a group of EFL Italian university students was invited to watch a video online with the aim of comprehending the contents and, potentially, learning something new according to their own interests, needs and goals. On the basis of self-reported introspective accounts, the research questions which the investigation aimed at answering are the following:

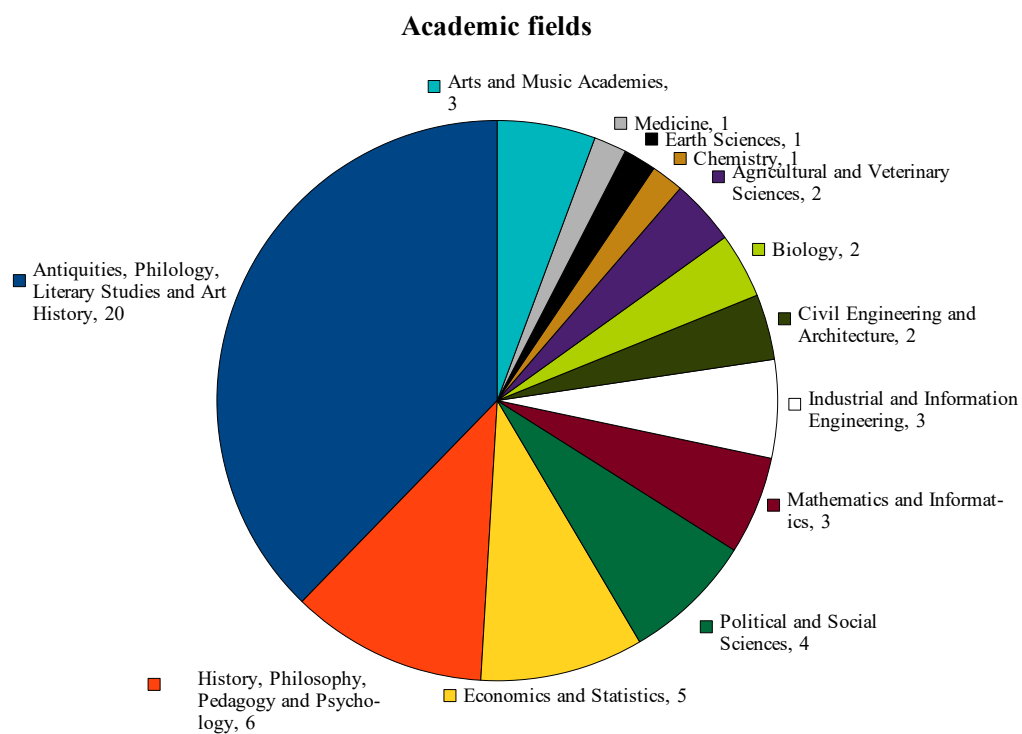
1. Do EFL Italian university students deliberately interact with the computer in a strategic way to assist the comprehension of an English authentic video?
2. Which online resources do self-regulated EFL Italian university students exploit to increase their knowledge of English, with respect to an English authentic video?
3. Is there any marked difference in strategy use between metacognitively self-aware intermediate EFL learners and metacognitively self-aware advanced ones?

In this chapter, the study will be presented in detail. To begin with, the choices and procedures concerning sampling and the selection of participants will be outlined. After that, the nature of the task proposed for this case study will be discussed. The third section will be dedicated instead to the method adopted for the investigation. More precisely, a series of separate sections will explain and justify the instruments and materials designed for collecting data as well as the administration procedures followed. In the final section, the method of analysis devised for examining and interpreting results will be revealed.

2.1 Participants

In total, 53 Italian university students took part in the study. In terms of gender representation, there were 29 females and 24 males. The participation was extended both to undergraduates and graduates attending a variety of faculties across Italy. In

order to cover the wide array of courses available in the country, the affinity-based Academic Disciplines Areas³⁴ recognised by the Italian Ministry of Education were used as an indicator for the fields of study which the subjects primarily belonged to. As displayed in Graph 1 these included, specifically: Antiquities, Philology, Literary Studies and Art History; History, Philosophy, Pedagogy and Psychology; Economics and Statistics; Political and Social Sciences; Mathematics and Informatics; Industrial and Information Engineering; Civil Engineering and Architecture; Biology; Agricultural and Veterinary Sciences; Chemistry; Earth Sciences; Medicine; Arts and Music Academies³⁵.



Graph 1: Participants' academic field.

All the participants were native Italian speakers and possessed a level of communicative competence in English which equals or is superior to the Common

34 Ministerial order published on 4th October 2000, revisited with the Ministerial order published on 18th March 2015 (see website link to MIUR in References).

35 As indicated in the official webpage of the Italian Ministry of Education, a list of Italian academies are officially equalised to university programmes (see website link to MIUR in References).

European Framework of Reference for Languages (CEFR)'s *B1 – Threshold Level* (intermediate). Not only was this a specific sampling parameter, but it is also a general qualification which undergraduates are expected to hold or gain – usually by the end of the first year of study – in order to meet university general admission requirements. On top of that, in order to get a bachelor's degree in Italy students must achieve a *B2 – Upper Intermediate Level in English*. The fact that Italian university students have at least an 8-year formal experience of English learning and are encouraged to continue to learn this language throughout their careers makes them fully-fledged EFL learners. As it will be shown in the next chapter (section 3.1), 30 participants to this study reported possessing an intermediate level of competence in English while the remaining 23 subjects perceived themselves as advanced EFL learners – at least as far as listening skills are concerned. In the previous chapter (section 1.4.3) some research findings were mentioned, according to which only competent FL learners seem to be able to manage their learning autonomously and, therefore, strategically (Oxford, 1995). In this sense, it could be claimed that the characteristics of the subjects involved in the present study comply indeed with the essential features required to demonstrate how they learn in independent settings.

For the researcher's convenience, an announcement was made public on Facebook both on the researcher's personal wall and on a number of university-students groups, gathering people attending various kinds of faculties in different Italian cities, from North to South. In the latter case, the researcher sent a private message to the administrator of each group to ask for permission to join the page and to share the announcement. The post contained essential information about the research project³⁶ and the invitation to contact the researcher personally via private message on Facebook or via e-mail³⁷ for further details, if interested. In this way, self-selection was more controlled and the researcher had the chance to clarify once again the sampling criteria to guarantee representativeness. In total, 71 people expressed their interest in the study. 7 of these, however, did not meet the criteria defined for participation and were

36 A brief presentation of the researcher, the focus of the investigation, the task involved, the method of data collection and the terms of participation.

37 A new e-mail account had been specifically created for this study.

excluded from the investigation³⁸. Thus, 64 suitable candidates obtained precise information about the research project and received the materials necessary for its realisation. As already indicated, 53 of them eventually completed the task.

Two considerations are worth emphasising with respect to the people involved in the study. The first has methodological and technical value. Because the context under investigation essentially regards e-learning, the virtual recruitment of participants and the administration procedures adopted (see section 2.3) appears consistent with the nature of the study itself. The second aspect concerns motivation to take part in the study. The fact that participants welcomed the chance to get exposed to the target language, accepted responsibility for their learning and took their time to contact the researcher and to engage in the task assigned independently could be interpreted as a symptom of a positive attitude and self-regulatory disposition towards (meaningful) English learning.

All in all, the sample is representative of the larger population of competent and proficient Italian EFL learners not only for characteristics regarding the (minimum) level of communicative competence in English, previous learning experience and ongoing exposure to it as a foreign language. Their willingness to participate in the study and deal with the foreign language in an online task just for the sake of it is indeed the added value that makes our candidates totally eligible for selection.

2.2 *The video*

The project presented in this thesis is centred on a task based on an online activity of video watching. Multimedia, i.e. the winning combination of verbal material (spoken and/or written) and visuals (pictures, animations, video), is generally³⁹ recognised as a powerful means to support meaningful learning, i.e. the construction of

38 A few people were temporarily abroad doing an Erasmus exchange in an English-speaking country, therefore the linguistic environment was that of a second – and not a foreign – language. One person did not feel confident of actually possessing yet a B1 level of English and, after receiving additional information, decided not to participate. The rest of the people excluded from the study saw the announcement on the researcher's personal Facebook wall and offered their help as friends despite not attending university (any more). For reasons of ethical, moral and methodological rigour, all these seven people were not accepted as participants.

39 In spite of the claim that this form of representation is beneficial for most learners, some people might encounter difficulties hindering the learning process, as a consequence of working-memory capacity limitations or particular learning preferences which are not satisfied (Mayer, 2005).

mental representation (Mayer, 2005). Mayer's cognitive theory of multimedia learning⁴⁰ is frequently referred to in SLA and CALL studies focussing on psycholinguistic processes activated by multimodal information. Holding the interactionist view of foreign/second language acquisition, multimedia contributes to input comprehensibility and, as a result, increases the chances that the learner will actively engage in the task to produce (comprehensible) output (Plass and Jones in Mayer, 2005: 469). In addition to the multimedia principle, the present research project was designed in harmony with the findings that the integration of multiple modes of presentation, as well as the personal choice to access further information in the hypermedia environment, can suit different individual learning styles and preferences (Dillon and Jobst in Mayer, 2005; see also Jones and Plass, 2002; Plass et al., 1998) and can assist also learners with low prior knowledge as regards the contents presented (see Kalyuga, Chandler and Sweller, 1998; Mayer and Gallini, 1990).

Apart from this, the use of the video was seen also as an opportunity to promote linguistic and cultural authenticity more completely. The appealing complexity of the video relates also to the fact that it gives space to spoken language, and learners are therefore confronted with the inherent challenges of any listening activity. These issues basically concern: the segmentation of the FL sound stream to spot meaningful units; potential phonological and prosodic demands which might slacken information processing; the simultaneous coordination of information processing – aimed at meaning construction and message interpretation – and attentional mechanisms directed to continuously incoming input; the comparison and harmonisation between the message as it is interpreted by the listener and personal existing knowledge (Vandergrift, 2011). On the part of non-native speakers all these processes might not occur automatically. In this case, there is often the need to control processing by focusing on selected aspects of the input to extract meaning (not surprisingly, FL/L2 listeners primarily focus on content words). In order to compensate for limitations and

40 The formulation of this theory was informed by three existing cognitive assumptions, namely: the dual-channels information processing system (Baddeley, 1999; 1986; Paivio, 1986); the limited processing capacity of each channel (Baddeley, 1999; 1986; Candler and Sweller, 1991); the active engagement of the individual in processing information (Mayer, 2001; Wittrock, 1989). Hence, the cognitive theory of multimedia learning concerns the parallel selection and coherent organisation of both verbal and visual material from multimedia input, and the final integration of these two representations with existing knowledge (Mayer, 2005).

achieve higher comprehension levels, the adoption of strategies represents indeed an added value which the metacognitive knowledge about listening-related processes brings about (Goh, 2008; Vandergrift, 2011; Vandergrift et al., 2006). In the case of the video, moreover, the learner has the opportunity to have as many playbacks as he or she needs as well as transcripts or subtitles to segment speech and to focus the attention on specific features of the input, and this kind of behaviour might be interpreted as a strategy indeed. All considered, it is therefore possible to stress the importance of listening as an activity which can indeed promote learning, a view which is unfortunately rarely acknowledged.

The video chosen for the purposes of the study is a short explanatory animated-lesson on an academic, cultural or scientific topic provided for free on the Web by a famous media organisation⁴¹. This kind of material appeared to be the perfect choice to access authentic and meaningful English multimedia material, carefully, creatively and specifically designed for educational purposes, published with the precise intention to spread knowledge. Ten three-to-four-minute lessons were selected from the repository and listed as options available to participants (see Didactic Materials in References, p.139). Despite having approximately the same length, the ten videos covered different subject areas. Only one video could be chosen by each subject, according to their personal interest or curiosity⁴². Although the topic of the video-lesson could vary among participants, the task assigned was the same for all. This is crucial, as Ellis underlines (1994: 529), to draw the boundaries of strategy use in a specific learning situation. Participants were then asked to watch the video and comprehend its contents, possibly taking advantage of this activity to learn something new if they felt motivated to do so (see Vandergrift, 2011 for some examples of how listening activities can indeed contribute to language acquisition). In this sense, a potentially normal independent e-learning situation was recreated.

41 The video provider is TED (Technology, Entertainment, Design), www.ted.com. The use of a *TED-ED Lessons worth sharing* video for the present study adheres to the Terms of Use available at the link <https://www.ted.com/about/our-organization/our-policies-terms/ted-com-terms-of-use> (last update: August 2017). TED-ED lessons are officially distributed for free also on a dedicated YouTube channel.

42 Participants were explicitly informed that no commercial reasons lay behind the use of TED-Ed videos.

2.3 Method

The study is based on self-reported data collected through three different kinds of instruments: A structured e-journal, presented in the form of a self-observation scheme, in which open comments and close-ended items are included (see section 2.3.2); A psychometric questionnaire to determine metacognitive awareness (see section 2.3.3); A background questionnaire providing general information about participants and their experience (see section 2.3.4). While the last two forms are used to organise the analysis of data (see section 2.4), the self-observation schedule represents the main source of information we rely on to investigate strategy use. In harmony with Dörnyei's categorisation of mixed-methods research designs, the present case study falls in the QUAL → quan type (2007: 168-173).

Because most learner strategies are mental and therefore not (easily) observable, learners are the only ones who can tell us what they are (conscious of) thinking and doing while carrying on a language task (this position is shared by authors like Abraham and Vann (1996), Chamot (2004), Cohen (1998, 1996b, 1984), Cohen and Scott (1996), White et al. (2007)). Moreover, since we could not predict in advance how participants would go about watching the video and (hopefully) increasing their learning of English, an exploratory instrument like the one designed was believed to be suitable to collect subjective data about personal experience⁴³. On top of this, the completion of the scheme was such that the time-gap between the processes and the report could be reduced to a minimum. Hence, events could be described almost simultaneously with their occurrence and generalisations of doubtful reliability derived from subject's beliefs were more likely to be avoided. Finally, by structuring the e-journal, in which relatively short open-ended items appeared, participants were asked to provide only specific information and describe it (more) in detail. In this sense, the complexity of the activity was somehow reduced. Notwithstanding these advantages, there are some risks inherent

43 Although think-aloud protocols combined with computer-tracking are preferable to identify *actual* metacognitive and cognitive processes (Azevedo et al., 2010; Fischer, 2007), online methods would have been incompatible with the task proposed to subjects. That is, the listening activity would have interfered with the vocalisation, producing overload, glitches and frustrating confusion. Besides, because of the lack of experience in conducting and analysing think-aloud protocols on the part of the researcher, it would have been unwise to adopt online methodologies for this kind of project. Additionally, due to cost and resource limitations the researcher could not access to advanced and specialised research technologies like web-tracking software.

to the learners' awareness and ability to provide information about adopted strategies truthfully and accurately. Moreover, participants may not know how to convert their metacognitive knowledge and self-awareness into strategies. As a consequence, precious information are likely to remain obscure, for there may be lots of potential strategies, especially of mental kind, which will not emerge whatsoever. Similarly, a low self-efficacy on the part of the learner might deter him or her from acting in self-regulatory terms (see Ericsson and Simon, 1984/1993 for a wide-ranging discussion on verbalised introspection as research method).

2.3.1 Administration procedure and data collection

The study was entirely conducted on the Web, from the selection of participants to the actual administration of the forms developed and the subsequent reception of completed materials. The main advantages (see also Dörnyei, 2007: 121 – 123) of this choice concern technical aspects (e.g. reduced costs, easier accessibility, faster administration procedure and immediate collection of data), anonymity protection and, in a way, coherence with the environment under investigation⁴⁴.

Upon agreement with participants, who had been previously informed about the nature and purposes of the study as well as what it would involve, an e-mail was sent to each subject on the same day. As expected, subjects received all the material necessary to carry out the task and guidance about its use. Specifically, three PDF files were enclosed. In the first one to be opened, “Istruzioni_partecipanti” (trad. “Instructions_participants”), the main points concerning the study were recapped and detailed instructions about how to proceed were provided. Examples were also included, and subjects were explicitly reminded that the length of the task would be personally and autonomously determined according to their motivation and interest. Additionally, it was made clear that there were not any expectations nor judgemental purposes with respect to the quantity and the quality of the completed work. After that, the ten selected videos were listed so that participants could choose the most appealing option and directly click on the respective link to access the online task. Apart from the links, the

⁴⁴ A pilot study has been conducted to see if the administration procedure worked properly and to obtain feedback from three volunteering friends (having the same characteristics as participants) about ambiguities and other relevant aspects which needed adjustment.

title of each video and authorship were specified. To conclude, general information about file anonymous and confidential submission was imparted (this part was described in detail in the second file available to participants). Before providing contact details and thanking the reader, a final statement concerned the right to retire from the study at any time without notice and without any consequences.

The second file, “Scheda_di_lavoro” (trad. “Working_File”) was initially created as a document in which Form Controls were added and defined to be able to convert it into and use it as an editable PDF file, finally. Hence, participants could download and fill in the document from their own computers with no need to print it and scan it afterwards. This file included an introduction and three main parts, directly accessible through hyperlinks to the respective location inserted within the document:

- a) part A: the self-observation scheme, i.e. a sort of structured e-journal in which participants were expected to report and describe the strategies adopted before, during or immediately after watching the video (see section 2.3.2);
- b) part B: the *Metacognitive Awareness Listening Questionnaire*, developed by Vandergrift et. al (2006) and adapted to the present study to evaluate self-regulatory performance on the part of language learners (see section 2.3.3). This part was accessed by subjects after watching the video and completing part A;
- c) part C: a final general questionnaire was designed to collect background information about the participants (see section 2.3.4).

The “Scheda_di_lavoro” editable-PDF document, therefore, was the one which participants were asked to submit in order to make data collection possible. The modalities of this procedure were explained in detail in the introductory page. In order to ensure confidentiality, anonymity and non-traceability, the submission of the completed document involved the following steps: First of all, the responses needed to be made definitive and the file needed to be saved under a different name. Thus, participants were asked to save the PDF file through the ‘Print’ function (precise instructions were given in this sense with reference to the software respectively provided on PCs, Mac computers and Google Chrome). In this way, the file submitted could not be edited by anyone any more. In addition, subjects were invited to use a code

of five numbers put in scrambled order (the same number could not be used three times or more) to name the file to be sent.

A Google-Apps-Script-based drop-box had been created to allow participants to upload their files directly to the Google Drive associated to the Google Account of the researcher (i.e. the e-mail account specifically created for this study, from which participants received the materials). In order to use this function, personally managed by the researcher, a specific and unique link had been created and provided to participants. By clicking on it, the drop-box window could be automatically opened on the browser. At this point, subjects were able to select their own randomly-numbered file from their computer, complete the upload and make it immediately accessible on the researcher's Google Drive. The script was modified so that participants could leave the "Your Name" space empty (as they were explicitly invited to do). A statement followed the upload to confirm whether the submission was successful. As soon as each file was available on Google Drive, the person who had just dropped it could not be identified by the researcher whatsoever.

The third document attached to the e-mail, saved as "Aggiunta_schede" (trad. "Additional_schemes"), was created to be used *only if* the 20 self-observation tables provided in the working PDF file (part A) for strategy use report and description were not sufficient. That is, anyone who acknowledged adopting more than 20 learner strategies with reference to the video was asked to continue on this additional document.

After receiving instructions and materials, all participants had thirteen days at their disposal to carry out the activity and submit their work. In this way participants could freely and flexibly choose the best moment to complete the task, whenever they felt like doing so. As soon as this period was over, the drop-box link was permanently disabled by the researcher to deny any possibility to upload any files to her Google Drive. On that very day (1st February 2018, 11:59 pm), therefore, data collection was completed.

If interested, all participants were given the chance to contact the researcher by e-mail to receive an overview of the study as soon as results were ready to be shared, together with some useful materials to reflect on one's own performance, beliefs and

attitude to increase self-knowledge, metacognitive awareness and to explore alternative learner strategies to try out.

2.3.2 *The self-observation scheme*

In line with the researcher's intention to use an introspective technique based on retrospection to record online learner strategies, a structured observation scheme was developed. Specifically, a series of twenty identical schedules was presented to participants in the first part (PART A) of the working PDF file⁴⁵. Each progressively-numbered scheme comprises 4 sections, distinguished from one another with different colours, to complete from the top to the bottom (see Appendix – Section 1). This part could be completed either in Italian or in English (see White et al., 2007 and Dörnyei, 2007 for a discussion on the importance of language choice).

The scheme included both open-ended items⁴⁶, in which unforeseeable subjective strategies could emerge, and closed-ended responses. By structuring the participants' narrative accounts, the analysis of the participants' experience was focussed on specific meaningful aspects under investigation (see Bell, 2002 for a discussion about structured narrative inquiries). Precise instructions were given about when and how to complete the schedule, filling in a new table. That is, if and every time that the subject (consciously) recognises a strategy in his or her mental or concrete behaviour – online or offline – aimed at comprehending unclear or unknown yet relevant or interesting contents and/or linguistic aspects; examining in depth relevant contents and/or linguistic aspects; formulating and/or confirming hypotheses about concepts, notions, language, etc. In order to facilitate participants' introspection and the completion of the scheme, a short statement was also provided to give an idea of how to recognise a language learner strategy. Arrows and short written directions were added in each table to guide the completion. The initial red box of the self-observation scheme concerns the identification of the *PROBLEM*. Subjects were therefore explicitly asked to describe *what* was the trigger of their action or reflection (max. 200 characters). After

45 An additional PDF file was created and saved as "Aggiunta_schede" (lit. Addition_schemes) to give participants the chance to add extra tables in case that more than twenty strategies emerged to work on the video and learn.

46 A limit on the number of characters allowed for each open-ended entry had been set through the Form-Control commands (file creation).

that, a description of the process of *ANALYSIS / RESEARCH* adopted to solve the problem was required in the yellow-labelled space (max. 500 characters). Next, *EFFECTS* of the strategy were evaluated in the green section. According to the personally-defined benefits of the strategic procedure adopted, subjects were invited to complete either the left-hand column, concerning the positive consequences (for learning) of their activity, or the right-hand open-question space to explain why the strategy was not productive (max. 500 characters). As for useful strategies, a five-row multiple-choice checklist was provided so that learners could signal the subsequent cognitive, memory-based and metacognitive and activities – if any – which followed a given strategy, in line with the claim that strategies do not occur in isolation but chain up with other processes. Another strategy could follow as an expansion of, or as a remedy for a previous one. Subjects were therefore asked to clarify the *CONCLUSION* of the strategic activity just reported by specifying, if they continued watching the video afterwards or if an additional activity connected to the present one would be described in the next table. These two options, included in the final blue box of each schedule, were proposed in the form of closed-ended items.

