



Motivation within the information processing model of foreign language learning

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Abstract

The present article highlights the importance of the motivational construct for the foreign language learning (FLL) process. More specifically, in the present article it is argued that motivation is likely to play a significant role at all three stages of the FLL process as they are discussed within the information processing model of FLL, namely, input (first encounter with the new material), central processing (connections between new material and existing knowledge), and output (demonstration of the acquired knowledge). As a consequence motivation emerges as an important predictor of individual variability in the final outcome of the FLL process, along with aptitude and learning style which are currently acknowledged by the advocates of the cognitive theories of language learning.

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1. Introduction

The present article is a highly motivated effort to discuss motivation within the information processing model of foreign language learning (FLL). In particular, it aims at highlighting the role of motivation in all three stages of the information processing model of learning, namely, input (first encounter with the new material), central processing (connections between new material and existing knowledge), and output (demonstration of the acquired knowledge), as they are discussed in recent

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relevant publications (Skehan's, 1998; Robinson (ed), 2001; Robinson, 2003). I believe that this effort to link motivation with each stage of the learning process is a novel approach and one of fundamental importance because, despite the fact that the pervasive role of motivation for effective FLL/SLL has been admitted since the early 1970s (Gardner and Lambert, 1972) and chapters dedicated to it have been included in most recent volumes on applied linguistics and language acquisition (Doughty and Long (eds), 2003; *inter alia*), its role in the process of learning has not been adequately elaborated.

In the present article, then, after defining motivation and approaching it from a situated perspective (Dörnyei, 2002, p. 141), the role of the motivational construct in all three stages of the information processing model of learning is highlighted.

2. Foreign language learning motivation

As is quite rightly maintained by Dörnyei “motivation is one of the most elusive concepts in applied linguistics and indeed in educational psychology in general” (Dörnyei, 1999, p. 525). A review of the mainstream psychology literature indicates the complexity of the concept of motivation along with the difficulty to conceptualise it. This difficulty in defining motivation is revealed, on the one hand, by the plethora of definitions of motivation,¹ and on the other, by the abundance of theories of motivation which are associated with different psychological perspectives on human behaviour.

In spite of the conceptual differences, however, most researchers agree that motivation is related to persons' *choice* of a particular action, *persistence* with it, and *effort* expended on it. As Oxford and Ehrman maintain: “The external or behavioral features of motivation include decision-making, persistence, and activity level. The learner decides to choose, to pay attention, to engage in one activity but not others; the learner persists over an extended time. . . . and the learner maintains high activity level” (Oxford and Ehrman, 1993, p.190).²

These characteristics of the motivated behaviour are inherent in definitions advocated by mainstream psychology, as well as FLL literature on motivation. In mainstream psychology, motivation is defined as “the process whereby goal-directed activity is instigated and sustained” (Pintrich and Schunk, 1996, p. 4). In the FLL field, when in the early 1990s the motivation agenda was reopened towards a more situated approach, as will be mentioned later, Crookes and Schmidt wrote “. . . teachers would describe a student as motivated if he or she becomes productively engaged in learning tasks, and sustains that engagement, without the need for

¹ Kleigina and Kleigina (1981) provide us with 102 definitions. More definitions are provided in Cofer and Appley (1967, pp. 1–9).

² Williams (1994) suggests that: motivation involves choice about actions or behaviours including decisions as to where to do something, how much effort to expend on it, and the degree of perseverance. Choices people make are based on their construction of the world and depend on internal attributions such as personality, confidence and others.

continual encouragement or direction” (Crookes and Schmidt, 1991, p. 480). More recently, motivation is “a process whereby a certain amount of instigation force arises, initiates action, and persists as long as no other force comes into play to weaken it and thereby terminate action, or until the planned outcome has been reached” (Dörnyei, 1998, p. 118).