2.3.3 *The Metacognitive Awareness Listening Questionnaire*

In line with the discussion opened in chapter 1, when it comes down to learner's self-management in dealing with real-world-connected tasks (i.e. manipulating texts and interactions to negotiate meanings), the focus needs to be centred on metacognition (see also Rubin, McCoy, 2008 for a study about task analysis and metacognition to achieve; for listening comprehension strategies explained by metacognition see Goh, 2008, 2002; Graham, 2003; Gruba, 2004; Vandergrift, 2011, 2008, 2003, 1997; Vandergrift et al. 2006 for a thorough review). Although *video* comprehension has not been specifically treated in the literature in regard to strategies (Vandergrift, 2008), the adoption of a well-established listening-centred questionnaire appeared to be suitable to evaluate the level of processes-awareness (with respect to the self, the task and strategy use) and the role of metacognitive procedures as triggers and regulators for learner strategies which the attention is directed to in this study. Precisely, the psychometric instrument chosen for this purpose is the *Metacognitive Awareness Listening Questionnaire* (MALQ)

developed and validated⁴⁷ by Vandergrift, Goh, Mareschal and Tafaghodtari (2006)⁴⁸. The questionnaire is based on a five-factor interactive model of metacognition⁴⁹ and includes a total of 21 items presented in the form of statements – referring to various metacognitive strategies – which respondents are asked to judge by expressing their approval, according to their personal listening experience (see Appendix – Section 2 for the Italian version, specifically translated for the present study). A 6-point Likert scale is used, going from strong disagreement to full agreement. Because the intent is to evaluate awareness, neutral points are intentionally omitted from the scale. After all, it makes no sense for one to claim that he or she does not know if he or she is aware of something.

Four of the five factors underlying the MALQ are described by the authors as groups of strategies related to *problem-solving* (Factor One, items n. 5, 7, 9, 13, 17, 19), *planning and evaluation* (Factor Two, items n. 1, 10, 14, 20, 21), *translation* (Factor Three, items n. 4, 11, 18) and *attention to the task* (Factor Five, items n. 2, 6, 12, 16), respectively. The remaining factor, *person knowledge* (Factor Four, items n. 3, 8, 15), encompasses instead the skills and abilities one believes to possess to deal with the task at hand and to control anxious states⁵⁰.

In the matter of the present study, the MALQ appeared to be the best instrument to guide the analysis and the interpretation of data about strategy use collected in part A (see section 2.4). As a high average-score of metacognitive awareness, described through the aforementioned multi-item factors, indicates an active and self-directed orientation towards meaning construction and learning, more effective and *purposeful* cognitive and navigation strategies are likely to be used on the part of learners. In the digital environment selected for this study, this might also entail surfing the Internet and

47 Exploratory and confirmatory factor analyses were conducted by Vandergrift and colleagues thanks to the collaboration of two large groups of language learners (different countries and learning contexts) who completed a listening task – involving authentic material – before answering the questionnaire. The internal consistency of the MALQ was also verified and significant correlation between questionnaire scores and listening comprehension test results was determined. The validity of this instrument is recognised also by peers (see for instance White et al., 2007, in Cohen and Macaro).

48 The authors themselves encourage to use the MALQ as a research instrument (2006: 452-453).

49 The model was based on Flavell's (1979) theoretical account, which was introduced in the first chapter of this thesis (see section 1.2).

50 In a very recent study, Ehrich and Henderson (2018) confirmed the psychometric validity and reliability of the MALQ with respect to four of the five factors it is composed of. According to their findings, the factor which needs to be revised is precisely the one concerning person knowledge.

exploiting the tools available online to support problem-solving processes (first factor), and/or the comprehension processes (second and third factors) and/or to assist attentive processes (fifth factor). In this sense, the MALQ can help us understand what is beyond a certain self-initiated activity reported by the learner. Moreover, a successful listening comprehension corresponds to higher scores resulting from the MALQ. According to Vandergrift et. al's findings, metacognition was in fact responsible for approximately 13% of the variance in listening performance with reference to the sample they analysed, showing that "listeners who are aware of the cognitive processes underlying successful comprehension are better able to regulate these processes" through mental and/or concrete strategies (Vandergrift, 2011: 459).

The item pool of the questionnaire presented in part B (working PDF file) was entirely borrowed from Vandergrift et. al's (2006) MALQ, which had been translated into Italian and adapted – where necessary – to the auditory and visual experience (see Appendix – Section 2). A brief introduction to the questionnaire was provided. Reflecting upon the task just completed, participants were invited to answer honestly, also because there were not right nor wrong responses to give. As Vandergrift and colleagues did, a simple example to show how to use the Likert scale was included as well as a note in which a potentially ambiguous term used in the form, i.e. "text", was clarified. The format of the questionnaire alternated grey and white backgrounds for the list of items, so as to make completion easier for respondents.

2.3.4 The personal background questionnaire

In the third part (PART C) of the "Scheda di lavoro" file, some background closed-ended questions were presented to subjects in order to collect general yet essential information about their characteristics as EFL learners. A title and a brief introduction to the questionnaire were included. This short form comprises 6 items. Despite relating to different aspects, the first two questions concern experience, the third and the fourth questions refer to the learner's perceived abilities and skills, while the final two questions are personal in nature. The typeface and the font style was different for questions and answers, respectively. Circular radio buttons were used for answers requiring the selection of one option only. If multiple answers were allowed, square

checkbox buttons were used instead (a written note was also added to specify that more options could be selected).

The first question was meant to describe English listening-and-viewing habits on the part of participants in a typical week. The idea was to make sure that (the majority of) participants are exposed to English and do listen to it *actively and attentively* in their weekly routine (e.g. watching films or videos online, attending university courses held in English, etc.). The answer to this question, therefore, could be used to prove that participants are indeed good language learners who seek and exploit the opportunities to use the foreign language as much as possible. Three response options were available: learners who never or rarely (0 – 1 times per week) listen to English attentively; learners who sometimes (2 – 3 times per week) pay attention when listening to English; learners who often or regularly listen to English with an active orientation (more than 3 times per week). The second question was about the personal engagement in the task proposed, that is, watching the video and reporting one's own learning experience. It was crucial that participants acknowledged a positive involvement in the activity they chose to deal with. More adjectives were listed as responses, and multiple answers could be selected to describe this experience as boring and/or difficult and/or pointless and/or time-consuming and/or interesting and/or undemanding and/or useful and/or short. After that, the third question concerned the perceived level of listening skills on the part of each participant. This item is crucial for the data analysis (see section 2.4). Learners were asked to indicate if, according to the CEFR language levels, they considered or knew they were threshold-intermediate listeners (B1 level); vantage-intermediate listeners (B2 level); advanced listeners (C1 level); proficient listeners who manage the language successfully even in complex communicative situations (C1+/C2 level). The fourth question focussed on the learner's beliefs about one's own mastery. Specifically, participants were asked to say how confident they feel about their self-initiated choices to increase their learning of English. Six responses options were listed, for neutral answers would have been difficult to interpret. In a sense, learners were given the chance to remain cautious. Each learner could identify himself or herself with someone who has no or little self-confidence about learning decisions and feels okay with this; someone who is poor yet would like to improve; someone who feels he or she

masters the language enough and is satisfied with this; someone who masters the language enough but is willing to do better; someone who feels adequately autonomous; someone who, despite mastering English, welcomes the chance to know more about learning a foreign language. The pattern emerging from this question will support the interpretation of data and the implications of this study for language learning and teaching. The fifth and the sixth questions, intentionally left at the end of the form, proved that university students attending various faculties and programmes continue to learn English and that genders were fairly represented among participants.

In sum, not only was this questionnaire created in order to describe the sample, but it also provides crucial information reflecting to the criteria established for the analysis of the working PDF file as a whole (see section 2.4). Finally, some response patterns will be used to support the interpretation of data (see chapter 4).

2.4 Method of data analysis

Because many instruments were used to collect data, the analysis was organised in such a way that different pieces or groups of information were used for different purposes. First of all, the “Scheda_di_lavoro” files were downloaded from Google Drive and sorted by level, so as to divide the work of intermediate learners from that of advanced ones. To this end, the self-reported level of listening competence was referred to, on the basis of the answer given by participants to the third question of the part-C questionnaire. Two folders (“Intermediate” and “Advanced”) were created to collect the documents. At this point, a two-level analysis of data was conducted to produce the results needed to respond to the research questions. No sooner had each account been examined and coded than general patterns concerning the intermediate and advanced groups’ performances could emerge.

To begin with, the “Scheda di lavoro” files were analysed one by one in order to determine:

- a) whether the given participant could be considered metacognitively aware with respect to the listening-and-viewing activity;
- b) whether the participant’s strategic performance involves the concrete use of the computer and the resources available on the World Wide Web;

- c) which strategies were employed to convert meta-awareness into conscious mental and/or concrete activities, i.e. strategies, aimed at comprehending and/or learning contents.

In order to do this, an Excel file was created to tabulate the numbered responses given in the MALQ and calculate the average score. More precisely, mean scores for each factor were calculated first. After that, the average score across these factor-based values was calculated to obtain the result indicating meta-awareness in quantitative terms. Mean scores going from point 1 to 3.99 were considered as symptomatic of a low degree of metacognitive awareness on the part of each learner. Instead, mean scores going from point 4 to 6 were believed to reflect a (relatively) high metacognitive activity. In line with Vandergrift et al.'s (2006) indications, the three translation-based items (n. 4, 11, 18) in the MALQ were reversely coded, for they indicate a negative approach to listening comprehension which skilled listeners should avoid. Similarly, person-knowledge items number 3 and 8 and directed-attention item number 16 were reversely coded to calculate mean scores. Essentially, the lower the subject declares to feel anxious about the task challenges, the more self-regulating he or she can be. Eventually, therefore, in each level-based group two sub-categories of learners were created: metacognitively-aware learners and less self-regulating ones.

After this, part A was analysed. A table was arranged to organise the analysis of self-reported accounts. Referring to the five factors included in the MALQ (see 2.3.3), the content of qualitative responses concerning each strategy adopted were first analysed and reviewed to obtain a short key-termed sentence about the mental/concrete activity realised. Then, each strategy was coded and converted into quantifiable results in the following way:

- a) each strategy was primarily interpreted through MALQ factor-based categories, on the grounds of the metacognitive aspect it realised (Vandergrift et al.'s factor-descriptors were used as a guide). Hence, five labels were used: F1 for problem-solving strategies; F2 for planning-and-evaluation strategies; F3 for mental-translation; F4 for person-knowledge; F5 for directed-attention strategies;

- b) according to the mental or concrete nature of the strategy, letters M and C were used to describe the factor-based activity identified;
- c) to preserve the unique and subjective nature of the each categorised strategies, a key-term descriptive code was defined to provide further details about to the type of reflection experienced or the resources exploited by subjects in each case. In addition, according to the responses provided for the closed-ended items of the scheme, a plus “+” symbol was inserted if the subject acknowledged conducting cognitive operations (associations, memory-based strategies, rehearsal, hypothesis-testing, representation building) as a consequence of the adoption of a given strategy, while a minus “-” symbol was used if the strategy was not perceived as effective;
- d) an optional column was added for relevant notes about strategy use (e.g. specifications concerning online resources reported by subjects);
- e) a final column was included for the researcher to take notes about possible peculiarities of each strategy coded.

As a consequence of the analysis of the single “Scheda_di_lavoro” files and the quantification of data, it was possible to describe the general performance concerning the mostly employed tactics by self-regulating strategic learners and poor(er) ones, respectively, for both groups of EFL learners. Far from being generalisable to the whole population, the results obtained allowed us to get an insight into the strategic interaction on the part of Italian university students with the computer and its resources to advance their learning of English in web-based independent settings.

In a separate Excel file, the responses given in the background-information questionnaire (part C) were tabulated and counted, so that the general characteristics of the sample could be presented more in detail. Results concerning this will be referred to in the introductory part of the next chapter (section 3.1).

2.5 Summary of chapter two

This chapter has presented the web-based research project designed to investigate which strategies Italian EFL learners employ to self-regulate their self-

accessed learning experience in an open web-based independent setting. In harmony with the requirements set for participation, the virtually-recruited 53 participants possessed a level of competence in English ranging from B1 to C1+/C2 (CEFR). To realise the investigation, subjects were invited to watch a short animated video-lesson online with the aim of comprehending the contents and, potentially, learning something new according to their personal interests, learning needs and goals. To explore strategy use, self-reported introspective accounts were collected through an editable PDF file which participants uploaded onto the researcher's Google Drive account after completion. More precisely, three different instruments were included in the PDF document. In part A, participants were expected describe the strategies employed by reporting them in a structured e-journal, presented in the form of a self-observation scheme, in which open comments and close-ended items are included. In part B, instead, Vandergrift et al.'s (2996) MALQ was proposed to assess metacognitive awareness and to be able to analyse data according to the subjects' self-regulating performance. In part C, finally, general information about participants and their experience as EFL learners were collected through a short background questionnaire.

After dividing the work of intermediate EFL learners from the accounts provided by advanced learners, a two-level analysis of data was conducted to produce the results needed to respond to the research questions. First of all, each "Scheda di lavoro" was analysed in order to divide metacognitively-aware subjects from less self-regulating ones and to examine and code the types of strategies adopted so as to comprehend and/or learn. Secondly, the performance of more self-regulating learners and 'poorer' ones was described through the strategies they said they adopted before, during and/or after watching the video.

3. Data analysis and results

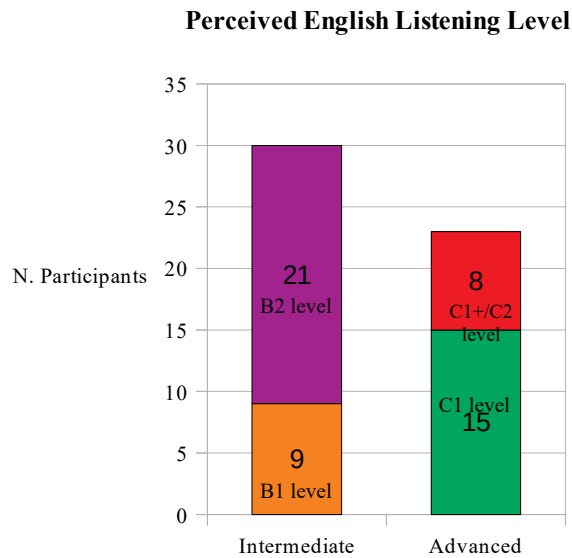
The tripartite investigation produced an amount of data which was analysed according to the method outlined in the previous section. The outcomes of this will be presented in this chapter. First of all, the participants' characteristics as EFL learners will be described on account of their responses to the questionnaire administered in the part C of the file created for the enquiry. After this, an overview of the coding and labelling procedures adopted for the examination of the structured e-journals will be provided for the reader. At this point, the results of the analysis of the files uploaded by intermediate and advanced EFL learners will be revealed in the third and in the fourth sections, respectively. In turn, each of these parts will show the results concerning both more self-directed learners and less aware ones, in line with the analysis of the MALQs administered in part B.

3.1 General characteristics of the sample

As already explained in the previous chapter, 53 Italian undergraduates and graduates, enrolled in different university faculties, took part in the investigation (see Graph 1 in section 2.1). Because specific sampling criteria were set, a short questionnaire was administered in the final part of the study (part C – see section 2.3.4) so as to collect background information about the group of subjects who volunteered for this study. Ultimately, the idea was to check that the following expectations – introduced in section 2.1 – were fulfilled:

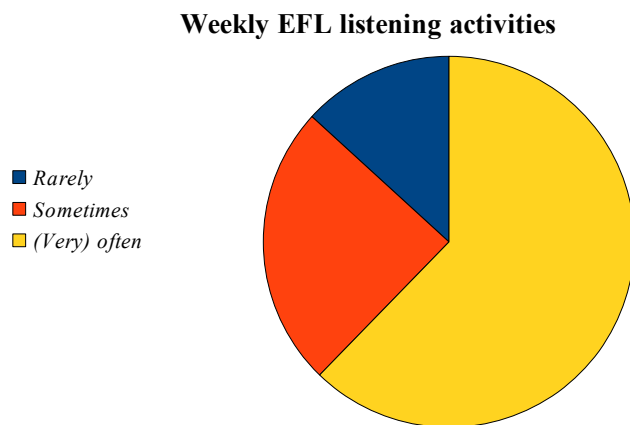
1. all the participants possess a minimum level of competence in English corresponding to the CEFR's *B1 – Threshold level*;
2. the English language (FL) continues to be part of these university students' routine;
3. participants were expected to show a favourable attitude towards an English-related activity to be dealt with independently.

As Graph 2 displays, data reveal that 30 subjects declared themselves intermediate EFL learners, whereas the remaining 23 participants perceived themselves as advanced learners of English.



Graph 2: Participants' level of English (listening skills).

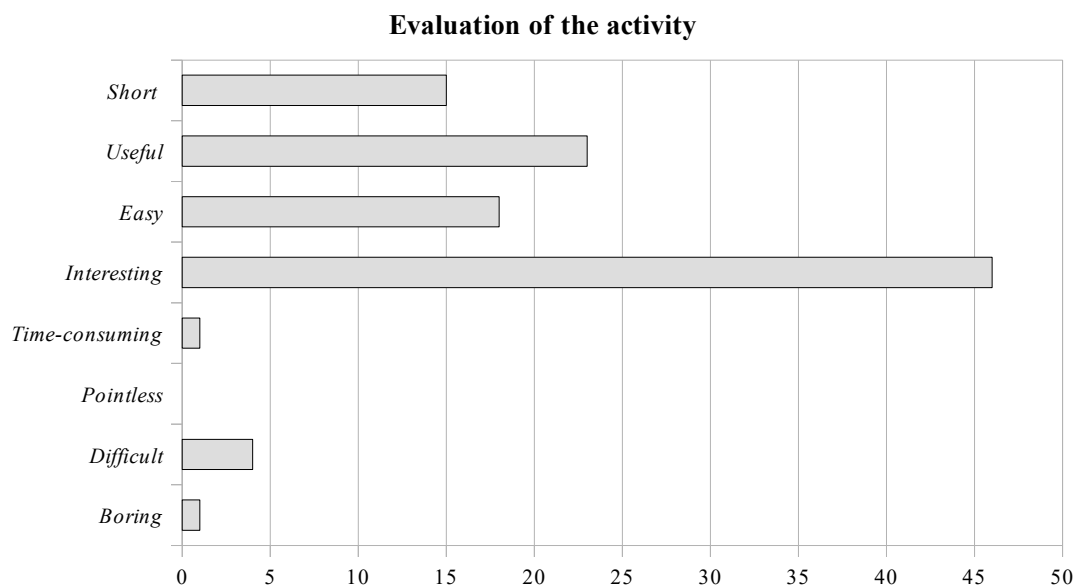
As for the continuous exposure to the foreign language, 62% of participants indicated that, on a weekly basis, English is listened to *attentively* in more than 3 occasions. Instead, 25% of respondents claimed to listen to English 2-3 times per week, while 13% of participants rarely pay attention to English in learning perspective. Graph 3 illustrates these proportions.



Graph 3: Aural attention directed to English materials, weekly.

Finally, the vast majority of participants described the activity proposed for the investigation (as a whole) with very positive comments, selected from the multiple-

choice close-ended options given. As Graph 4 shows, the task was considered, above all, interesting. The usefulness of the activity was also acknowledged by almost half of the participants. Some of them perceived it as fairly easy and short, too, while one subject explicitly marked that the task took time to complete. Very few people had difficulties in carrying it out, in spite of their praise. Only one person described the activity as boring.



Graph 4: Participants' description of the activity proposed.

3.2 Data coding and labelling

In accordance with the method of analysis introduced in chapter 2 (section 2.4), the anonymous PDF files uploaded by participants onto the researcher's Google Drive account were first sorted by level of competence in English, as indicated by each subject (part C questionnaire). After separating intermediate EFL learners' reports from advanced learners' accounts, the average scores across MALQ-factors' mean values was calculated to determine whether each subject could be considered metacognitively-aware (≥ 4) or unaware (< 4) with respect to the task at hand. That is to say, if he or she was (sufficiently) self-regulating his or her activity (see Appendix – Section 3 to see the incidence of each factor on the final average score indicating metacognitive awareness

for each participant). The general patterns concerning the results from the MALQs of the two groups will be described in the following paragraphs.

As soon as each participant was identified as either self-regulated or scarcely self-directed, his or her written account was analysed. Therefore, the contents of each self-observation scheme completed, referring to a certain conscious and purposeful mental or concrete activity carried out by the subject (before, during or after watching the video), was examined to uncover the strategies adopted. Each strategy-based comment was coded in the form of a short key-termed sentence, so that the quality of that strategy could be summarised and compared to other potentially-identical cases. Afterwards, a specific label was attributed to each activity in order to make data quantifiable (see chapter 2, section 2.4 to review the criteria adopted). The analysis of each account required continuous revision on the part of the researcher, so that analogous qualitative information could be categorised in quantitative perspective using the same label. The complexity of the examination was such that the researcher needed to be extremely careful when reflecting upon and interpreting each written report. Since a strategy is often chained up with other activities, a single account could actually embed more strategies that the researcher had to extract and code⁵¹.

Figure 2 presents an overview of all the final labels adopted for coding, with a short explanation about the cases included in each category. In harmony with Vandergrift et al.'s (2006) indications, the categorisation of the emerged strategies according to the metacognitive factor they realise reflects the following ideas:

1. Problem-solving strategies (**F1.M** and **F1.C**) include all the activities aimed at compensating for the learner's partial understanding or limited knowledge concerning various kinds of aspects – linguistic and non-linguistic – delivered in the video-lesson. The use of these strategies essentially involves monitoring one's own listening-and-viewing performance and comprehension in a problem-solving attitude, activating previous knowledge to generate inferences, hypotheses or comparisons referring to the input. Thanks to the computer and

51 For instance, some subjects reported activating Italian subtitles to translate an unclear English expression heard. In these cases, two strategies were implied: the former has to do with repeated video delivery and concerns attention to input (MALQ-factor number 5); the latter refers to the use of translated transcriptions to attain the comprehension level desired (MALQ-factor number 3).

particularly the Web this problem-solving orientation can be translated into concrete strategies, too;

2. Planning and evaluation strategies (F2.M and F2.C) refer to those organisational activities carried out by the learner to positively influence the comprehension and/or the learning outcomes relating the listening-and-viewing experience, in line with one's own desired performance and learning objectives. According to what emerged from this study, in concrete terms this basically has to do with the (temporary) resort to English subtitles;
3. Translation-based strategies (F3.M and F2.C) might be deemed controversial in this study, basically because they could have been considered as part of other MALQ-factor-related strategies, mainly of problem-solving kind. Indeed, from the metacognitive point of view they represent a specific way to deal with unknown or unclear linguistic material to the advantage of comprehension. Notwithstanding this, the use of translation was maintained as a separate category in this study to interpret specific kinds of behaviour, that is, any time the learner resorts to the L1 to find out the meaning of *unknown* video-related vocabulary or contents⁵². Besides, this class of strategies refers to a specific factor in the MALQ, so it was important to determine its incidence and to describe the strategies through which it is manifested;
4. Despite being part of metacognition, person knowledge is translated into beliefs rather than strategies, as Vandergrift et. al state (2006: 451). Not surprisingly, the analysis of data has not produced any strategy explicitly connected to this factor;
5. Directed-attention strategies (F5.M and F5.C) are adopted by the learner as means to focus on the input and regulate his or her performance. Apart from conscious mental operations, the computer provides useful tools to physically satisfy the need to keep concentrated on the task and, in particular, on the foreign language.

52 It is not a matter of using one's own mother tongue to think and/or to carry out some other concrete activities. In fact, a learner may consult Italian web-pages to find additional information about a certain topic which is being treated in English (problem-solving strategies). In this case, the learner understands the language and decides to work on English content using Italian simply as a vehicle. Instead, when a learner cannot do without using Italian to give meaning to what he or she does not comprehend at all, the strategy is inherently translation-based.

Figure 2: Labels produced after the analysis of data.

STRATEGY LABELS				
<i>MALQ-factor and mode</i>	<i>Code</i>	<i>Label</i>	<i>Effect⁵³</i>	<i>Qualitative Description</i>
Mental problem-solving strategies	F1.M	Analysis_vocabulary	+	The learner analyses a word or an idiomatic expression, trying to capture its underlying meaning through morphology.
		Associations_languages	+	The learner makes associations across languages with reference to pragmatic aspects.
		Association_contents	+	The learner associates new information with existing knowledge.
		Avoidance_learning	/	The learner chooses not to solve language-related problems which are not relevant to comprehend the topic.
		Experience_vocabulary	+	The learner relies on personal experience to interpret the meaning of unknown vocabulary.
		Hypotheses_contents	+	The learner makes sense of new information through hypotheses.
		Hypotheses_language	+	The learner tries to reconstruct unclear language material just heard, relying on a small number of linguistic details (also of prosodic nature); The learner makes hypotheses about English varieties.
		Hypotheses_vocabulary	+	The learner makes hypotheses about vocabulary in terms of meaning and/or orthography (also with respect to non-English words).
		Inferences_contents	+	The learner makes inferences about textual information.
		Inferences_language	+	The learner makes inferences about unclear language material just heard by means of the visual support.
		Inferences_vocabulary	+; -	The learner makes inferences about the meaning of words or expressions.
		Memorisation_information	+	In order to memorise new information, the learner makes associations with previous knowledge and experience.
		Memorisation_vocabulary	+	The learner tries to memorise new

53 This column presents a review of the power of each strategy, according to the judgements pronounced by participants (as indicated in the previous chapter – 2.4). More precisely, the symbol + is used when a given strategy triggered subsequent consciously-recognised cognitive operations. If a strategy was not perceived as useful, a symbol – is used instead. In this table, the symbol / is used to signal that no specific comment was expressed by participants in respect of a given strategy. Details about strategy effects will be provided in chapter 4.

				vocabulary form, use and translation with cognitive operations.
		MemorySearch_vocabulary	+	The learner thinks hard to remember word meaning and/or orthography.
		Recap_contents	+	The learner recapitulates information heard.
		Recap_language	+	The learner recapitulates linguistic material.
		Rehearsal_vocabulary	+	The learner rehearses known vocabulary (word or expressions) in terms of meaning and use to see if it matches with the context just encountered or if a new use must be learned; The learner rehearses new vocabulary by thinking about appropriate contexts in which it can be used.
Concrete problem-solving strategies	F1.C	Memos_vocabulary	/	The learner writes down a note on a piece of paper so that unknown vocabulary can be looked up in a dictionary at the end of the task.
		MonolingualDictionary_vocabulary	+;-	The learner searches an online monolingual dictionary to find the meaning or to check the orthography of words and expressions; The learner uses an online monolingual dictionary to test hypotheses.
		SearchEngine_contents	+	The learner searches the Internet for information about the topic the video-lesson deals with, to confirm his or her comprehension.
		SearchEngine_experience	+	The learner creates his or her own direct experience to expand their knowledge about the topic presented in the video-lesson.
		SearchEngine_grammar	+	The learner surfs the Internet to find information concerning the English grammar.
		SearchEngine_information	+; -; /	The learner surfs the internet to find additional information about the topic the video-lesson deals with, essentially to expand their knowledge; The learner exploits the search engine to find the pieces of information needed to (dis)confirm previously-made hypotheses about contents.
		SearchEngine_L1	+	The learner surfs the Net to find definitions and explanations concerning L1 vocabulary, which is essential to comprehend the etymology of an

				English word.
		SearchEngine_language	-	The learner uses the search engine to find information about unclear linguistic material.
		SearchEngine_pragmatics	+	The learner conducts web-based research to find out more information about vocabulary use.
		SearchEngine_vocabulary	+; -; /	The learner uses the search engine to type in unknown vocabulary and find appropriate resources to understand its meaning and/or orthography and/or use.
		Practising_vocabulary	+	The learner repeats new vocabulary out loud, in order to practice pronunciation.
		Rehearsal_vocabulary	+	The learner writes down new vocabulary and translation in his or her own notebook.
		Translator_pronunciationCheck	+	The learner checks English pronunciation of specific vocabulary.
Mental planning-evaluation strategies	F2.M	Expectations_contents	+	The learner reads the introduction to the video to activate knowledge and to create expectations about contents.
Concrete planning-evaluation strategies	F2.C	EnglishSubtitles_language	+; -; /	The learner activates English subtitles to read and comprehend unclear language; The learner activates English subtitles to test previously-made hypotheses about linguistic material heard.
		EnglishSubtitles_vocabulary	+; /	The learner activates English subtitles to read and comprehend unknown and/or unclear vocabulary; The learner activates English subtitles to test previously-made hypotheses about unclear word and expressions heard.
		Subtitles_language	-	The learner navigates the web-window to search for subtitles (the learner was not able to find the right button on the video player).
		SubtitlesSetting	/	The learner changes the settings so that subtitles can be displayed in the preferred language (English or Italian, in our case).
Mental translation strategies	F3.M	Hypothesis_L1	+	The learner makes hypotheses about L1-expression use.
		Hypothesis_translation	+	The learner makes hypotheses about the Italian translation of an English word or expression.
		MemorySearch_translation	-	The learner thinks hard to remember the Italian correspondence of an English word.

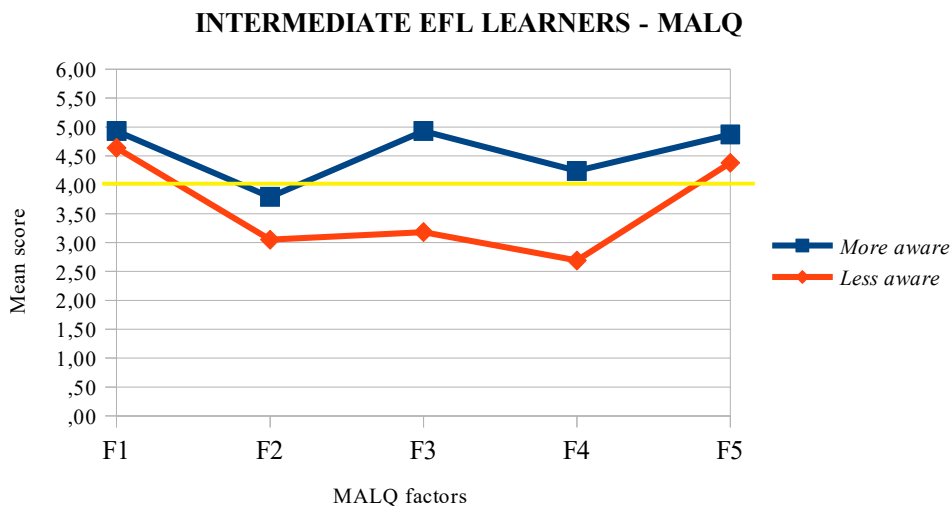
		Reading_ItalianSubtitles	/	The learner relies on Italian subtitles to comprehend the video-lesson.
		Rehearsal_vocabulary	+	The learner rehearses the Italian translation of an English word.
		Translation_language	+	The learner translates the input mentally.
Concrete translation strategies	F3.C	ItalianSubtitles_language	-; /	The learner activates Italian subtitles to comprehend unclear passages or words of the video-lesson.
		BilingualDictionary_vocabulary	+; -; /	The learner uses an online bilingual dictionary to confirm his or her vocabulary knowledge or to look up new words and understand them through their translation.
		BilingualDictionary_translation(L1>FL)	+	The learner uses an online bilingual dictionary to test hypotheses about the Italian correspondence of English words, typing in the translation elaborated.
		SearchEngine_L1	+	The learner surfs the Net to find explanations concerning L1 technical vocabulary.
		SearchEngine_translation	+	The learner uses the search engine to find results about possible translation of English words or expressions into Italian.
		SearchEngine_translation(L1>FL)	+; -	The learner surfs the Internet to translate a word from Italian into English; The learner uses the search engine to test hypotheses about English translations of Italian words.
		Translator_language	+	The learner uses an online translator to convert unclear video-related English sentences or passages into Italian, to the advantage of comprehension.
		Translator_language(L1>FL)	+	The learner uses an online translator to confirm Italian-based hypotheses about English.
		Mental directed attention strategies	F5.M	Avoiding_strategy
Focussing_context	+			The learner focusses harder on context to enhance understanding, overcoming linguistic limitations.
Focussing_vocabulary	+			The learner takes time to reflect upon a single focussed linguistic aspect.
MultimediaExploitation_contents	+			The learner directs his or her attention to other multimedia channels to understand

				meanings.
		MultimediaExploitation_language	+	The learner exploits other multimedia channels to work out unclear language heard.
		MultimediaExploitation_vocabulary	+	The learner exploits other multimedia channels to recognise unknown words heard.
		Reading_EnglishSubtitles	+	The learner relies on English subtitles only to facilitate the comprehension of the video-lesson.
Concrete directed attention strategies	F5.C	BackButton	-; /	The learner delivers the video repeatedly to focus on relevant aspects.
		Earphones	/	The learner wears earphones to increase his or her concentration on the input.
		StopButton	/	The learner interrupts the input stream to carry out some mental and/or concrete activities concerning comprehension and/or learning.

3.3 Analysis of intermediate EFL learners' reports

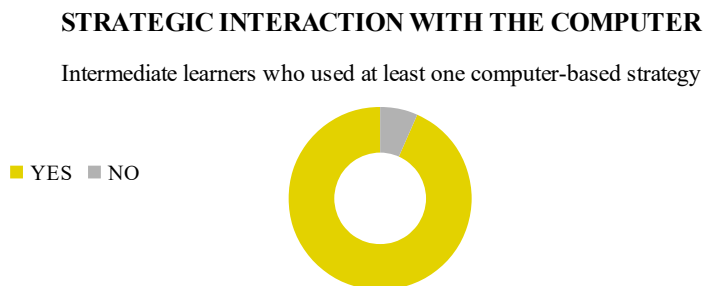
This section is dedicated to the results concerning the group of participants who defined themselves as intermediate EFL learners. As described in section 3.1, the majority of these subjects declared to possess an upper intermediate level of competence in English (B2), at least on the basis of their listening skills. On account of the analysis of the MALQs, this group of learners is split into two perfectly equal parts: For the task at hand, 15 subjects could be included in the category of metacognitively self-aware learners (section 3.3.1). With reference to the remaining 15 participants, instead, the MALQ average score across factors did not reach the threshold for being considered sufficiently self-regulated learners in respect of the activity proposed (section 3.3.2). It is important to note that being classified as metacognitively self-aware does not necessarily imply that the learner has “sufficient” control over all the factors included in the MALQ. Vice versa, a scarce level of awareness across factors does not reflect a lack of conscious management of all metacognitive aspects. As Graph 5 shows, in fact, on average the degree of self-regulation in terms of planning and evaluation of one's own performance in the given task was below the threshold (i.e. < 4) even for the self-directed intermediate learners. As for less-aware learners, generally speaking problem-

solving metacognitive control and conscious direction of attention were instead above the threshold.



Graph 5: Comparison between self-regulating and less-aware intermediate learners across MALQ factors (average scores).

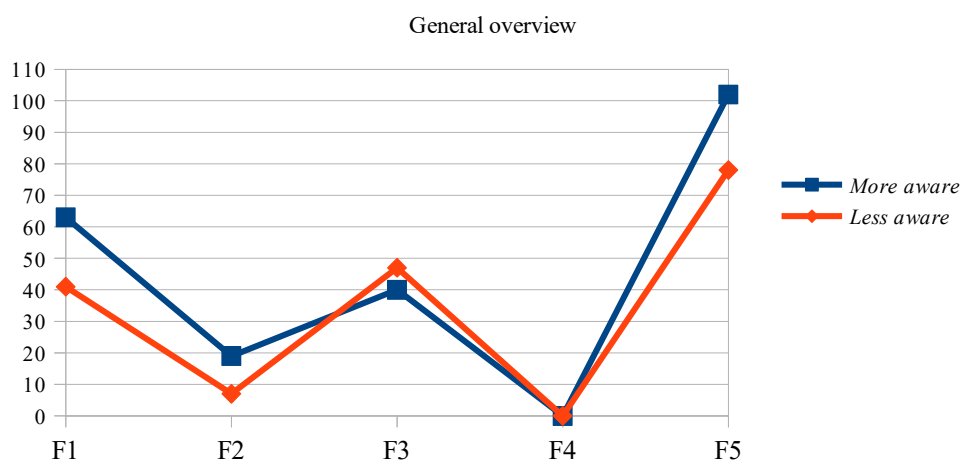
Regardless of their degree of metacognitive awareness, both metacognitively-aware subjects and less-confident ones reported using a vast array of strategies. More precisely, 28 intermediate learners used at least one strategy, while 2 learners did not carry out any conscious mental or concrete activity before, during or after watching the video-lesson. Moreover, all 28 subjects reported using at least one concrete strategy involving the use of the computer or the World Wide Web, as Graph 6 illustrates. This result will be considered in chapter 4 to respond to the first research question.



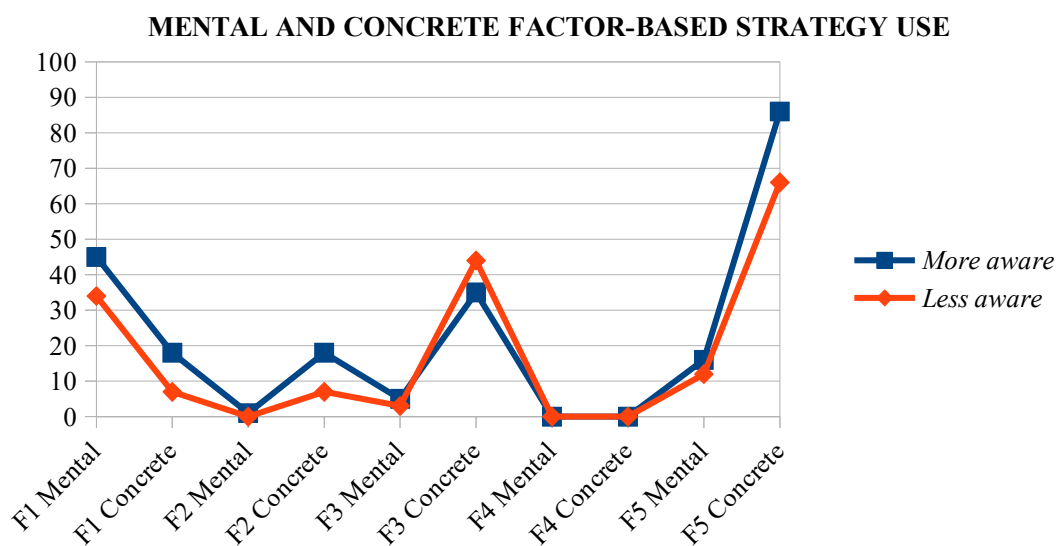
Graph 6: Intermediate learners who used at least one computer-based strategy.

To be more precise, the analysis of the self-observation schemes produced the results illustrated in Graph 7 and Graph 8 with respect to strategy use on the part of intermediate learners (details concerning each group of learners will be provided in sections 3.3.1 and 3.3.2). To comprehend the video-lesson better and/or to increase their knowledge, both self-regulated and less-aware subjects reported adopting, above all, strategies aimed at keeping their attention focussed on the input more effectively (factor 5). To be more precise, 46% and 45% of the strategies coded for the two groups belonged to this type, respectively. Furthermore, as clarified in Graph 8, the concrete use of the computer to realise these strategies was extensive. Problem-solving strategies (factor 1) were also fairly used by metacognitively-aware participants (28%), especially of mental kind. Interestingly, less self-directed learners preferred instead to rely primarily on web-based translation (factor 3) to overcome their limitations (27%). However, mental problem-solving activities were also used by less aware subjects (24%), and translation-based strategies were part of self-regulated participants' performances too (18%). Computer-based planning and evaluation strategies (factor 2) were sometimes adopted by the more strategic group (8%), while they were scarcely employed by the other one (4%). Finally, as previously said (see 3.2) no strategies concerning person knowledge emerged from the analysis of the intermediate learners' reports.

MALQ-FACTOR-RELATED STRATEGIES



Graph 7: Intermediate EFL learners' factor-based strategy use.



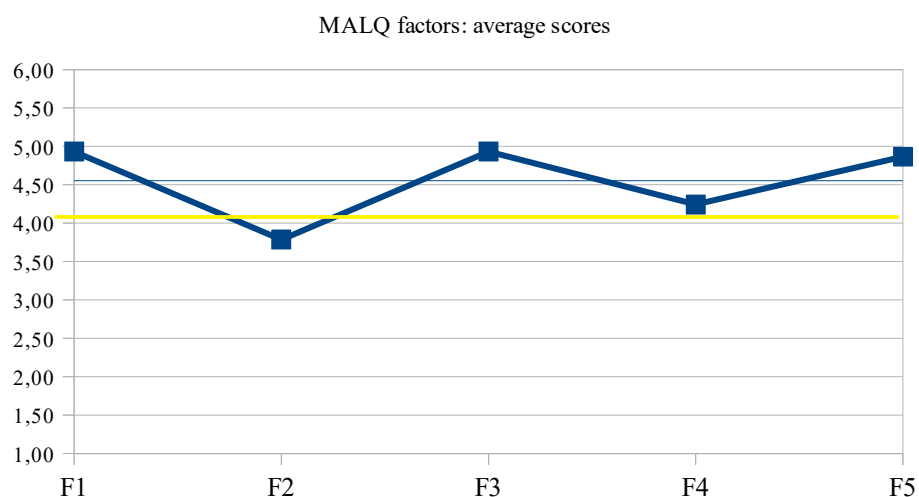
Graph 8: Intermediate EFL learners' strategy use.

The next two sections will describe these patterns in detail, according to self-regulated and less self-directed intermediate learners' reports. All these pieces of information will be referred to in chapter 4 to respond to the second and the third research questions of this study.

3.3.1 Metacognitively-aware intermediate learners

As already indicated in the previous section, among the intermediate EFL learners who took part in the present study, 15 subjects were classified as self-regulated learners on account of their degree of metacognitive control over the factors included in the MALQ. Taking mean scores as an indicator of each factor (on a scale ranging from 1 to 6), we can see in Graph 9 that, overall, this group of subjects expressed a high level of awareness in terms of problem-solving strategies (4,93 points), translation-based activities (4,93 points) and directed-attention ones (4,87 points). A lower level of control was instead reported for person knowledge (4,24 points) and for planning and evaluation strategies concerning the task at hand (3,79 points). The average degree of meta-awareness calculated for this group of participants is represented by the blue horizontal line in Graph 9.

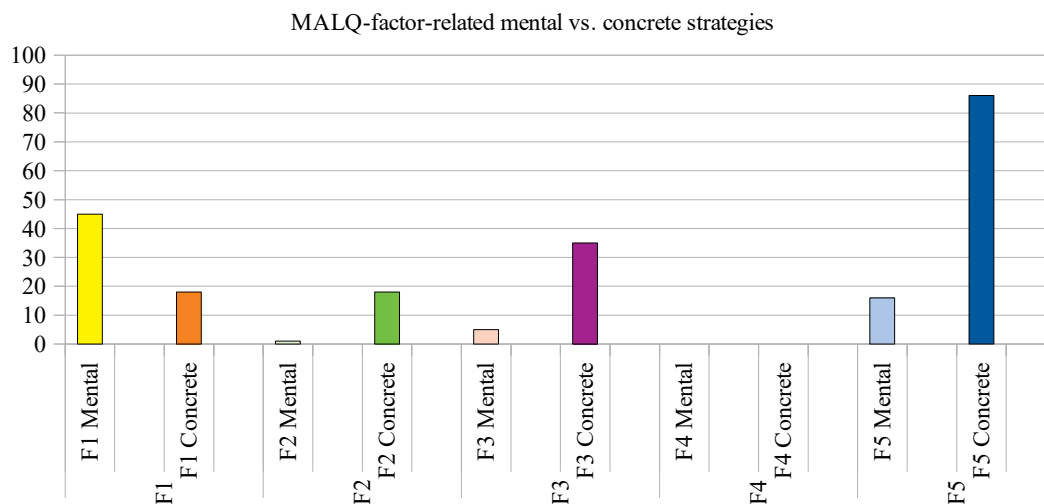
METACOGNITIVELY-AWARE INTERMEDIATE EFL LEARNERS



Graph 9: Factor incidence on metacognitive awareness concerning self-directed intermediate EFL learners.

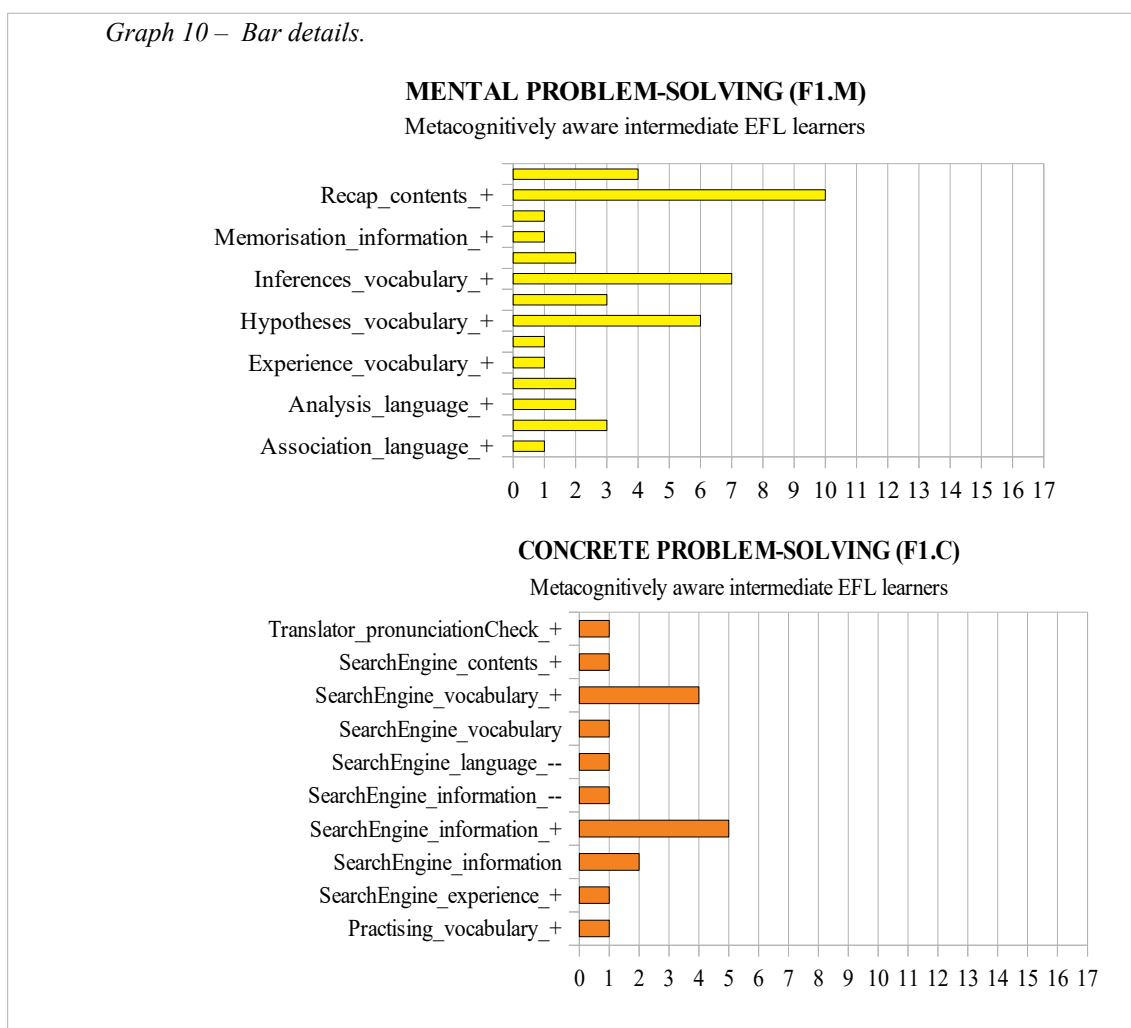
The analysis of the self-observation schemes included in part A of the PDF file administered revealed that more self-directed learners employed both mental and concrete strategies related to four MALQ factors. Graph 10 provides a general overview of the relative incidence of the many types of strategies coded which realise each MALQ-factor-based category, both mentally and concretely. Specifically, the different kinds of factor-specific strategies, i.e. referring to each bar, are reviewed in the following table (see the description of each label in section 3.2).