As becomes obvious, in the above definitions, (a) motivation is a process, (b) it involves goals which individuals have in mind and try to attain (or avoid), (c) it requires activity on the part of the individuals; the activities that students engage in are geared toward attaining their goal, and (d) motivated activity is both instigated and sustained. Dörnyei includes in his definition the phrase: “. . . as long as no other force comes into play to weaken it and thereby terminate action. . .” which is also included in Kuhl’s (Kuhl, 1987) “control theory” (again from mainstream psychology). Thus, Dörnyei’s definition accommodates the possibility of the existence of factors which could intervene and “weaken or terminate” the person’s action. The last parameter allows us to discuss the effects of the milieu (society/parents, school/teachers) on learners’ motivation. In fact, the tendency to incorporate the effects of “contextual transactions” (Paris and Turner, 1994) in the discussions of motivation, has recently become evident.

The need to discuss motivation as functioning in a social context, the classroom in particular, spurred the boom in research and theoretical postulations in the early 1990s. These discussions and findings have revealed that the interpretive power of the construct of “integrativeness” for motivation and consequently achievement in FLL to take place (Gardner, 1985) had been overestimated.

What we have enjoyed since the early 1990s reopening of the motivational agenda have, *first*, been some very interesting suggestions for expanded models of FLL motivation, and second, a more situated approach of discussing FLL motivation.

In these expanded models of FLL motivation (Dörnyei, 1990; Brown, 1991; Crookes and Schmidt, 1991; Clement et al., 1994; Oxford, 1996; Dörnyei, 2001; Manolopoulou-Sergi, 2001), cognitive theories of motivation, such as expectancy–value theories (attribution, self efficacy, etc.), self-determination theory, and goal theories, have been rightly incorporated in the FLL motivation construct.³ Indeed, these theories provide answers to why people select a particular goal (choice) (“*can I do this task?*” and “*do I want to do this task and why?*”), and how much effort and persistence they will spend for its attainment (“*what do I have to do to succeed on this task?*”). The suggestions for expanded models of FLL motivation were quite interestingly joined by the advocates of the so-called socio-educational model, which had postulated “integrativeness” as a *sine qua non* for effective second/foreign language learning.⁴

³ For an overview of these theories, see Pintrich and Schunk (1996), Eccles et al. (1998), and Dörnyei (2001, 2003).

⁴ I quote their words: “The other researchers should be encouraged to know that we did find support for an integration of new motivational variables . . . Thus we have maintained the approach that motivation is dynamic in that it involves a sequence of events, influences, or responses . . .” (Gardner and Tremblay, 1994, p. 526).

The above FLL motivation models have allowed a more situated conception of FLL motivation, which, in turn, has offered a micro-perspective in examining FLL motivation.⁵ This, according to Dörnyei, is more adequate to “provide a fine-tuned analysis of instructed second language learning (SLL) [and FLL, my addition] that takes place primarily in classrooms” (Dörnyei, 2003, p. 8). Thus, instead of regarding motivation as a stable characteristic, we adopt a process-oriented approach which “looks at the dynamic motivational processes that take place during task completion” (Dörnyei, 2002, p. 139). In particular, during task completion a complex “motivational processing” is engineered, which involves, according to Dörnyei (2002, p. 141) “two interrelated submechanisms: ongoing appraisal and action control”. In this framework learners continuously appraise what they do and how well they are doing (and all other stimuli) and, on the basis of this appraisal, they activate the relevant knowledge and strategies which will facilitate them in the attainment of their goal.

This more situated approach to FLL motivation has also given rise to important new research directions. Some quite recent such research directions have allowed the discussion of, *first*, some promising new concepts, namely, *willingness to communicate* (WTC), and *task motivation*, and, *second*, the relationship between motivation and the use of language learning strategies (Dörnyei, 2003).

The present article aims at contributing to this situated approach characterised by a micro-perspective in examining the role of motivation and in Section 4.1 the role of FLL motivation in the three stages of the information processing model of learning will be discussed. Our discussion will mainly orbit around the aforementioned “motivational processing” and the recent research directions. Before embarking on this fascinating novel perspective of viewing FL motivation, however, we need to present the basic tenets of the information processing model of learning.