METACOGNITIVELY AWARE INTERMEDIATE EFL LEARNERS - STRATEGY USE



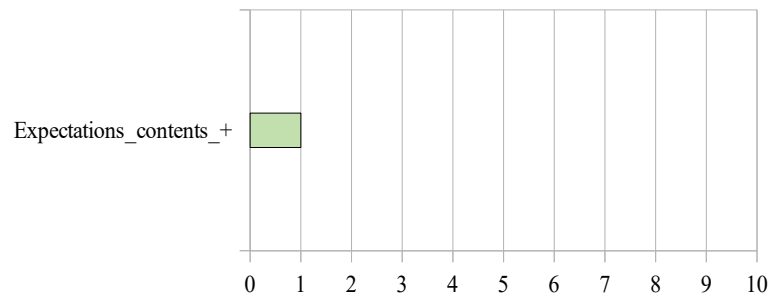
Graph 10: The factor-related types of strategies adopted by self-directed intermediate learners.

Graph 10 – Bar details.



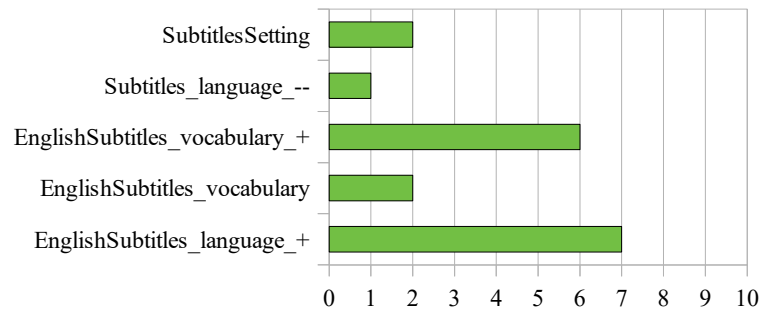
MENTAL PLANNING-EVALUATION (F2.M)

Metacognitively aware intermediate EFL learners



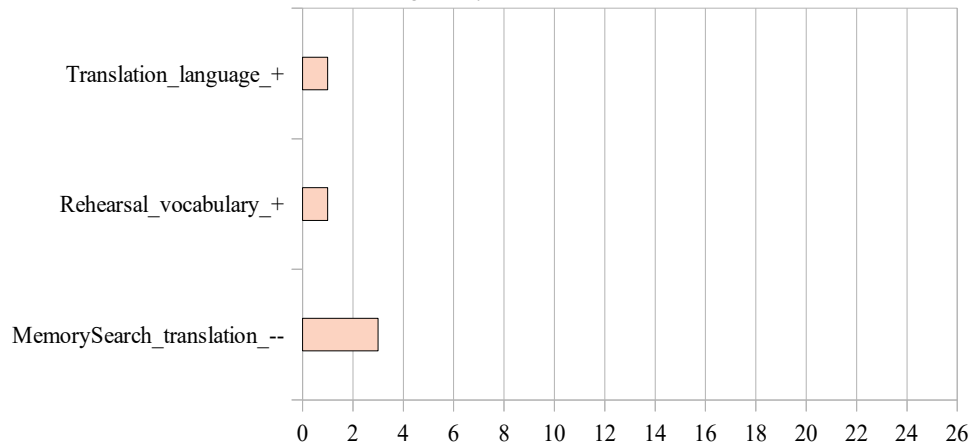
CONCRETE PLANNING-EVALUATION (F2.C)

Metacognitively aware intermediate EFL learners



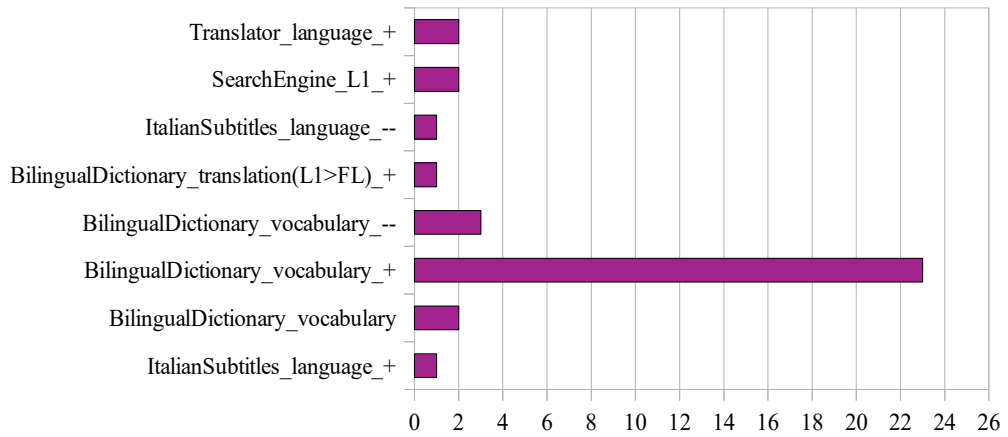
MENTAL TRANSLATION (F3.M)

Metacognitively aware intermediate EFL learners



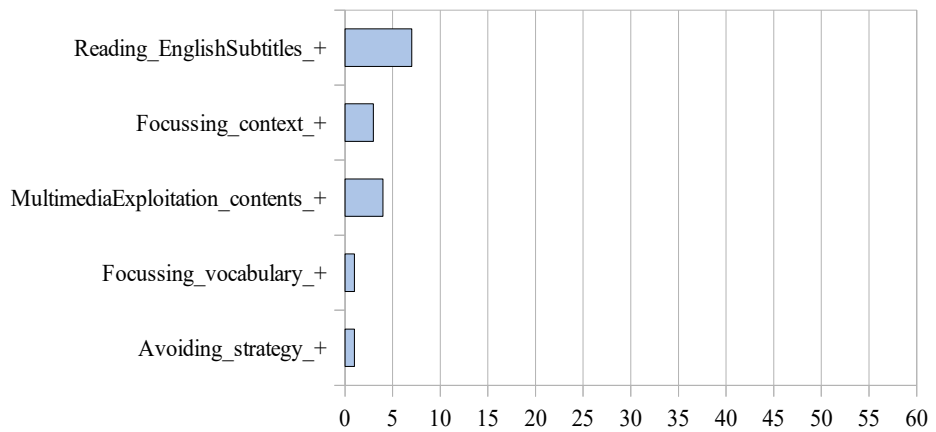
CONCRETE TRANSLATION (F3.C)

Metacognitively aware intermediate EFL learners



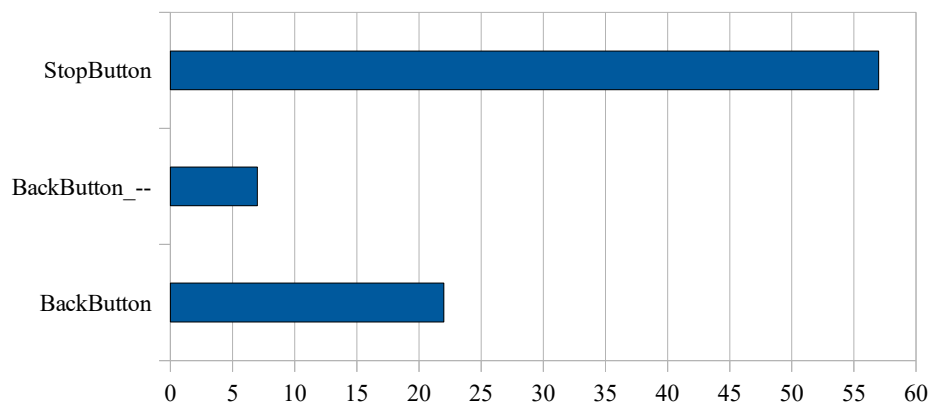
MENTAL DIRECTED ATTENTION (F5.M)

Metacognitively aware intermediate EFL learners



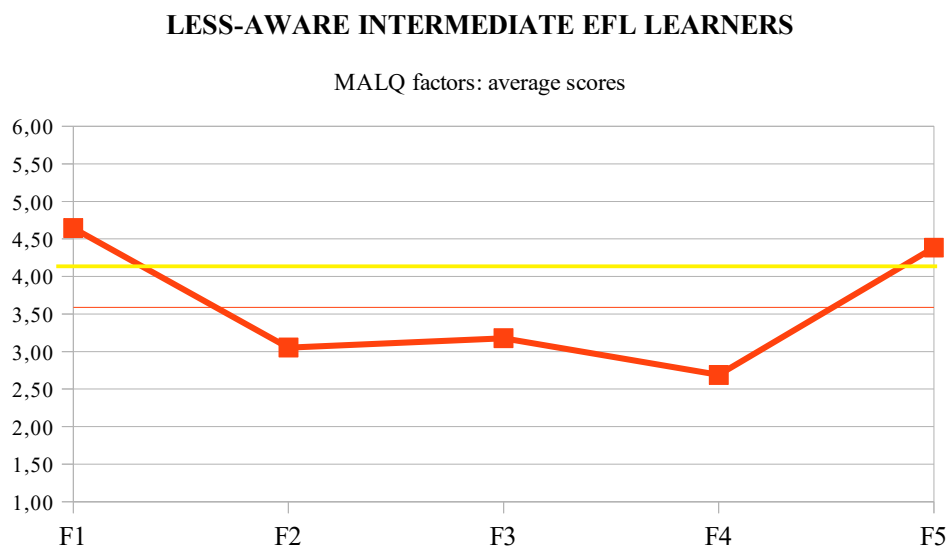
CONCRETE DIRECTED ATTENTION (F5.C)

Metacognitively aware intermediate EFL learners



3.3.2 Less-aware intermediate learners

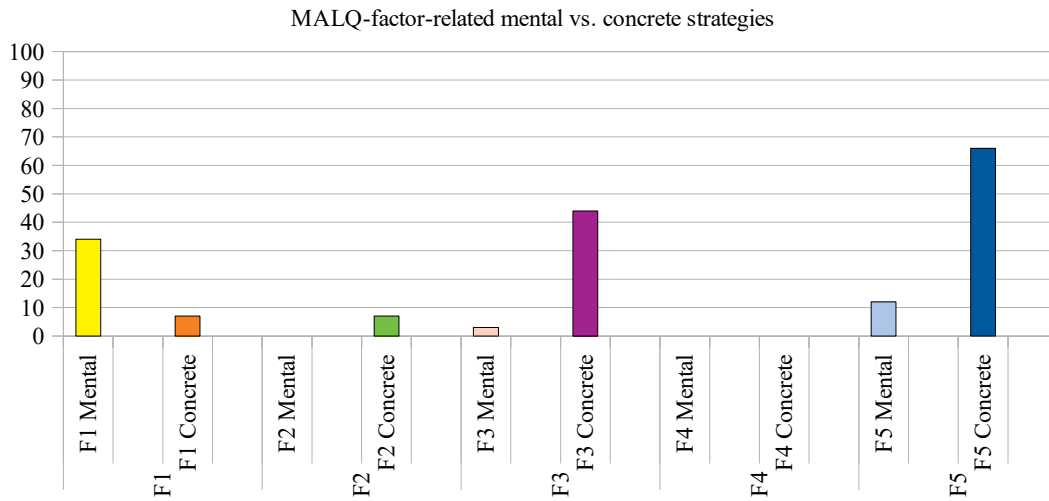
As a consequence of the analysis of the MALQs, results show that half of the participants who declared themselves as intermediate EFL learners lack of sufficient metacognitive control over their own performance. Graph 11 illustrates that the mean score describing the general level of meta-awareness of this group of subjects is positive, i.e. above the threshold, in relation to problem-solving (4,64 points) and directed-attention strategies (4,38 points). Conversely, on average a low degree of awareness was calculated with respect to planning and evaluation (3,05 points), the use of translation (3,18 points) and person knowledge (2,69 points).



Graph 11: Factor incidence on metacognitive awareness concerning less-aware intermediate EFL learners.

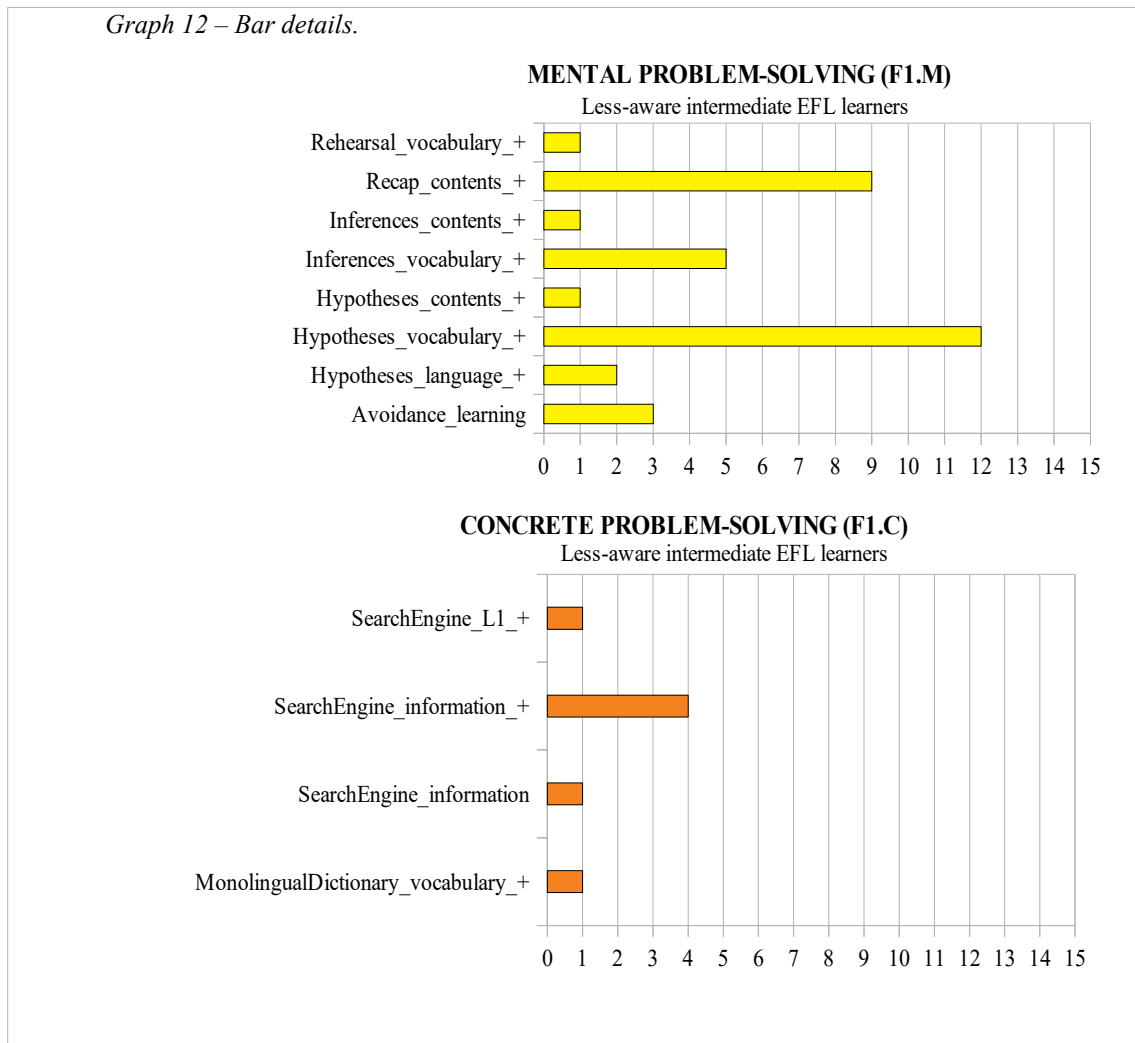
The examination of the structured e-journals produced the outcomes represented in Graph 12 concerning the relative incidence of the various factor-related strategies employed by less self-aware subjects. Specifications about the variegated bars are presented in the table attached to the graph itself.

LESS-AWARE INTERMEDIATE EFL LEARNERS - STRATEGY USE



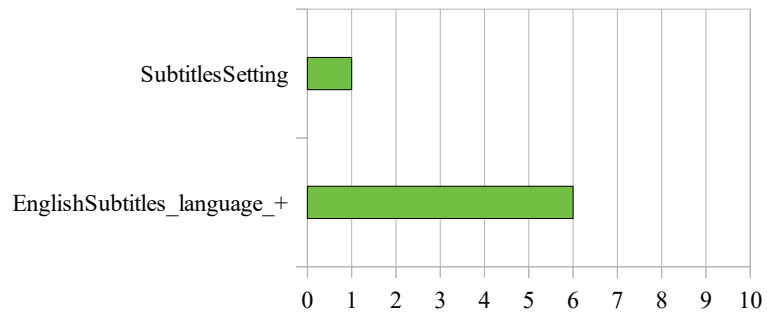
Graph 12: The factor-related types of strategies adopted by less-aware intermediate learners.

Graph 12 – Bar details.



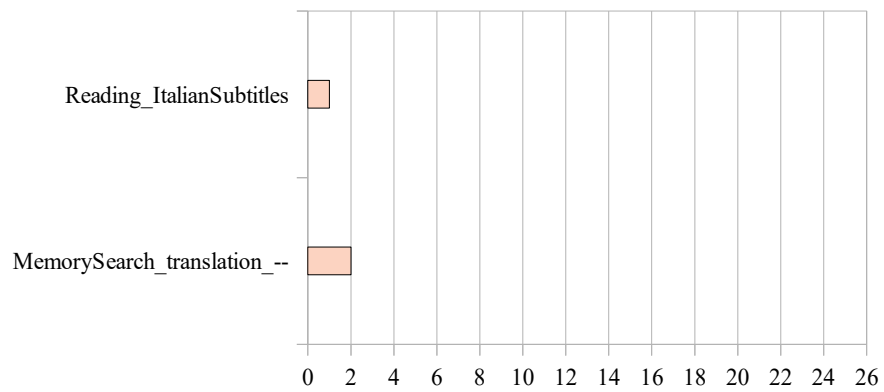
CONCRETE PLANNING-EVALUATION (F2.C)

Less-aware intermediate EFL learners



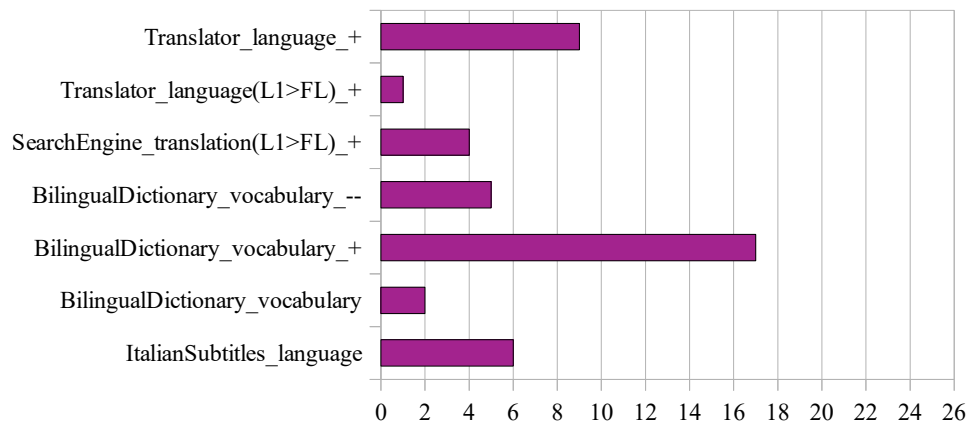
MENTAL TRANSLATION (F3.M)

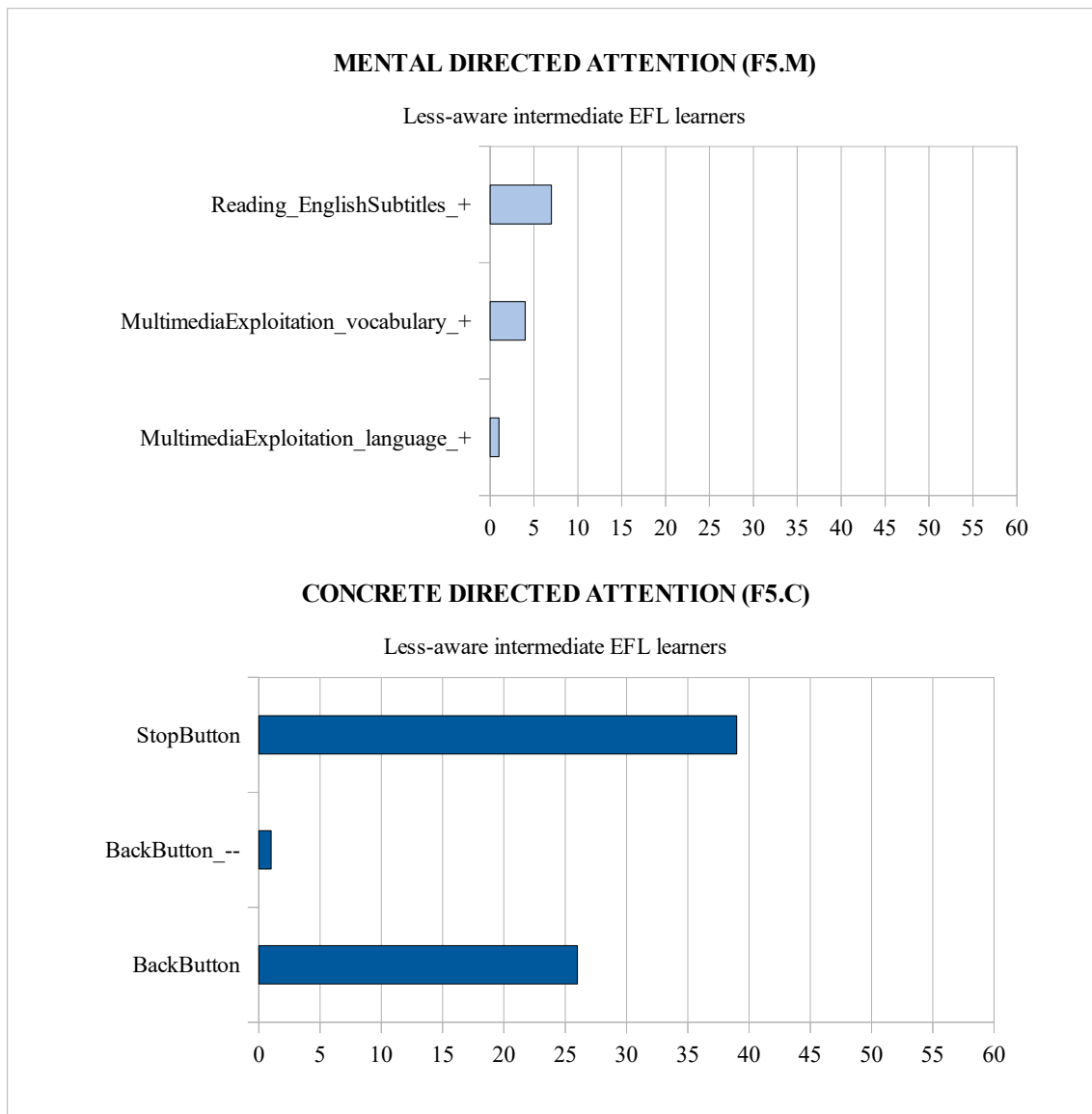
Less-aware intermediate EFL learners



CONCRETE TRANSLATION (F3.C)

Less-aware intermediate EFL learners

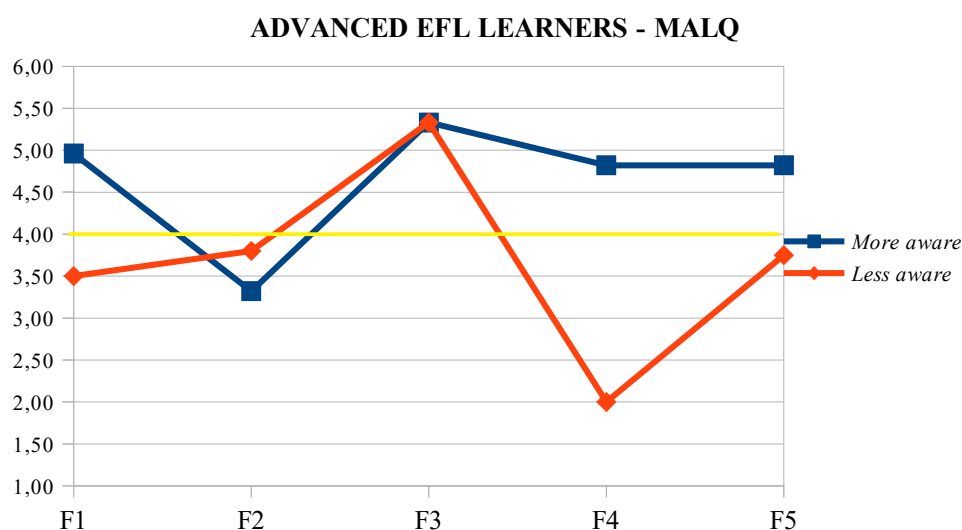




3.4 Analysis of advanced EFL learners' reports

For the second group of participants, who reported possessing an advanced level of English, the analysis of the data was far more homogeneous. That is to say, out of 23 learners only 1 person was not sufficiently self-directed (section 3.4.2) according to the average score across the MALQ-factors. In other words, 95% of subjects could be considered as metacognitively aware (section 3.4.1) in respect of their strategic performance on the task. Graph 13 provides a description of the general trends concerning metacognitive control over the factors included in the MALQ, comparing

the report of our less-aware learner with the judgements of more self-directed ones. Although the former is less confident than his or her self-aware peers in terms of problem-solving, concentration and self-knowledge, it is interesting to note that the degree of awareness concerning the use of translation – either positive or negative – equals that of the other group. As for the latter, then, the conscious management of planning and evaluation strategies is not as sufficient as for the remaining aspects of metacognition, which are actually adequately controlled.



Graph 13: Comparison between self-regulating and less-aware advanced learners across MALQ factors (average scores).

In spite of their level of proficiency in the foreign language, even advanced learners took advantage of strategies to comprehend the video-lesson and/or to increase their learning. What is more, the vast majority of these subjects reported exploiting technological resources to realise their strategic behaviour physically (see Graph 14). On the other hand, 2 learners did not report using any strategy at all and 1 participant adopted learner strategies, yet of mental kind. As for the group of intermediate EFL learners, this fact will be taken into consideration to respond to the first research question (see chapter 4).

STRATEGIC INTERACTION WITH THE COMPUTER

Advanced learners who used at least one computer-based strategy

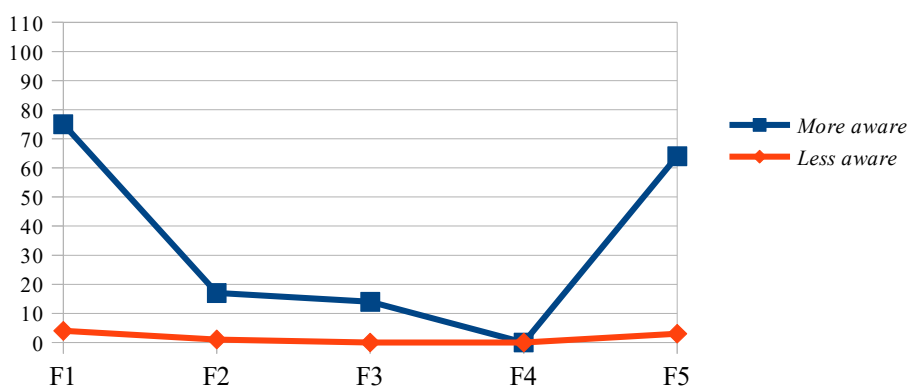


Graph 14: Advanced learners who used at least one computer-based strategy.

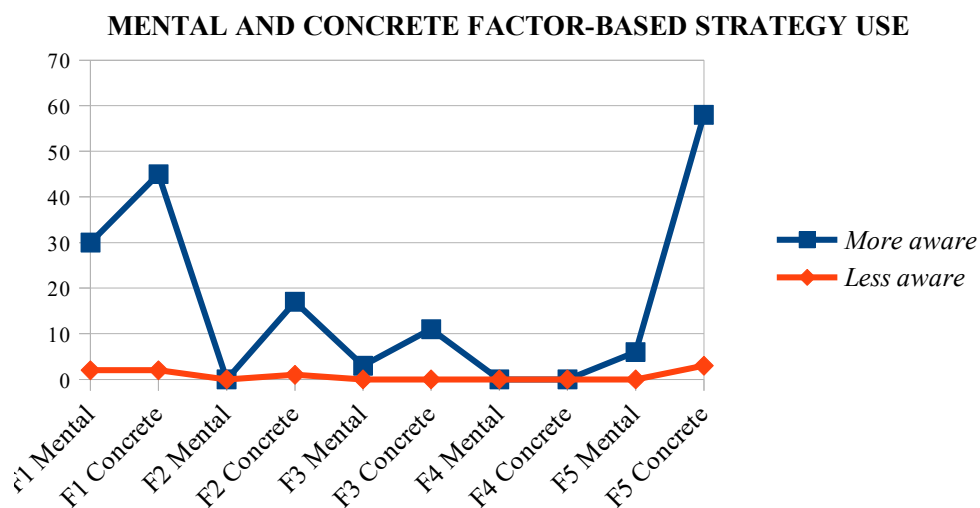
Taking a closer look at strategy use on the part of advanced EFL learners (Graph 15 and Graph 16) we can see that, on the whole, 44% of the strategies reported by self-aware subjects were related to problem-solving activities (factor 1) and 38% referred instead to attentional mechanisms to focus on the input (factor 5). A smaller portion of strategies (10%) concerned organisational strategies (factor 2) and the use of translation (factor 3) (8%). Interestingly, the only one less-aware advanced learner followed the same tendency, except for the fact that he or she did not resort to translation whatsoever. Graph 16 illustrates how factor-related mental and concrete strategies were distributed according to the participants' accounts. As we can see, the concrete use of the computer and/or the Web is predominant for every metacognitive area, for both groups of subjects.

MALQ-FACTOR-RELATED STRATEGIES

General overview



Graph 15: Advanced EFL learners' factor-based strategy use.



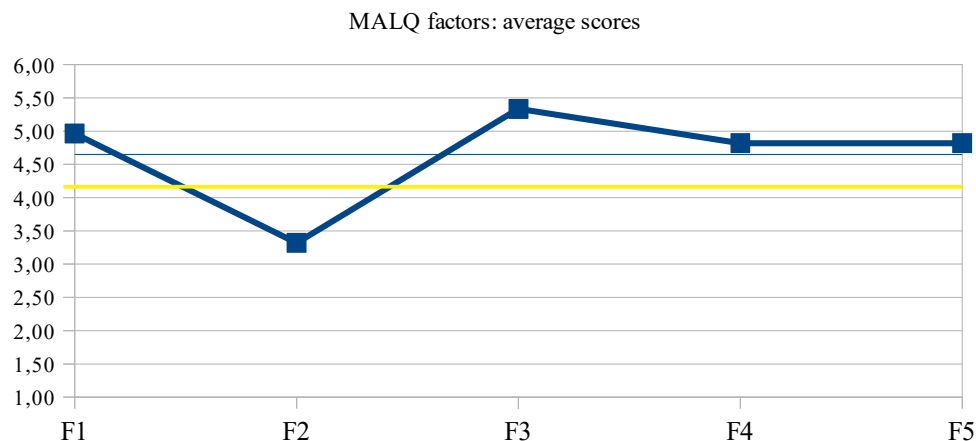
Graph 16: Advanced EFL learners' strategy use.

Further details about strategy use will be provided in the following sections. As already mentioned for intermediate EFL learners, these results will be discussed in the next chapter.

3.4.1 Metacognitively-aware advanced learners

With the exception of one participants all advanced EFL learners in this study were considered as successful in terms of self-regulation. As already introduced in the previous section, Graph 17 recalls the average scores concerning the MALQ factors. Generally speaking, this group of subjects exhibited conscious metacognitive control over problem-solving strategies (4,96 points), person knowledge (4,82 points) and attentional mechanisms (4,82 points). Most importantly, however, participants declared that translation from English into Italian was hardly ever consciously exploited, intentionally at least. Control over this aspect, in fact, was very high on average (5,33). On the contrary, planning and evaluation strategies were not that confidently managed (3,32 points). This aspect lowered the mean score indicating meta-awareness across factors for this group of subjects as a whole.

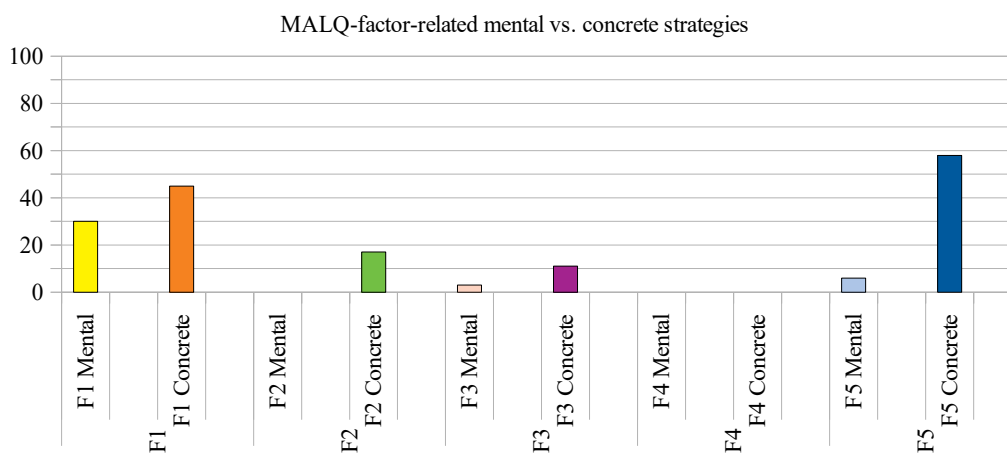
METACOGNITIVELY AWARE ADVANCED EFL LEARNERS



Graph 17: Factor incidence on metacognitive awareness concerning self-directed advanced EFL learners.

The analysis of the qualitative contributions received reveal that our advanced learners do employ strategies of different kinds and nature. Graph 18 shows the details about strategy use, while the following table clarifies what the single sections forming each bar in the graph refer to.

METACOGNITIVELY AWARE ADVANCED EFL LEARNERS - STRATEGY USE

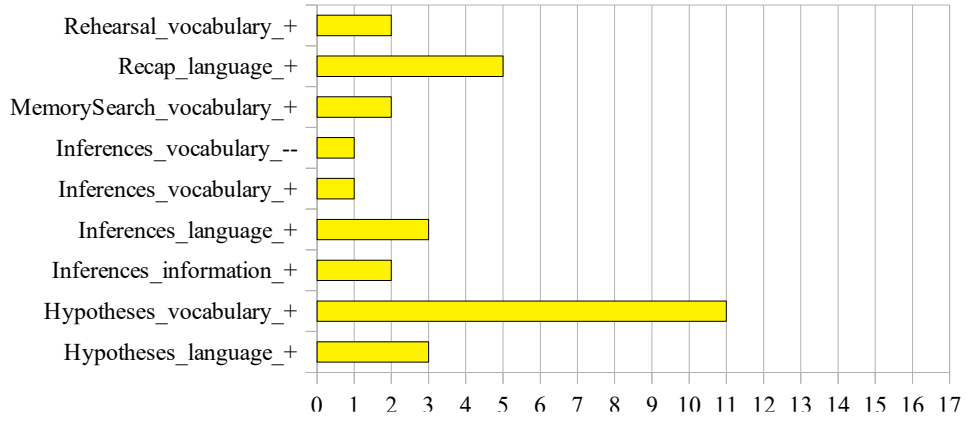


Graph 18: The factor-related types of strategies adopted by self-directed advanced learners.

Graph 18 – Bar details.

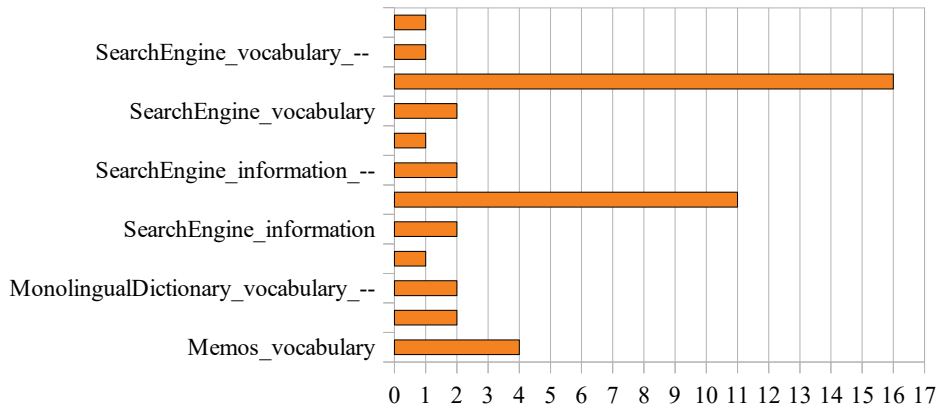
MENTAL PROBLEM-SOLVING (F1.M)

Metacognitively aware advanced EFL learners



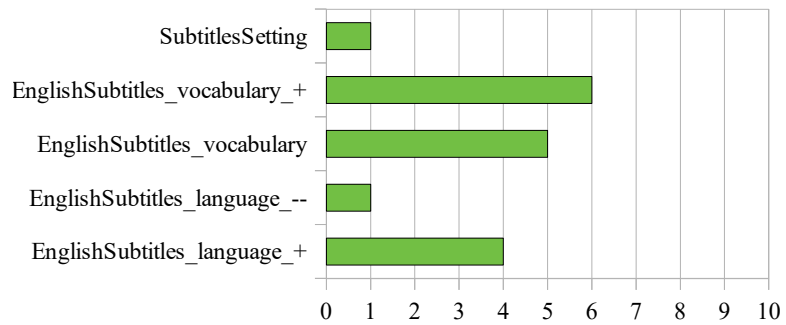
CONCRETE PROBLEM-SOLVING (F1.C)

Metacognitively aware advanced EFL learners



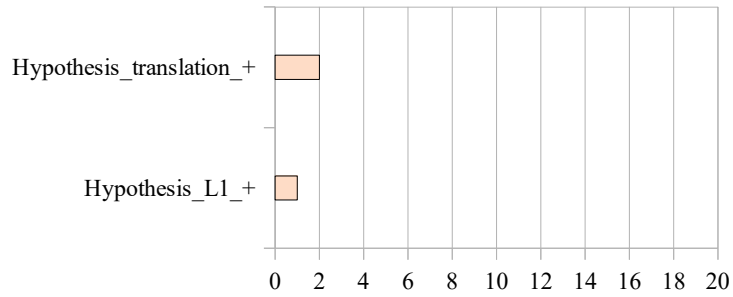
CONCRETE PLANNING-EVALUATION (F2.C)

Metacognitively aware advanced EFL learners



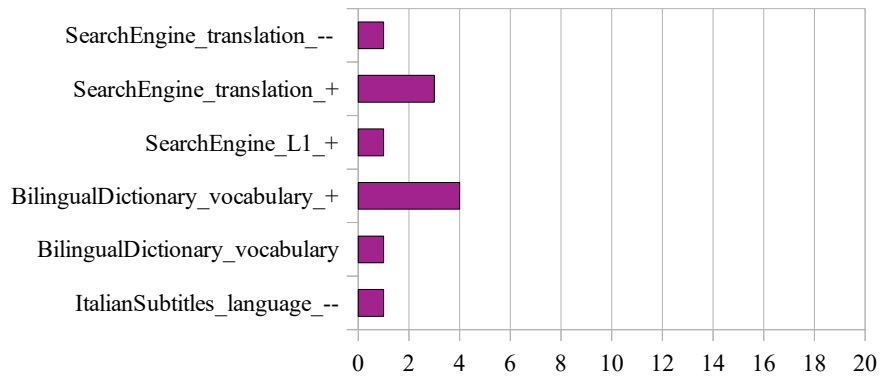
MENTAL TRANSLATION (F3.M)

Metacognitively aware advanced EFL learners



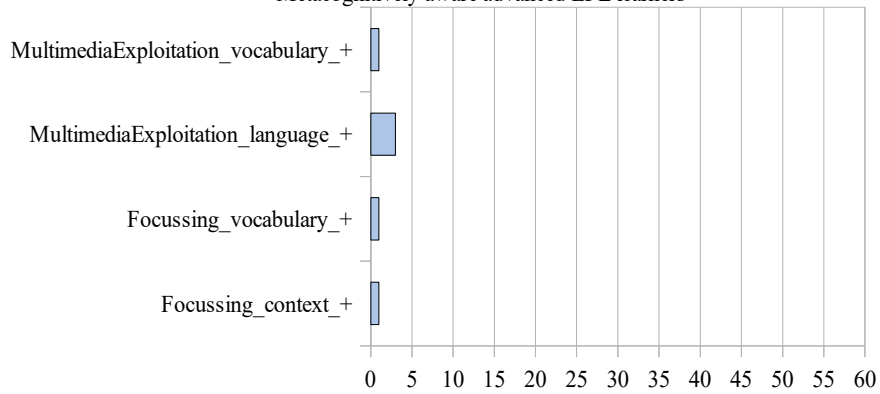
CONCRETE TRANSLATION (F3.C)

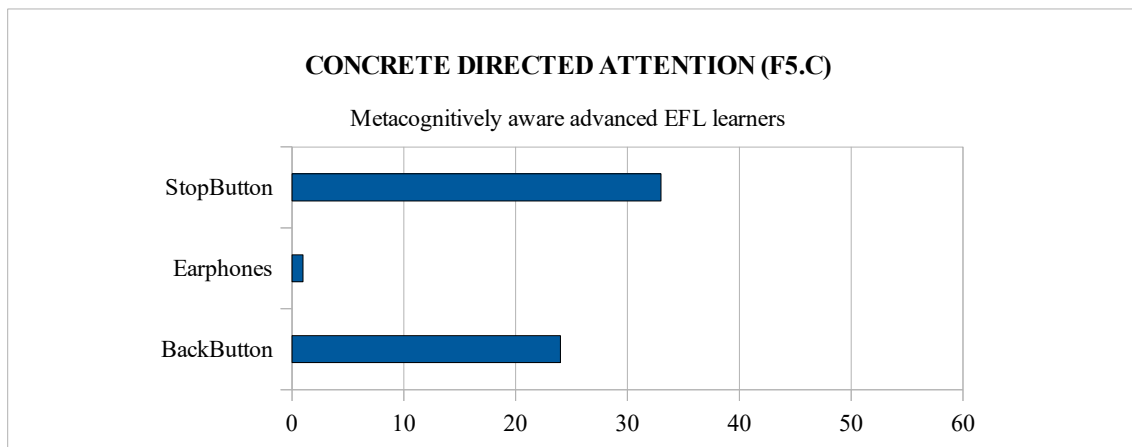
Metacognitively aware advanced EFL learners



MENTAL DIRECTED ATTENTION (F5.M)

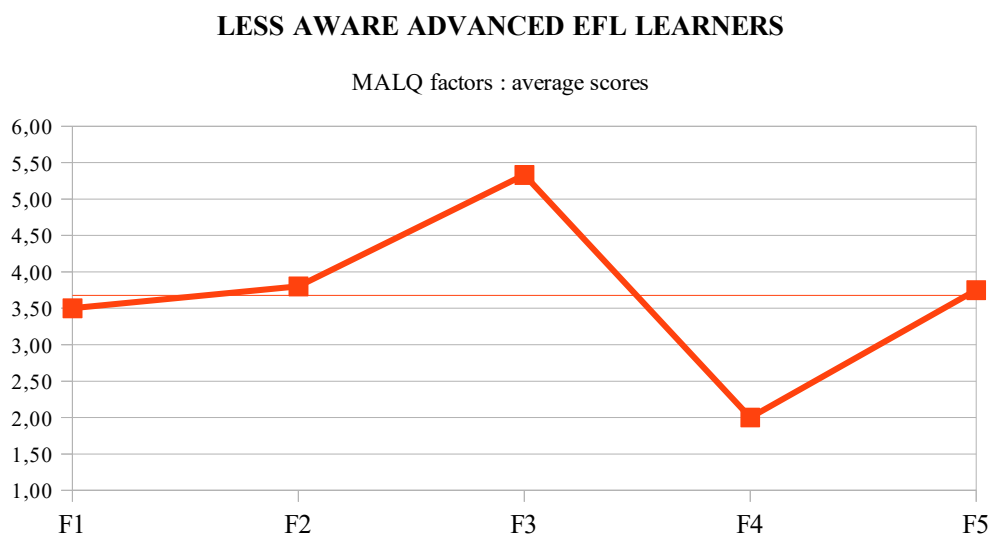
Metacognitively aware advanced EFL learners





3.4.2 Less-aware advanced learners

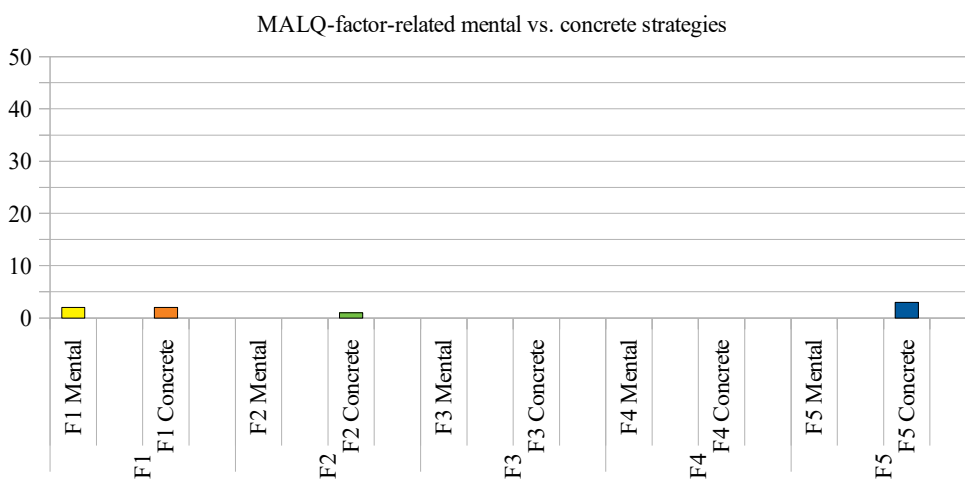
In line with the criteria adopted for the analysis of data, one advanced learner could not be classified as sufficiently meta-aware in regard to the task at hand. In particular, this subject reported having less control over problem-solving (3,50 points), attention (3,75 points) and, above all, person knowledge (2 points) than the other group of advanced learners. As we can see from Graph 19, planning and evaluation strategies were instead higher (3,80 points) than his or her peers, yet slightly below the line set as a threshold. The only factor this learner was appropriately managing concerned translation, which was very rarely consciously used on this occasion (5,33 points).



Graph 19: Factor incidence on metacognitive awareness concerning the less-aware advanced EFL learner.

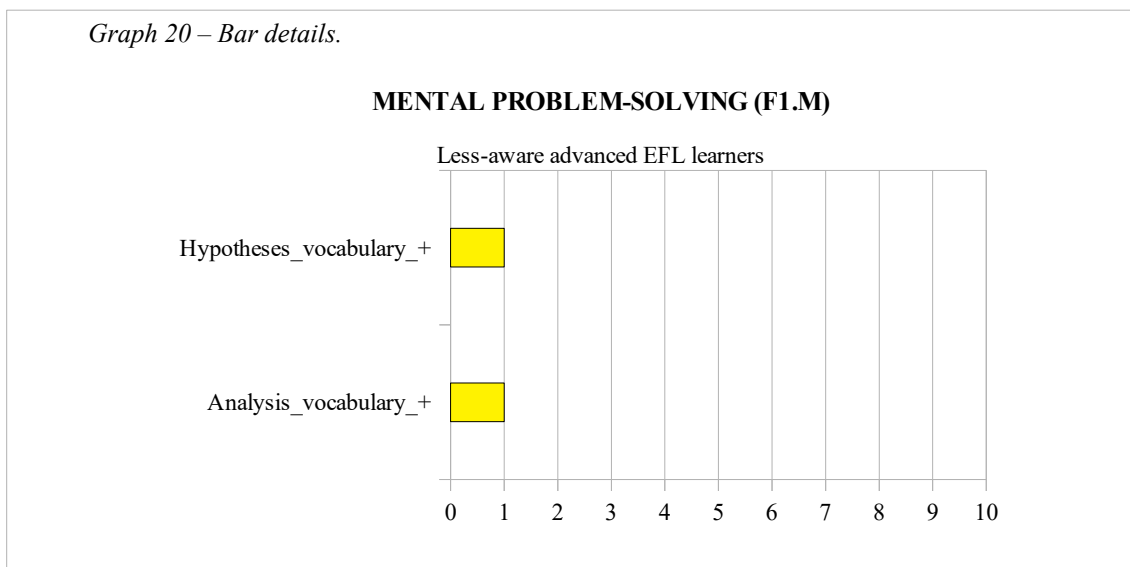
The types of strategies used by this learner to overcome comprehension deficits and/or any linguistic or content-related limitations were related to problem-solving activities, directed attention and planning and evaluation tactics. It is important to stress the fact that, to carry out these activities, computer-based resources were mainly exploited. Graph 20 and the table attached present these results.

LESS-AWARE ADVANCED EFL LEARNERS - STRATEGY USE



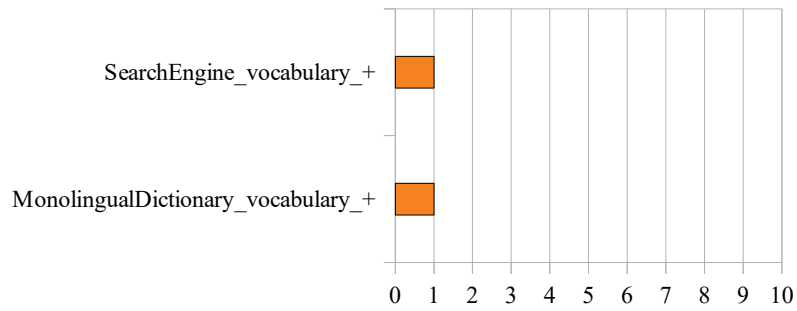
Graph 20: The factor-related types of strategies adopted by the less self-directed advanced learner.

Graph 20 – Bar details.



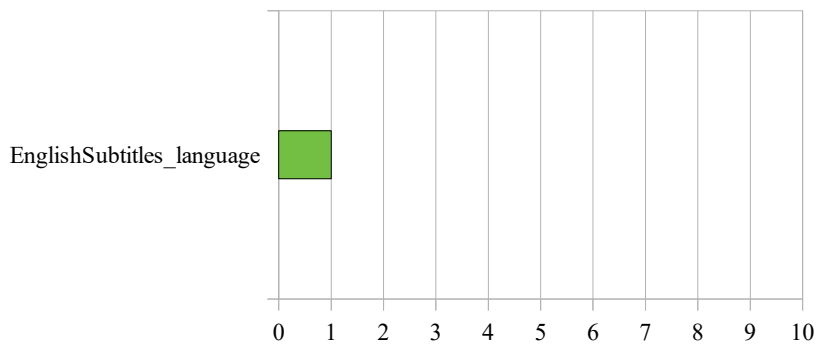
CONCRETE PROBLEM-SOLVING (F1.C)

Less-aware advanced EFL learners



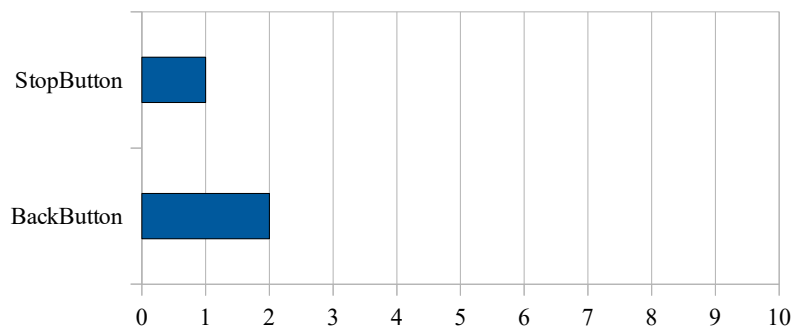
CONCRETE PLANNING-EVALUATION (F2.C)

Less-aware advanced EFL learners



CONCRETE DIRECTED ATTENTION (F5.C)

Less-aware advanced EFL learners



3.5 Summary of chapter three

According to the analysis of the “Scheda_di_lavoro” files completed by the 53 subjects who took part in this study, 30 participants belonged to the group of

intermediate EFL learners, while 23 people were advanced learners of English. In the former group, 15 subjects could be recognised as metacognitively-aware learners with respect to the task at hand, while the other 15 participants were classified as less self-directed learners. In the latter group, all advanced learners demonstrated to possess adequate metacognitive control over their performance, with the only exception of one subject. Results reveal that both intermediate and advanced learners did use different strategies of various MALQ-factor-related nature, both of mental and concrete kind. The outcomes of the examinations concerning the two groups and the respective sub-groups will be compared and discussed in depth in the next chapter, where research questions will be also answered.

4. Discussion of results

The findings produced by the analysis of data will be discussed in this chapter. First of all, we will provide a result-based interpretation of the performance of each group of participants who took part in the investigation. Afterwards, the initially-posed research questions will be answered. Finally, the limitations of the present study will be exposed and suggestions for further video-watching-related web-based strategy research will be offered.

4.1 Intermediate group: overview

As already indicated in the previous chapter (section 3.3), half of the 30 intermediate EFL learners who took part in the study were assessed as metacognitively self-aware, while the other half exhibited lower levels of self-regulation. Notwithstanding this difference, only 2 participants did not acknowledge using any strategy whatsoever to the advantage of the comprehension of the video and/or to increase their learning. Furthermore, among the 28 more-aware and less-aware learners who reported adopting strategies, all of them interacted with the computer to this end at least once. To be more precise, Graph 8 (section 3.3) revealed that concretely-observable strategies were used more frequently than mental strategies of the same MALQ-factor-based type to deal with planning and evaluation, translation and, above all, attentional mechanisms. The exception to this trend was represented by the group of problem-solving strategies, which were mental for the largest part. In the following subsections, a general discussion of results will be offered with reference to the strategic performance reported by more-aware and less-aware intermediate EFL learners, respectively.

4.1.1 Strategy use on the part of self-regulated intermediate learners

Taking a closer look at more self-regulated learners' strategic performance (see chapter 3, Graph 10), results indicate that concrete activities aimed at directing the attention onto the input (factor 5 – F5.C) were acknowledged the most frequently as strategic. In particular, pausing the video was the most reported strategy altogether, either to take time and think about the language and/or the contents just listened or to

start another activity. Using the back button to deliver the audio again and focus harder on the language and/or on contents was also reported as a strategy on many occasions. Qualitative notes about the details provided by subjects about strategy use show that, in some cases, this function allowed the learners to test previously-made hypotheses. However, going back and repeating the video was not always effective, as some participants highlighted. As far as attention-related mental strategies (factor 5 – F5.M) are concerned, instead, in most cases self-aware intermediate EFL learners considered reading English subtitles as a strategy to follow the input stream better. Some learners explicitly admitted that it made comprehension much easier. Another attention-related mental strategy reported involved the conscious and purposeful exploitation of the multimedia nature of the video to support the comprehension of contents. That is to say, visual inputs were relied on when the audio was not sufficient to attain the level of comprehension desired. Alternatively, the general context was referred to in order to overcome linguistic limitations which, taken in isolation, could have hindered the full understanding of contents. Taking time to reflect upon single focussed aspects was also mentioned as a strategy mirroring the conscious control of attentional mechanisms. This system, actually, could be also banned from working in strategic terms. One learner, in fact, declared that although English subtitles could have made comprehension easier, he or she preferred to avoid them in favour of memory-based activities. All these mental strategies were followed by other consciously-recognised cognitive operations. This might reflect the chain-like nature of strategy use discussed in chapter 1.

The second factor-based group of strategies which was employed the most by more-aware intermediate EFL learners concerned problem-solving activities (factor 1). Various mental operations (F1.M) were reported in this sense, and they were all chained up with subsequent cognitive activities, as subjects indicated. The most employed ones were those aimed at making inferences about vocabulary (word or expression meaning, also by means of previous encounters), making hypotheses about contents and about vocabulary (word or expression meaning and/or spelling, also by means of similarities with the L1) and those involving the progressive reconstruction of the information delivered through the video. Vocabulary mental-rehearsal was considered as a strategic operation to organise and fix learned material (e.g. analysing the context in which a

word was used; distinguishing different uses of the same word; thinking about other suitable context-based sentences for a given word). This was also valid for vocabulary-memorisation techniques, language analysis to search for the underlying meaning of longer expressions and compounds, vocabulary analysis to learn pronunciation and orthography and content association to establish a link between previous knowledge and new information. The remaining problem-solving strategies mentioned concerned making associations across languages to reflect upon word use, using previous experience to fix vocabulary use, memorising relevant pieces of information, making hypotheses about the linguistic input stream and recapping it when parsing was difficult. Apropos vocabulary learning, Cohen (1991: 113) indicates that acquisition can be the outcome of meaningful direct experiences or the consequence of strategy adoption. In particular, the author advocates developing strategies such as personally-tailored memory-based techniques (he mentions, for example, associations, mental imaging, keyword-based reasoning, semantic organisation of words) in order to boost language development in every learning circumstance. As previously introduced, problem-solving strategies were also turned into the concrete use of external resources (F1.C) on the part of our intermediate learners. In most of these cases, the web search engine was accessed to obtain further information and/or to test previously-made hypotheses about the contents delivered through the video-lesson and, as a consequence, expand one's own knowledge. According to the details some subjects gave, Italian web-pages were also consulted in these cases. The majority of these learning activities were followed by subsequent consciously-recognised cognitive operations, whereas in some other cases the learners did not acknowledge working on meanings any further. One learner, however, did not consider this strategy as effective, since the navigation did not produce appropriate results. Similarly, another subject did not succeed in making sense of unclear linguistic expressions with the help of online resources. The web search toolbar was in fact also exploited to type in words and expressions noticed in the video-lesson and increase English vocabulary knowledge, also by testing hypotheses or by resolving doubts about meaning and/or spelling. Both websites and images were referred to in these cases, according to the learner's preference. The browser search toolbar was also used in strategic terms to check the actual comprehension of the contents delivered and

learned through the video, and to create additional first-hand learning experiences concerning specific aspects discussed in the video-lesson. Word pronunciation was also looked after. An online translator was also used to verify the pronunciation of a word heard in the input stream. The only non-computer-based concrete problem-solving strategy reported involved practising pronunciation out loud on the part of the learner, in order to adjust it and to trigger subsequent cognitive operations targeted at learning.

In a similar vein, translation-based strategies were mainly based on the concrete exploitation of the World Wide Web (F3.C) to achieve comprehension. In particular, the analysis of data revealed the dominance of online bilingual dictionaries to search for the Italian translation of English nouns and verbs and/or to check word orthography. In a few cases, the online bilingual dictionary helped expand one's own knowledge of English vocabulary in terms of appropriate context-based word uses and word synonyms. By adopting this strategy learners were also able to confirm knowledge or previously-made hypotheses about vocabulary meaning and form. One learner reported typing in the Italian translation he or she came up with of an unknown English word and verifying that the results displayed actually matched the word noticed in the input. As a consequence of dictionary use, moreover, in the majority of the cases learners acknowledged carrying out strategic cognitive operations to systematise the language material at hand in a learning perspective. The bilingual dictionary had its drawbacks, though. Some learners, in fact, were not able to obtain satisfactory results. The online translator was also mentioned as a strategy to convert unclear or unknown English expressions and sentences into Italian. Similarly, Italian subtitles were temporarily activated in order to read the translation of unclear or unknown English material delivered in the input stream of the video-lesson. In one case, this strategy was not effective because the learner was not able to change the settings and select Italian as the preferred language for subtitles, instead of English. The browser was also useful to search for the definition of technical Italian words which the learner ran into as a result of bilingual-dictionary use. As for mental translation (F3.M), some learners explicitly recognised it as a tactic to assist comprehension. More precisely, this activity was reported only in those cases when it did not produce the expected results, i.e. when the learner was not able to remember the translation of a word.

The last category of strategies adopted by this group of intermediate learners was related to planning and evaluation (factor 2), which was turned into computer-based concrete operations in almost all of the cases (F2.C). Specifically, these involved the strategic temporary insertion of English subtitles so as to read entire sentences, unknown expressions or single words which were unclear to the listener. In some cases, subtitles were activated only to check the spelling of words (also as a consequence of hypothesis-making). Once the subtitles had been entered, some learners had to work with video-related tools in order to set up English subtitles (instead of other languages), an option which one learner was not able to find. As for strategic mental planning (F2.M), one learner reported reading the introduction to the video to activate his or her knowledge about the topic and to create expectations.

4.1.2 Strategy use on the part of less self-regulated intermediate learners

In comparison with self-regulated intermediate learners, the strategic performance of less-aware ones was overall less varied, and the respective use of English-based mental problem-solving strategies and Italian-related concrete translation strategies was inversely influential (see chapter 3, Graph 12). That is to say, translation was relied upon more often to overcome linguistic limitations on the part of less self-regulated intermediate learners, whereas more self-directed subjects reported using English-based problem-solving activities more extensively.

Apart from these differences, the strategic use of the computer to focus the attention onto the input stream (F5.C) was predominant also for less-aware intermediate learners. Pausing the video allowed learners to carry out subsequent operations aimed at comprehending the input and/or increasing learning. Rewinding the video was also useful to focus harder on unclear language and, therefore, increase comprehension, to clarify or analyse some peculiar aspects noticed and to confirm previously-made hypotheses and inferences about the input heard. One learner used this strategy repeatedly in order to deal with his or her difficulty in following the narrative voice, which was judged too fast. Attentional mechanisms (F5.M) were strategically exploited especially in order to process the input stream more slowly by means of reading English subtitles and, as a consequence, facilitate comprehension. Alternatively, the visual

support of multimedia was consciously and purposefully paid attention to so as to support word recognition and sentence parsing with respect to the audio-based input.

The second largest category of strategies adopted by this group of learners concerns translation. In concrete terms (F3.C), online resources were accessed in all of the cases to translate linguistic material from English into Italian and vice-versa. An online bilingual dictionary allowed learners to view or to confirm the translation of English words, or again to check their spelling. In the majority of the cases, these activities were supported by subsequent consciously-recognised cognitive operations. For some learners, however, using the bilingual dictionary was not always productive: The expected results were not available or they were not satisfying; More translation options were provided; The translation offered was not consistent with the context under examination. The alternative to the bilingual dictionary was the use of an online translator to understand English sentences and vocabulary through Italian. Italian subtitles were inserted in some other cases to achieve the same purpose, especially when the learner had hypotheses to test. Like their more self-directed peers, some learners explicitly acknowledged translating the incoming input mentally (F3.M) when they were not able to retrieve the Italian equivalent for an English word. A few cases of web-based translation from Italian into English were reported and primarily involved accessing websites and online forums rather than online translators. These resources were consulted in order to confirm hypotheses about translation and to obtain information about differences between British English and American English, for instance. The online translator was used, instead, to convert an Italian expression into English.

The web-based problem-solving activity was largely confined to translation. In only a few cases the browser was exploited (F1.C) in this perspective to develop the video-lesson topic, i.e. to increase knowledge about non-English unknown words noticed in the input stream or about unfamiliar technical words. The only case where an English monolingual dictionary was consulted was meant to test an hypothesis about word meaning and use. On the contrary, mental problem-solving strategies were more frequently used (F1.M). In regard to this, hypothesis-making was reported as strategic in most of the cases, especially in relation to English and non-English vocabulary

(meaning and spelling). Taking time to recap contents was also useful to fix information in learning perspective, and drawing inferences about the meaning of English words and contents assisted comprehension. The remaining strategies mentioned referred to rehearsal techniques aimed at discriminating English expressions and, in a few cases, to the conscious choice of not investigating into the meaning of unknown single English words when this limitation did not hinder the general comprehension of the information.

As previously introduced, the insertion of English subtitles was the outcome of concrete strategies of planning (F2.C) made possible by the computer and, in particular, by video-related tools. When Italian subtitles were needed, the learner selected this language by changing the settings.

4.2 Advanced group: overview

As already indicated in chapter 3 (section 3.4), the group of advanced EFL learners who took part in the study was homogeneous in terms of meta-awareness and self-regulation. Out of 23 subjects, in fact, only one learner was considered as not sufficiently controlling the listening-and-viewing performance and the learning activities with respect to the task at hand. Nonetheless, even this less-aware learner reported employing a number of strategies to the advantage of comprehension and English learning (see chapter 3, Graph 20). Specifically, computer-mediated attention (F5.C) was directed onto the input by means of the replay button to attain a better level of comprehension when the language was not clear. Similarly, the video was strategically stopped in order to start some other video-related activities. It is worth emphasising that this learner did not rely on translation as a primary problem-solving activity to overcome linguistic limitations. As for mental problem-solving strategies (F1.M), the learner took time to reflect upon an idiomatic expression noticed in the input and to analyse it formally in the attempt to uncover its meaning. On another occasion, the learner created his or her own hypothesis about the meaning of an unknown word, before testing it by means of an online English monolingual dictionary (F1.C). With regard to this, the participant specified that additional research was conducted by means of hypermedia links provided on the dictionary-window he or she was consulting. As a result, the learner could expand his or her knowledge, i.e. learn

something new related to the previously-searched word. English subtitles were also temporarily activated to follow an unclear expression heard (F2.C). Consequently, the learner reported using the browser toolbar to type in the unknown English expression and find the appropriate web-based resources (English pages) to discover its meaning (F1.C).

As for the rest of the group, i.e. self-regulated advanced learners, data indicate that two learners did not complete the self-observation scheme concerning strategy use. The remaining 20 learners, instead, reported⁵⁴ using a variety of strategies which always included the use of computer-based resources, except for one learner who relied upon mental strategies only. More precisely, according to the results (see chapter 3, Graph 18), concretely-observable strategies were preferred over mental ones to realise each factor-based metacognitive category of self-regulation. Among these, problem-solving activities were the strategies which this group of advanced learners reported using the most. As far as concrete operations are concerned (F1.C), the analysis of data revealed that, in the majority of the cases, the World Wide Web was accessed to overcome linguistic limitations, to assist the comprehension of the video-lesson and to advance learning in general. In a few cases, an online English monolingual dictionary was chosen to search for word meaning and use and increase the knowledge of English, testing in turn previously-made hypotheses. This strategy, however, was not always productive: One learner had difficulty in obtaining results concerning the definition of a specific expression noticed in the video-lesson, as well as its related words. In most of the cases, however, the browser search toolbar was used as the starting point for navigating through the Web and find the appropriate resources to satisfy the learner's comprehension- and/or learning-needs. Looking for further information relating to the video-lesson was often mentioned as a way to test previous hypotheses. The objects of this kind of research were video-related contents, non-English words, information concerning other foreign languages, technical words and linguistic features across languages. Subsequent cognitive activities were consciously acknowledged by learners as learning-supporting processes. In a few cases, however, the strategic use of web-based navigation did not produce appropriate results and was therefore considered as

⁵⁴ We would like to highlight the fact that one advanced learner chose to complete the structured e-journal in English.

ineffective. Analogous effects were reported for the use of the browser to search for and verify vocabulary meaning, spelling and use. Some learners paid particular attention to the pragmatic aspects of the language under examination. Another strategic use of the World Wide Web concerned the revision of English grammatical aspects. Other concrete yet non-web-based problem-solving strategies included new-vocabulary rehearsal techniques and the use of pencil and paper to take notes about unknown English words to clarify after watching the video or to memorise. Inasmuch as all these strategies were frequently chained up by conscious cognitive operations aimed at supporting learning processes, many other mental activities were reported as being problem-solving strategies (F1.M). It is the case of the efforts made to generate hypotheses about vocabulary meaning and spelling as well as about unclear linguistic material noticed while watching the video; to make inferences about the information delivered, about the meaning of words and expression (not always successful) and linguistically-unclear passages; to take time and recap how the language was used to express certain messages; to rehearse the meaning and use of recently-learned vocabulary which is now encountered again in the video-lesson; to try to remember previously-learned vocabulary meaning and spelling.

The second type of strategies that self-directed advanced learners reported favouring concerned the use of the computer to pay closer attention to the input (F5.C). To this end, one learner reported wearing earphones as a strategy to concentrate on the video-lesson better. Alternatively, the audio was repeatedly listened to so as to focus on the input, especially when crucial information was provided for comprehension. Apart from this, advanced learners frequently paused the video strategically in order to carry out some other mental or concrete operations. As for attention-related mental strategies (F5.M), the activities listed included: focussing on the general context to enhance the understanding of the message; taking time to focus on the spelling of a word; exploiting the multimedia as a whole to work out linguistically-unclear information; heeding visual inputs to recognise unknown words transmitted through the auditory input (in terms of spelling and pronunciation).

The third metacognitive category which was translated into concrete strategy use on the part of self-directed advanced learners concerned planning and evaluation (F2.C).

Essentially, learners resorted to English subtitles to cope with linguistic limitations (entire sentences or single words) and achieve the level of comprehension desired. One learner, however, was not able to change the subtitles settings and activate this service.

Finally, translation-based strategies were also reported by some advanced learners to overcome linguistic limitation and trigger learning. In a couple of cases, hypotheses were created about the possible translation and different uses of an English word, or about one's own mother language (Italian) in terms of expression use (F3.M). However, computer-based resources were used to solve this kind of problems with more certainty (F3.C). Apart from accessing an online bilingual dictionary to search for and confirm translation for unknown English words, the web search engine was also exploited for the same purpose. The Net was navigated to find information about L1-expression use, too. Relying on translation, however, was not always effective as a strategy, maybe due to the inability to find appropriate results online. Similarly, video-related Italian subtitles were activated by one learner to assist comprehension, yet he or she realised that the translation offered was actually not correct.

4.3 Answers to the research questions

As already introduced in the first chapters of this thesis, the investigation conducted for this study was guided by three research questions, namely:

1. Do EFL Italian university students deliberately interact with the computer in a strategic way to assist the comprehension of an English authentic video?
2. Which online resources do self-regulated EFL Italian university students exploit to increase their knowledge of English, with respect to an English authentic video?
3. Is there any marked difference in strategy use between metacognitively self-aware intermediate EFL learners and metacognitively self-aware advanced ones?

In view of the previous examination of the results produced by the analysis of data, we believe that we are now able to answer these questions. In the attempt to make the interpretation wider, each of the following findings will be integrated with congruous insights provided by experts in the field.

In line with the premises stated in the first chapter, the response to the first question is positive for the vast majority of the EFL learners who took part in the investigation. Regardless of their degree of metacognitive control over their listening-and-viewing performance, 93% of both intermediate and advanced learners purposefully and consciously employed cognitive and concretely-observable strategies – usually chained up with subsequent conscious mental operations – to attain the level of comprehension desired. Notwithstanding this, the answer to the questions needs to be specifically focussed on the computer- and web-based strategies reported by subject. Hence, according to the data one participant should be excluded from the group of learners who made use of technological resources (at least once) while dealing with the task. Out of fifty-three participants, then, forty-eight learners strategically interacted with the computer to assist their comprehension of the video-lesson they decided to watch, in relation to both contents and the foreign language. With reference to the construct of *noticing* (Schmidt, 2001; 1990) presented in the first chapter (section 1.3.3), we can say that the learners' repeated efforts to work out meanings and, therefore, make relevant pieces of the input comprehensible might be interpreted as the first step towards interlanguage development. Vandergrift (2011: 462-464) discusses a series of advantages of listening activities based on multimedia materials. In particular, he underlines that, although listening activities are primarily aimed at comprehending messages and even though the correlation between multimedia input and increased learning outcomes has not been validated yet, studies reveal that listening-related processes might trigger language learning on the part of L2/FL learners. As Richards points out (2005 cited in Vandergrift, 2011), however, the learner needs to focus on single linguistic aspects in the input to start acquisition. Apropos attentional mechanisms, Vandergrift (*idem*, 462) also reminds us that some specific tools available in technology-enhanced learning environments (e.g. audio repetition and audio transcriptions) can facilitate the processes of input parsing and input analysis as well as perception development. Notwithstanding this, he stresses that these functions do not exempt learners from making the effort to create hypotheses and inferences about what they hear in order to maximise meaningful learning. As previously stated, four learners did not reported using any strategy whatsoever. According to the analysis of each

MALQ, three of them were considered as sufficiently metacognitively self-aware. One of them was an intermediate EFL learner, while the other two belonged to the group of advanced EFL learners. Thus, we cannot say that the lack of their contribution to the identification of strategy use reflects passivity. We are not able to find out the reasons behind this fact. In view of Ulitsky's (2000: 286) and Devolder et al.'s (2012: 558) notice concerning computer-based self-regulation, however, it might have been the case that the free use of technological resources was not recognised as strategic for comprehension and/or learning on the part of these subjects. Or, that they were not that motivated to exploit any strategies, despite assessing the activity with positive adjectives. The analysis of the general-information questionnaire included in part C reveals, in fact, that all of them found the activity interesting. Three of them reported that it was also easy. Two of them considered the task as short, and one learner recognised that the video-lesson was useful, too. The previous considerations might also be valid for the participant who adopted mental strategies only.

The second research question is very specific. First of all, we need to refer to the MALQ-factor-based types of strategies identified through the coding and labelling analytic procedure concerning the self-observation schedules completed by participants in part A. As previously examined (see sections 4.1 and 4.2), the strategies reported are connected with the following metacognitive categories: (translation-based) problem-solving (factors number 1 and 3)⁵⁵, planning and evaluation (factor 2) and the orchestration of attentive resources (factor 5). For each of these categories, both mental strategies and concrete ones emerged. However, the second research question is specifically addressed to the strategic use of computer-based 'online' resources to the advantage of language comprehension and, possibly, learning (as a result of effective processing). Moreover, although the work of less self-directed participants was analysed and reviewed, the answer to this question takes into account only the performance of those intermediate and advanced EFL learners who were considered as sufficiently metacognitively-aware on the basis of the MALQ. To give a résumé of the results

55 Regardless of the differentiation made between problem-solving strategies and translation-based ones (justified in chapter 3, section 3.2), we can say that, in both cases, learners work towards a way to comprehend something unknown, ambiguous or unclear and then, possibly, learn it.

produced, the web-based strategies employed by our self-regulated EFL Italian university students involved the following resources:

- a) English monolingual dictionaries;
- b) English-Italian/Italian-English bilingual dictionaries;
- c) translators;
- d) the web search engine and, therefore, potentially useful web-pages;
- e) video-related English subtitles;
- f) video-related setting options;
- g) video-related Italian subtitles;
- h) the video-related replay function;
- i) the video-related pause function.

According to our findings, the use of these strategies was not always satisfying, though. Although our participants repeatedly relied on these resources to the advantage of comprehension and learning, in some cases they did not succeed in exploiting all the possibilities offered within technology-enhanced environments to adequately solve context-specific linguistic problems. Apart from this, we believe that the answer to the second research question emphasises the issue of input noticing we have previously discussed. Drawing upon Roussel's (2008) findings, Vandergrift (2011) underlines that when learners self-regulate their listening activity they demonstrate to remember more pieces of information (measured in the form of idea units) than in the case where the input is listened to just once or twice. Apropos this, Vandergrift argues that by frequently stopping and delivering the input stream repeatedly learners are likely to exert a high level of control over relevant material, especially if they are advanced listeners⁵⁶. In the light of this, we suggest that not only did the use of the video-related replay and pause functions allow our participants to regulate their performance and

⁵⁶ According to Hegelheimer and Tower's (2004) results, instead, Vandergrift (2011) proposes that the regular use of replay functions and transcripts on the part of less-skilled and unsuccessful listeners may signal that they tend to rely on translation instead of interacting more actively and meaningfully with the input stream. Besides, this claim links to Vandergrift et al.'s (2006) and Vandergrift's (2003) conclusion that the use of translation appears to be typical of less-successful learners' listening performance.

comprehension, but they also triggered the used of additional web-based strategies to support noticed-input processing.

To answer our third research question we need to compare the strategic performance of self-directed intermediate and advanced learners. If we look at the differences between Graph 10 and Graph 18 in chapter 3, it is immediately noticeable that advanced EFL learners adopted more web-based problem-solving strategies than the intermediate group of participants. Moreover, these appear to be preferred over the same strategy category yet of mental kind. On the contrary, intermediate EFL learners relied more frequently on the mental interaction with the input in order to extract meanings. Notwithstanding this, intermediate learners seem to have been more tied to translation when it came to overcoming any linguistic limitations. In contrast, the need for translation was relatively low on the part of advanced learners. With respect to this, we should also stress the fact that, according to the analysis of the MALQs, advanced learners exercised higher self-aware and effective control over the use of translation, which was scarcely trusted overall (see Graph 13). In view of this tendency, we find a parallel with Laufer and Hadar's (1997) conclusions about dictionary usefulness on the part of EFL learners. The two researchers conducted a test-based study in which they invited 123 pre-advanced and proficient learners, attending high-school and university, to comprehend a list of words and, subsequently, creatively produce a sentence with each of those. For the comprehension part, one third of the words was provided with the respective English definition and examples ('monolingual dictionary'), one third was translated into the participants' L1 ('bilingual dictionary') and one third displayed the monolingual entry and examples integrated with the translation ('bilingualised dictionary'). According to their results (Laufer and Hadar, 1997: 195) the last case appeared to be the most effective both for comprehension and production, even on the part of less-skilled dictionary users. As for the respective effectiveness of monolingual and bilingual dictionaries, the researchers indicate that it actually hangs on the personal skills of the learner as a dictionary user and on the purpose of dictionary use. It is not within the scope of this thesis to discuss the benefits of dictionaries and, by the way, we are not able to evaluate the effectiveness of dictionary use on the part of our participants. Yet our findings seem to suggest that while the intermediate learners tended

to exploit the Web to access translation as a vehicle to comprehension, advanced learners may have approached the task differently. Namely, they might have been more willing to combine English information and Italian equivalents, if available.

Finally, intermediate learners reported a more recurrent use of directed-attention strategies than the other group. However, this might simply reflect the difference in terms of skills and proficiency between these two groups.

4.4 Study limitations and further research

The present study is not free from limitations, especially of methodological nature. To begin with, notwithstanding Azevedo et al.'s (2010) and Fischer's (2007) recommendations, it was not possible to make use of any computer-tracking software which could have helped identify the actual use of technology-related resources on the part of our participants. Secondly, the fact that the investigation was based on introspective data represents a threat to its internal validity and to the credibility⁵⁷ of the results produced. The validity issue is also related to the choice of collecting data in retrospect. Drawing upon Ericsson (2002), Dörnyei (2007: 147-151) reminds us that the longer the time interval between the target process and its verbalisation, the more distorted the latter might be. Although the self-observation schemes were completed *during* the performance and referred to very specific aspects⁵⁸ (for which contextualised boxes were provided – see chapter 2, section 2.3.2), we cannot claim that the data available to us are totally reliable. Furthermore, Cohen (1998) argues that, in addition to the utter inaccessibility of much processes, some conscious mental operations are so complex to report that relevant data might vanish. The analysis of the qualitative responses provided by subjects required extremely careful attention in order to extract information which could be as much objective as possible. To this end, having at least one assistant who could provide his or her own interpretation of qualitative accounts could have minimised the effects of the researcher's potential bias. As far as the responses to the questionnaires included in part B and part C, we should underline that the majority of them could have been biased towards social desirability (Dörnyei, 2007).

57 Dörnyei (2007) proposes a set of criteria which a researcher can refer to in order to increase the quality of qualitative studies.

58 According to Ericsson (2002), such precautions help reduce the weaknesses of retrospection.

Although it was based on a potentially-authentic learning setting, the external validity of the present study is restricted to its scope and to the specific context under examination. Thus, the findings presented should not be extended in large-scale to the whole population of EFL Italian learners.

One aspect that was beyond the researcher's control concerns the evaluation of actual learning outcomes. That is to say, the impact of technology-enhanced learning and the effectiveness of the strategies reported, especially in terms of language acquisition, was not tested. Moreover, the complexity and the dynamism of the environment was such that it was not possible for us to gain insights also into the reasons underlying strategy use⁵⁹. In other words, the investigation was not designed to clarify why a given strategy is chosen instead of another one of the same type to achieve a certain goal. Besides, it should be noted that no previous strategy-training session was organised to make participants more aware of the issue under investigation. Similarly, apart from metacognitive awareness we did not survey other individual variables such as previous training experiences, beliefs and motivation which have an impact on strategy choice (see chapter 1, section 1.1.2).

The reader should take all these issues into consideration, also in view of any follow-up study. In addition, as Ellis (1994: 543-544) suggested for learner strategy use in general, it would be interesting to explore video-related strategy use in technology-enhanced independent learning settings with reference to other foreign languages. In particular, this might help us evaluate the use of online resources on the part of self-regulated learners to achieve language-specific goals.

4.5 Didactic implications of the study

In the first chapter of this work we have highlighted the role that strategies play in relation to the learner's active role throughout the learning process. More precisely, we have described what scholars argue in favour of the dominance of metacognition, in terms of awareness and self-direction, in the development and the selection of appropriate strategies to achieve task-specific goals. With reference to this, we see a

⁵⁹ Azevedo et al. (2010) propose this argumentation with reference to hypermedia-enhanced self-regulation and underline that the discussion should be based on a number of interrelated individual factors coming into play.

parallel with Williams and Burden's (1997) explanation of the concept of agency, in which the sense of responsibility and the sense of control towards learning appear to be embedded. As we understand it, this point stresses once again the centrality of the learner's individuality in connection with effective learning and, also, motivation. In this vein, the subject of our investigation was the manifestation of agency through strategy use in Web-based learning settings on the part of Italian EFL learners who do not benefit from the language teacher's guidance any more. When confronted with online English contents, specifically delivered in the form of a video, the subjects involved in our study demonstrated a spontaneously-active strategic behaviour mainly aimed at extracting relevant information – linguistic and non-linguistic – from the input as well as at making it comprehensible in a problem-solving perspective. Notwithstanding this, our results also reveal that self-regulation is not necessarily always based on self-awareness and metacognitive control as expected. In view of the considerations we have made about the Internet as a provider of innumerable and various learning experiences and resources (see chapter 1, section 1.3.2), our findings appear to offer an implication for language teaching and learning which combines two kinds of didactic intervention. First, we support the idea of implementing strategy training programmes within foreign language courses at high school. In this way, learners would have the chance to develop their own metacognitive awareness and control over learning as a whole and over strategy choice in particular, so that contextually and personally-appropriate operations can be carried out with the aim of upgrading one's own skills and knowledge. The modalities and the effects of such an educational initiative have already been examined by scholars like Chamot (2004), Cohen (2011, 1998), O'Malley and Chamot (1990), Oxford (1990), Wenden (1991). With respect to listening, which is the focus of our study, the benefits of strategy instruction have been explored in the works of Carrier (2003), Goh (2008), Vandergrift and Tafaghodtari (2010). On top of this, in connection with the present thesis we suggest that learners become aware also of the power of their attentional mechanisms with respect to information processing and learning outcomes, so that their ability to manage the FL-input readily and to their own advantage might be strengthened. In other words, practitioners could rely on Schmidt's (1990) indications concerning the construct

of Noticing to increase the quality of their mediation (see also Skehan, 1998). Secondly, we propose that providing students with Internet access in class is likely to favourably assist their learning process and, in turn, it might help them gain familiarity with computer-based resources in a strategic, i.e. personally-relevant way. As Chun (2011) underlines, technology should be treated as a tool for learning which even digital natives need to master. Since we believe that self-regulation reflects the realisation of one's own agency, we advocate leaving all instruments which could give resonance to self-direction at the learner's disposal. In doing so, the teacher would be able to supervise and guide the students through a more profitable use of the Web, in relation to language-related authentic experiences and problem-solving strategies. For instance, students may be urged to stretch their routines and, especially in the early stages of language acquisition, may be encouraged to regulate their need for translation more effectively, such as by means of online bilingualised dictionaries instead of bilingual ones (Laufer and Hadar, 1997 – see section 4.3). In this sense, technology might serve as the key to put strategy instruction into effect.

Taking the Italian education system into consideration, we envisage another specific teaching/learning context in which these two perspectives can be merged and applied, also in support of the didactic activity itself. Despite being outside the scope of this thesis, the CLIL⁶⁰ (Content and Language Integrated Learning) environment appears to offer the opportunity to exploit online resources to support the comprehension of linguistic aspects noticed in the input at hand and to expand one's own knowledge of both the target language and the contents to learn on the part of the self-regulated (foreign language) learner. Essentially, we see an educational potential in technology-enabled learner strategies across the multiple domains in which the target language is learned and used.

4.6 Summary of chapter four

The discussion presented in this chapter was based on the results produced with the analysis of the data collected for the investigation which this thesis revolves around. First of all, we started scrutinising the information extracted from the structured e-

⁶⁰ See Coonan (2009) for an overview on CLIL settings in the Italian education system.

journals completed by our participants. More precisely, we explored strategy use on the part of both self-regulated and less-aware intermediate and advanced EFL learners. On the whole, we noticed that self-directed intermediate learners interacted with the computer especially to focus their attention onto the input stream. After this, they appear to be particularly active in solving language-related and content-inherent deficiencies. Their mental engagement was also converted into concretely-observable behaviours which primarily involved the strategic exploitation of web-based resources and the use of subtitles. As for their less self-regulated peers, the problem-solving activities were mainly based on the concrete search for translation. Moreover, data reveal a less varied use of strategies realising the factor-specific metacognitive control over performance. The group of advanced learners, instead, seems to be less willing to resort to translation as a means to assist comprehension and, potentially, increase learning. Rather, we found a favourable use of concrete strategies aimed at directing attention onto the input and at exploiting the World Wide Web mostly to access unclear or unknown information about English vocabulary and grammatical aspects, as well as video-related contents. According to the learners' written accounts, their mental interaction with the input reflected an active and strategic behaviour to the advantage of learning. Despite being examined separately from the rest of the group, the performance of one less self-aware advanced learner appears to mirror these very tendencies.

In the light of this interpretation, the central section of the chapter was dedicated to the research questions we wished to answer through this study, which will be reviewed in the final part of this thesis (see Conclusion). The insights gained are dependent on the investigation designed and on the specific learning context under examination. On account of the other limitations we recognised with regard to our study, moreover, the reader is invited not to generalise the results presented to the whole population of EFL Italian learners working independently in web-enhanced learning environments.

The didactic implications and practical suggestions emerging from our findings were discussed in the final part of the chapter.

Conclusion

The purpose of this thesis was to obtain an insight into the conscious, self-initiated and learning-oriented strategic behaviour adopted by intermediate and advanced EFL Italian learners as they deal with an authentic video-lesson in a Web-enhanced learning environment. Specific research questions had been formulated to investigate the following specific aspects:

1. Do EFL Italian university students deliberately interact with the computer in a strategic way to assist the comprehension of an English authentic video?
2. Which online resources do self-regulated EFL Italian university students exploit to increase their knowledge of English, with respect to an English authentic video?
3. Is there any marked difference in strategy use between metacognitively self-aware intermediate EFL learners and metacognitively self-aware advanced ones?

In view of the findings discussed in the previous chapter, what emerges from this study can be summarised as follows:

- a) comprehension- and learning-oriented strategic interaction with the computer, and specifically with the resources available on the World Wide Web, could be traced in the performance of almost all the participants involved in the investigation;
- b) English authentic material was manipulated through such concrete online strategies as Web-based dictionary and translator use, the selection of appropriately-resourceful web-pages, the activation of video-related subtitles, the use of video-replay and pause functions. With reference to English learning in the narrow sense, both lexical strings (words, expressions, sentences) and grammatical structures – relating to morphology, syntax, orthography and pragmatics – were the object of strategy use;
- c) overall, intermediate learners reported a greater use of mental strategies aimed at extracting meaning in a problem-solving perspective than the group of advanced listeners. In practical terms, however, this was converted into computer-mediated translation-based strategies to which, instead, more proficient learners

appeared to be less tied as a way leading to (better) understanding and (more effective) learning. Faced with unknown or unclear aspects noticed in the input, advanced learners relied primarily on appropriate Web-based resources providing the information needed. Another particularly marked difference between the two groups lies in the recurring strategic use of mental and concrete mechanisms aimed at focussing onto the input stream, from which intermediate learners seem to have benefited the most.

As a result of the analysis of the psychometric instrument we used to assess the strategic control over the performance in terms of metacognitive awareness, about 30% of the people who took part in our study were considered as less self-regulated learners. In accordance with the theoretical indications outlined in the first chapter of this thesis, the data they provided were not considered to respond to our second and third research questions. Nonetheless, their self-observation schedules were equally analysed so that further reflections could be encouraged. The fact that both mentally- and concretely-observable strategies were reported on the part of these learners ties in well with the argument that performing less successfully does not necessarily reflect a passive attitude towards learning. Search for meaning lay at the heart of their behaviour, too. As stated in chapter one, effective strategy use is believed to be deep-rooted in the metacognitive control of one's own characteristics, learning needs, goals, experiences and performance. Thus, having little control over a specific language-related task might lead to the use of inappropriate strategies.

The conclusion we draw with regard to our study is that multimedia-based foreign-language listening comprehension may benefit from specific computer-based and web-based strategies which a technology-enhanced learning environment allows to employ. Moreover, these activities appear to be favourably adopted by self-directed learners as a more concrete way to fulfil the metacognitive control over their learning processes and outcomes, especially in terms of problem-solving and attention management.

Didactic implications seem to arise from these insights. Language practitioners might recognise the need to prepare their learners for the strategic exploitation of

language-related digital experiences so as to make them able to plan their activities and continue to learn (independently) in a more personally-defined, self-regulated and effective way. After all, even though the advances of technology increase the chances for self-directed language-related learning experiences, we cannot expect learners to have the abilities to self-regulate effectively and strategically.

Appendix

1. Section 1 – The Self-observation Scheme

The following table represents an example of the structured e-journal (part A of file “Scheda_di_lavoro”) which participants were expected to complete every time they needed to report the learner strategies used before, during or after watching the video. More observation schemes were available for subjects to complete, according to their performance.

AZIONE o RIFLESSIONE 1	
PROBLEMA	
COSA? (Descrivere brevemente cosa ha scatenato la propria azione/riflessione) <div style="border: 1px solid black; height: 30px; width: 100%; background-color: #e6e6fa;"></div>	
ANALISI / RICERCA	
COME? (Descrivere il percorso di ricerca/ analisi e gli strumenti utilizzati)	<div style="border: 1px solid black; height: 40px; width: 100%; background-color: #e6e6fa;"></div>
ESITO / RISULTATO	
(Compilare la colonna di destra o di sinistra, a seconda del caso)	
<p style="text-align: center;">UTILE</p> <input type="checkbox"/> <i>Ho creato un nuovo concetto o un'ipotesi nella mia mente</i> <input type="checkbox"/> <i>Ho testato un'ipotesi</i> <input type="checkbox"/> <i>Ho creato un'associazione mentale con qualcosa di noto</i> <input type="checkbox"/> <i>Ho cercato di memorizzarlo esercitandolo</i> <input type="checkbox"/> <i>Ho raggiunto proprio ciò che volevo, nel modo che preferisco</i>	<p style="text-align: center;">INUTILE</p> Perché non ha funzionato? <div style="border: 1px solid black; height: 40px; width: 100%; background-color: #e6e6fa;"></div>
CONCLUSIONE	
<input type="radio"/> <i>Termino questa azione/riflessione e torno al video.</i> <input type="radio"/> <i>Espando/miglioro con una nuova azione/riflessione (segue)</i>	

2. Section 2 – The MALQ

The following form is the questionnaire about metacognitive awareness (part B of file “Scheda_di_lavoro”) translated and adapted from Vandergrift et. al (2006).

1. Prima di avviare il video, ho già un piano in testa su come procederò.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
2. Quando faccio fatica a capire, mi concentro sul testo.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
3. Trovo che l'ascolto in inglese sia più difficile che leggerlo, parlarlo o scriverlo.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
4. Mentre ascolto, traduco mentalmente in italiano.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
5. Mi servo delle parole che comprendo per intuire il significato delle parole che non capisco.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
6. Quando mi distraigo, recupero immediatamente l'attenzione.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
7. Mentre ascolto, confronto ciò che capisco con ciò che conosco già dell'argomento trattato.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
8. Trovo che l'ascolto in inglese mi metta a dura prova.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
9. Sfrutto la mia esperienza e le mie conoscenze per aiutarmi a capire.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
10. Prima di guardare il video, penso a testi simili che potrei aver ascoltato.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
11. Mentre ascolto, traduco in italiano le parole chiave.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
12. Quando perdo la concentrazione, cerco di riprendere da dove ero rimasto/a.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
13. Durante l'ascolto, rivedo velocemente la mia interpretazione se mi rendo conto che non è corretta.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
14. Dopo l'ascolto, ripenso a come ho affrontato il compito e a come potrei fare diversamente la prossima volta.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
15. Non mi sento teso/a quando ascolto in inglese.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
16. Quando ho difficoltà a comprendere, interrompo il video e lascio perdere.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
17. Sfrutto l'idea generale del testo per ipotizzare il significato delle parole che non capisco.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
18. Mentre ascolto, traduco in italiano parola per parola.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
19. Quando ipotizzo il significato di una parola, ripenso a tutto ciò che ho ascoltato per valutare se la supposizione abbia senso.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
20. Mentre ascolto, di tanto in tanto mi chiedo se il mio livello di comprensione mi soddisfi.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
21. Durante l'ascolto, ho in testa un obiettivo.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6

3. Section 3 – Quantitative analysis of MALQs

Each of the following tables refers to the factor-related responses reported in the MALQ by each participant (part B of the “Scheda di lavoro” file) and shows the incidence of each factor on the final average score used to determine subjects’ degree of self-regulation on the grounds of their metacognitive (un)awareness. Starting with intermediate learners, the results concerning metacognitively-aware learners (mean score across factors ≥ 4) will be presented before those relating to less-self-regulating ones (mean score across factors < 4). The same order will be maintained to illustrate the scores of advanced learners’ MALQs.

Metacognitively-aware intermediate learners

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
15647	5	6	1	2	4	3	3	4	2	5	4,33
	7	5	10	1	11	2	8	4	6	4	
	9	6	14	5	18	6	15	4	12	6	
	13	6	20	5					16	6	
	17	5	21	4							
	19	4									
	\bar{x}	5,3333333333	\bar{x}	3,4	\bar{x}	3,6666666667	\bar{x}	4	\bar{x}	5,25	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
21356	5	5	1	1	4	4	3	6	2	4	4,43
	7	4	10	5	11	3	8	5	6	5	
	9	5	14	3	18	5	15	6	12	5	
	13	4	20	4					16	6	
	17	5	21	2							
	19	4									
	\bar{x}	4,5	\bar{x}	3	\bar{x}	4	\bar{x}	5,6666666667	\bar{x}	5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
26109	5	4	1	3	4	5	3	5	2	5	4,38
	7	5	10	4	11	5	8	3	6	5	
	9	5	14	4	18	6	15	3	12	4	
	13	4	20	4					16	5	
	17	4	21	4							
	19	4									
	\bar{x}	4,3333333333	\bar{x}	3,8	\bar{x}	5,3333333333	\bar{x}	3,6666666667	\bar{x}	4,75	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
27017	5	5	1	5	4	4	3	2	2	5	4,27
	7	4	10	3	11	5	8	3	6	4	
	9	5	14	5	18	5	15	5	12	4	
	13	4	20	4					16	5	
	17	5	21	4							
	19	5									
	\bar{x}	4,6666666667	\bar{x}	4,2	\bar{x}	4,6666666667	\bar{x}	3,3333333333	\bar{x}	4,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
35467	5	6	1	1	4	5	3	5	2	4	4,77
	7	6	10	1	11	4	8	6	6	5	
	9	5	14	4	18	6	15	6	12	3	
	13	5	20	5					16	6	
	17	6	21	4							
	19	6									
	\bar{x}	5,6666666667	\bar{x}	3	\bar{x}	5	\bar{x}	5,6666666667	\bar{x}	4,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
35695	5	5	1	2	4	5	3	1	2	6	4,31
	7	6	10	1	11	4	8	2	6	5	
	9	5	14	4	18	5	15	5	12	6	
	13	5	20	5					16	5	
	17	5	21	5							
	19	6									
	\bar{x}	5,3333333333	\bar{x}	3,4	\bar{x}	4,6666666667	\bar{x}	2,6666666667	\bar{x}	5,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
50194	5	5	1	5	4	6	3	4	2	4	4,84
	7	4	10	2	11	5	8	4	6	5	
	9	5	14	6	18	6	15	5	12	5	
	13	4	20	4					16	5	
	17	5	21	6							
	19	6									
	\bar{x}	4,8333333333	\bar{x}	4,6	\bar{x}	5,6666666667	\bar{x}	4,3333333333	\bar{x}	4,75	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
54321	5	6	1	2	4	5	3	2	2	6	4,80
	7	6	10	4	11	3	8	5	6	6	
	9	5	14	5	18	6	15	5	12	6	
	13	5	20	5					16	6	
	17	5	21	4							
	19	5									
	\bar{x}	5,3333333333	\bar{x}	4	\bar{x}	4,6666666667	\bar{x}	4	\bar{x}	6	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
61427	5	5	1	5	4	6	3	6	2	6	4,76
	7	5	10	3	11	6	8	5	6	6	
	9	6	14	2	18	6	15	5	12	2	
	13	5	20	2					16	6	
	17	5	21	2							
	19	2									
	\bar{x}	4,666666667	\bar{x}	2,8	\bar{x}	6	\bar{x}	5,333333333	\bar{x}	5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
72015	5	6	1	4	4	6	3	5	2	5	4,86
	7	5	10	6	11	5	8	3	6	3	
	9	6	14	6	18	6	15	5	12	1	
	13	5	20	5					16	6	
	17	6	21	5							
	19	4									
	\bar{x}	5,333333333	\bar{x}	5,2	\bar{x}	5,666666667	\bar{x}	4,333333333	\bar{x}	3,75	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
73422	5	5	1	4	4	5	3	6	2	6	5,11
	7	6	10	3	11	6	8	6	6	4	
	9	5	14	4	18	6	15	4	12	4	
	13	4	20	5					16	6	
	17	6	21	5							
	19	6									
	\bar{x}	5,333333333	\bar{x}	4,2	\bar{x}	5,666666667	\bar{x}	5,333333333	\bar{x}	5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
91820	5	5	1	4	4	4	3	2	2	3	4,46
	7	5	10	4	11	5	8	4	6	4	
	9	6	14	6	18	5	15	5	12	5	
	13	5	20	3					16	5	
	17	5	21	5							
	19	6									
	\bar{x}	5,333333333	\bar{x}	4,4	\bar{x}	4,666666667	\bar{x}	3,666666667	\bar{x}	4,25	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
98423	5	5	1	3	4	2	3	4	2	6	4,07
	7	4	10	2	11	3	8	5	6	3	
	9	5	14	4	18	5	15	6	12	4	
	13	2	20	4					16	5	
	17	5	21	3							
	19	5									
	\bar{x}	4,333333333	\bar{x}	3,2	\bar{x}	3,333333333	\bar{x}	5	\bar{x}	4,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
33864	5	6	1	2	4	5	3	4	2	6	4,82
	7	4	10	4	11	6	8	5	6	5	
	9	6	14	3	18	6	15	5	12	4	
	13	4	20	5					16	6	
	17	6	21	2							
	19	6									
	\bar{x}	5,3333333333	\bar{x}	3,2	\bar{x}	5,6666666667	\bar{x}	4,6666666667	\bar{x}	5,25	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
90021	5	2	1	2	4	6	3	2	2	6	4,08
	7	5	10	6	11	4	8	2	6	5	
	9	6	14	6	18	6	15	2	12	4	
	13	1	20	4					16	5	
	17	6	21	4							
	19	2									
	\bar{x}	3,6666666667	\bar{x}	4,4	\bar{x}	5,3333333333	\bar{x}	2	\bar{x}	5	

Less-aware intermediate learners

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
11010	5	6	1	2	4	5	3	1	2	4	3,93
	7	4	10	2	11	5	8	2	6	3	
	9	5	14	1	18	6	15	5	12	6	
	13	1	20	3					16	6	
	17	6	21	4							
	19	5									
	\bar{x}	4,5	\bar{x}	2,4	\bar{x}	5,3333333333	\bar{x}	2,6666666667	\bar{x}	4,75	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
17349	5	6	1	2	4	3	3	4	2	2	3,70
	7	4	10	1	11	3	8	5	6	5	
	9	3	14	3	18	5	15	4	12	4	
	13	5	20	1					16	5	
	17	5	21	3							
	19	4									
	\bar{x}	4,5	\bar{x}	2	\bar{x}	3,6666666667	\bar{x}	4,3333333333	\bar{x}	4	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
23578	5	5	1	4	4	2	3	2	2	4	\bar{x}
	7	3	10	2	11	4	8	3	6	4	
	9	5	14	4	18	5	15	3	12	3	
	13	5	20	4					16	5	
	17	4	21	3							
	19	4									
	\bar{x}	4,333333333	\bar{x}	3,4	\bar{x}	3,666666667	\bar{x}	2,666666667	\bar{x}	4	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
26054	5	5	1	2	4	3	3	3	2	3	\bar{x}
	7	2	10	2	11	4	8	5	6	3	
	9	4	14	4	18	6	15	4	12	3	
	13	2	20	5					16	6	
	17	4	21	3							
	19	5									
	\bar{x}	3,666666667	\bar{x}	3,2	\bar{x}	4,333333333	\bar{x}	4	\bar{x}	3,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
29018	5	3	1	2	4	1	3	2	2	5	\bar{x}
	7	4	10	3	11	4	8	2	6	3	
	9	4	14	2	18	4	15	2	12	5	
	13	4	20	5					16	6	
	17	5	21	2							
	19	5									
	\bar{x}	4,166666667	\bar{x}	2,8	\bar{x}	3	\bar{x}	2	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
84503	5	5	1	3	4	2	3	4	2	4	\bar{x}
	7	5	10	3	11	2	8	3	6	5	
	9	5	14	3	18	4	15	3	12	5	
	13	5	20	4					16	5	
	17	3	21	5							
	19	5									
	\bar{x}	4,666666667	\bar{x}	3,6	\bar{x}	2,666666667	\bar{x}	3,333333333	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
92344	5	5	1	1	4	3	3	1	2	6	\bar{x}
	7	6	10	3	11	2	8	2	6	6	
	9	6	14	6	18	4	15	4	12	1	
	13	5	20	6					16	5	
	17	6	21	4							
	19	5									
	\bar{x}	5,5	\bar{x}	4	\bar{x}	3	\bar{x}	2,333333333	\bar{x}	4,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
98765	5	4	1	3	4	3	3	4	2	3	\bar{x}
	7	5	10	2	11	2	8	4	6	3	3,36
	9	5	14	3	18	4	15	3	12	3	
	13	3	20	3					16	5	
	17	3	21	3							
	19	3									
	\bar{x}	3,833333333	\bar{x}	2,8	\bar{x}	3	\bar{x}	3,666666667	\bar{x}	3,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
12345	5	4	1	1	4	3	3	4	2	4	\bar{x}
	7	4	10	1	11	6	8	3	6	3	3,57
	9	4	14	2	18	4	15	3	12	6	
	13	2	20	4					16	5	
	17	4	21	2							
	19	4									
	\bar{x}	3,666666667	\bar{x}	2	\bar{x}	4,333333333	\bar{x}	3,333333333	\bar{x}	4,5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
17536	5	5	1	4	4	2	3	1	2	5	\bar{x}
	7	3	10	2	11	3	8	2	6	5	3,69
	9	4	14	4	18	4	15	5	12	5	
	13	4	20	4					16	5	
	17	4	21	5							
	19	4									
	\bar{x}	4	\bar{x}	3,8	\bar{x}	3	\bar{x}	2,666666667	\bar{x}	5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
23479	5	6	1	1	4	1	3	2	2	4	\bar{x}
	7	5	10	4	11	1	8	1	6	3	3,08
	9	6	14	3	18	2	15	4	12	4	
	13	5	20	5					16	2	
	17	6	21	2							
	19	5									
	\bar{x}	5,5	\bar{x}	3	\bar{x}	1,333333333	\bar{x}	2,333333333	\bar{x}	3,25	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
27491	5	6	1	1	4	2	3	1	2	6	\bar{x}
	7	5	10	2	11	2	8	3	6	3	3,64
	9	6	14	4	18	5	15	2	12	6	
	13	4	20	4					16	6	
	17	6	21	2							
	19	5									
	\bar{x}	5,333333333	\bar{x}	2,6	\bar{x}	3	\bar{x}	2	\bar{x}	5,25	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
61348	5	6	1	3	4	1	3	2	2	4	3,44
	7	6	10	3	11	2	8	2	6	4	
	9	5	14	6	18	2	15	2	12	5	
	13	6	20	5					16	4	
	17	5	21	2							
	19	5									
	\bar{x}	5,5	\bar{x}	3,8	\bar{x}	1,666666667	\bar{x}	2	\bar{x}	4,25	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
68924	5	6	1	1	4	4	3	2	2	5	3,84
	7	6	10	3	11	3	8	1	6	6	
	9	6	14	4	18	6	15	2	12	5	
	13	6	20	5					16	3	
	17	5	21	1							
	19	5									
	\bar{x}	5,666666667	\bar{x}	2,8	\bar{x}	4,333333333	\bar{x}	1,666666667	\bar{x}	4,75	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
97695	5	6	1	4	4	1	3	1	2	5	3,17
	7	4	10	3	11	1	8	1	6	5	
	9	5	14	4	18	2	15	2	12	6	
	13	4	20	4					16	3	
	17	6	21	3							
	19	4									
	\bar{x}	4,833333333	\bar{x}	3,6	\bar{x}	1,333333333	\bar{x}	1,333333333	\bar{x}	4,75	

Metacognitively-aware advanced learners

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
11003	5	6	1	4	4	6	3	5	2	6	5,38
	7	4	10	4	11	6	8	5	6	4	
	9	6	14	4	18	6	15	6	12	6	
	13	6	20	5					16	6	
	17	6	21	5							
	19	6									
	\bar{x}	5,666666667	\bar{x}	4,4	\bar{x}	6	\bar{x}	5,333333333	\bar{x}	5,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
21000	5	4	1	5	4	6	3	3	2	6	4,33
	7	4	10	1	11	6	8	5	6	6	
	9	4	14	1	18	5	15	5	12	6	
	13	4	20	1					16	6	
	17	2	21	1							
	19	5									
	\bar{x}	3,833333333	\bar{x}	1,8	\bar{x}	5,666666667	\bar{x}	4,333333333	\bar{x}	6	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
24913	5	6	1	5	4	5	3	5	2	6	4,87
	7	6	10	1	11	2	8	5	6	6	
	9	6	14	2	18	6	15	5	12	6	
	13	6	20	6					16	6	
	17	6	21	1							
	19	6									
	\bar{x}	6	\bar{x}	3	\bar{x}	4,333333333	\bar{x}	5	\bar{x}	6	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
39407	5	5	1	4	4	5	3	3	2	3	4,66
	7	5	10	5	11	3	8	5	6	5	
	9	6	14	6	18	6	15	6	12	5	
	13	4	20	6					16	5	
	17	5	21	3							
	19	3									
	\bar{x}	4,666666667	\bar{x}	4,8	\bar{x}	4,666666667	\bar{x}	4,666666667	\bar{x}	4,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
47830	5	5	1	3	4	4	3	6	2	5	4,66
	7	5	10	1	11	4	8	6	6	5	
	9	5	14	3	18	6	15	6	12	5	
	13	5	20	3					16	6	
	17	5	21	2							
	19	5									
	\bar{x}	5	\bar{x}	2,4	\bar{x}	4,666666667	\bar{x}	6	\bar{x}	5,25	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
52698	5	5	1	2	4	6	3	5	2	6	5,02
	7	6	10	4	11	6	8	6	6	5	
	9	6	14	4	18	6	15	6	12	2	
	13	6	20	1					16	6	
	17	5	21	4							
	19	6									
	\bar{x}	5,666666667	\bar{x}	3	\bar{x}	6	\bar{x}	5,666666667	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
57390	5	6	1	3	4	6	3	5	2	1	\bar{x}
	7	5	10	5	11	6	8	5	6	1	5,07
	9	6	14	6	18	6	15	6	12	6	
	13	4	20	5					16	6	
	17	6	21	6							
	19	6									
	\bar{x}	5,5	\bar{x}	5	\bar{x}	6	\bar{x}	5,3333333333	\bar{x}	3,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
61094	5	5	1	2	4	5	3	4	2	4	\bar{x}
	7	5	10	2	11	5	8	6	6	4	4,30
	9	5	14	2	18	6	15	5	12	5	
	13	4	20	2					16	5	
	17	5	21	2							
	19	4									
	\bar{x}	4,666666667	\bar{x}	2	\bar{x}	5,3333333333	\bar{x}	5	\bar{x}	4,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
60252	5	6	1	4	4	6	3	6	2	3	\bar{x}
	7	5	10	2	11	6	8	6	6	6	5,14
	9	6	14	2	18	6	15	6	12	4	
	13	4	20	4					16	6	
	17	6	21	6							
	19	5									
	\bar{x}	5,3333333333	\bar{x}	3,6	\bar{x}	6	\bar{x}	6	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
24680	5	6	1	2	4	5	3	2	2	6	\bar{x}
	7	6	10	4	11	5	8	4	6	3	4,22
	9	6	14	1	18	6	15	3	12	4	
	13	1	20	5					16	6	
	17	6	21	3							
	19	5									
	\bar{x}	5	\bar{x}	3	\bar{x}	5,3333333333	\bar{x}	3	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
13417	5	5	1	1	4	6	3	5	2	4	\bar{x}
	7	4	10	1	11	6	8	6	6	2	4,07
	9	5	14	2	18	6	15	5	12	3	
	13	4	20	1					16	5	
	17	4	21	1							
	19	4									
	\bar{x}	4,3333333333	\bar{x}	1,2	\bar{x}	6	\bar{x}	5,3333333333	\bar{x}	3,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
13579	5	6	1	6	4	6	3	2	2	5	\bar{x}
	7	5	10	5	11	1	8	5	6	5	4,61
	9	6	14	5	18	3	15	5	12	5	
	13	5	20	5					16	5	
	17	6	21	5							
	19	5									
	\bar{x}	5,5	\bar{x}	5,2	\bar{x}	3,3333333333	\bar{x}	4	\bar{x}	5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
17854	5	5	1	2	4	6	3	4	2	4	\bar{x}
	7	5	10	1	11	6	8	4	6	4	4,35
	9	5	14	3	18	6	15	5	12	4	
	13	4	20	4					16	6	
	17	5	21	2							
	19	3									
	\bar{x}	4,5	\bar{x}	2,4	\bar{x}	6	\bar{x}	4,3333333333	\bar{x}	4,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
23011	5	6	1	4	4	5	3	1	2	5	\bar{x}
	7	2	10	2	11	4	8	5	6	5	4,38
	9	5	14	1	18	6	15	6	12	5	
	13	5	20	5					16	6	
	17	5	21	3							
	19	5									
	\bar{x}	4,666666667	\bar{x}	3	\bar{x}	5	\bar{x}	4	\bar{x}	5,25	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
25116	5	4	1	4	4	5	3	4	2	5	\bar{x}
	7	4	10	3	11	3	8	5	6	4	4,53
	9	4	14	5	18	6	15	5	12	4	
	13	5	20	5					16	6	
	17	4	21	5							
	19	4									
	\bar{x}	4,166666667	\bar{x}	4,4	\bar{x}	4,6666666667	\bar{x}	4,6666666667	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
25486	5	6	1	6	4	6	3	5	2	4	\bar{x}
	7	5	10	1	11	4	8	6	6	5	4,83
	9	5	14	3	18	6	15	5	12	3	
	13	4	20	6					16	6	
	17	6	21	3							
	19	5									
	\bar{x}	5,166666667	\bar{x}	3,8	\bar{x}	5,3333333333	\bar{x}	5,3333333333	\bar{x}	4,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
35692	5	6	1	2	4	5	3	3	2	5	\bar{x}
	7	4	10	3	11	5	8	4	6	4	4,42
	9	6	14	4	18	6	15	5	12	4	
	13	4	20	4					16	6	
	17	5	21	2							
	19	5									
	\bar{x}	5	\bar{x}	3	\bar{x}	5,3333333333	\bar{x}	4	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
37489	5	5	1	1	4	6	3	4	2	4	\bar{x}
	7	4	10	1	11	6	8	6	6	4	4,44
	9	6	14	1	18	6	15	6	12	5	
	13	5	20	4					16	6	
	17	4	21	1							
	19	3									
	\bar{x}	4,5	\bar{x}	1,6	\bar{x}	6	\bar{x}	5,3333333333	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
56367	5	6	1	5	4	4	3	5	2	6	\bar{x}
	7	6	10	2	11	4	8	2	6	5	4,74
	9	6	14	5	18	6	15	4	12	4	
	13	5	20	6					16	4	
	17	6	21	6							
	19	6									
	\bar{x}	5,8333333333	\bar{x}	4,8	\bar{x}	4,6666666667	\bar{x}	3,6666666667	\bar{x}	4,75	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
74830	5	5	1	3	4	5	3	3	2	4	\bar{x}
	7	4	10	3	11	4	8	5	6	5	4,28
	9	5	14	1	18	6	15	6	12	4	
	13	6	20	3					16	5	
	17	5	21	2							
	19	4									
	\bar{x}	4,8333333333	\bar{x}	2,4	\bar{x}	5	\bar{x}	4,6666666667	\bar{x}	4,5	

ANALYSIS OF MALQ

ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness
76304	5	4	1	5	4	6	3	4	2	5	\bar{x}
	7	5	10	1	11	6	8	5	6	3	4,79
	9	5	14	5	18	6	15	6	12	6	
	13	5	20	3					16	6	
	17	3	21	4							
	19	4									
	\bar{x}	4,3333333333	\bar{x}	3,6	\bar{x}	6	\bar{x}	5	\bar{x}	5	

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness \bar{x}
84762	5	5	1	5	4	6	3	6	2	5	5,24
	7	5	10	3	11	6	8	6	6	5	
	9	5	14	5	18	6	15	4	12	5	
	13	5	20	5					16	6	
	17	5	21	5							
	19	5									
	\bar{x}	5	\bar{x}	4,6	\bar{x}	6	\bar{x}	5,3333333333	\bar{x}	5,25	

Less-aware advanced learner

ANALYSIS OF MALQ											
ID	Problem-solving		Planning-evaluation		Mental translation		Person Knowledge		Directed attention		Meta-awareness \bar{x}
69610	5	4	1	3	4	5	3	2	2	5	3,68
	7	4	10	3	11	5	8	2	6	1	
	9	6	14	3	18	6	15	2	12	3	
	13	3	20	6					16	6	
	17	2	21	4							
	19	2									
	\bar{x}	3,5	\bar{x}	3,8	\bar{x}	5,3333333333	\bar{x}	2	\bar{x}	3,75	

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