3. The information processing model

It seems that the popularity of the information processing model as a learning theory lies in the fact that it explains quite well the *how* of the learning process. Indeed, the information processing model of learning attempts to look at the “how” of learning as opposed to the “what” of behaviourism. In particular, information processing is the study of how humans perceive, comprehend, and remember, the information they gain from their environment (see, Hergenhahan and Olson, 1997, pp. 366–391). Quite briefly, according to the information processing model, learning has some very distinct steps, namely, input (first encounter with the new material), central processing (connections between new material and existing knowledge), and output (demonstration of the acquired knowledge).

⁵ Similar advances have been observed in mainstream motivation psychology (Pintrich and Maehr, 2002).

The information processing model is currently widely discussed as relevant to FLL (Skehan's, 1998; Mitchell and Myles, 1998; Robinson (ed), 2001; McDonough, 2002; Doughty and Long (eds), 2003). Definitely, the most recent and the most promising effort to discuss the FLL process, namely, the Cognitive theories to Language Learning (Ellis, 1985; McLaughlin, 1987; O'Malley and Chamot, 1990; Skehan's, 1998; Purpura, 1999; Robinson (ed), 2001) have their premises in the information processing model of learning. Thus, we have seen, *first*, concepts deriving from these theories, such as attention and noticing, to name but a few, to be generally accepted as fundamentally important for FLL, and *second*, new promising teaching methods founded on the principles of the above theories, such as task-based learning (TBL) (Woodward, 2002; Bygate et al., 2001; Ellis, 2003) and strategy-based instruction (SBI) (Weaver and Cohen (1997) to gain in respect among practising teachers.

Within the framework of the information-processing model, at the input stage, perception and attention are of vital importance, whereas memory is the key factor in the central processing and output stages. The factors that have been extensively discussed as possible inhibitors or enhancers in this three-stage learning process are learner aptitude and learning style. In particular, Skehan's (1998) maintains that the three-component structure of aptitude, namely, phonemic coding ability, language analytic ability, and memory can be easily linked to each one of the above mentioned stages and interpret learner difference in language learning. It has also been argued that differences in learning styles can cause problems for the processing of the input, and consequently learning. I would easily accept the above views about the inhibiting role of aptitude and learning styles. However, it is indeed a curiosity, that Skehan's (1998, p. 192) in his important book on the Cognitive Approach to language learning mentions research which points to motivation as a possible "rival" to aptitude and learning style but does not attribute further attention to it.⁶ The remainder of this article will focus on the impact of motivation information processing.

4. The role of motivation in the three stages of the information processing model

As mentioned above, according to the Information Processing Model, learning has some distinct stages, namely, input, central processing, and output. How motivation functions in each stage is the subject of what follows.

4.1. Input: pre-perception, perception, allocation of attention

The input stage is the initial phase where perception and attention are involved as mentioned above. Before discussing perception and attention and the way they may be affected by motivation, let us focus a little bit on the pre-perception stage and

⁶ It is to his credit that he admits the neglect of affective factors in the preface of his book (Skehan's, 1998).

discuss the importance of motivation at this pre-stage, which could be similar to what Tomlin and Villa's (1994) called *alertness* stage; a general predisposition to be involved in the learning task or what Dörnyei and Otto labelled as *preactional* stage (Dörnyei and Otto, 1998, p. 48; Dörnyei, 1999, 2002, p. 531; p. 141; Dörnyei, 2003, p. 619). Indeed, Dörnyei discusses possible motivational influences which might inhibit learners from being involved in a learning task at this pre-actional stage (in his terms), such as various goal properties, values associated with the learning process, attitudes, expectancy of success or failure, learner beliefs and strategies, environmental support or hindrance. Attitudes, in particular, I believe, are the key factor at this point because they are likely to have determined the other motivational influences mentioned by Dörnyei (1999, 2002). In fact, attitudes prepare individuals to value the experience or the learning situation/outcome before they actually get involved with the learning experience and therefore, react to it in a fairly stereotyped way.⁷

It may be the case then that for various reasons the learners in a FLL classroom have not the intention to be involved in the learning task at all. In other words, these students' answer to the fundamental for initiating action questions "*can I do this task?*" and "*do I want to do this task and why?*" is negative. Consequently, these "negative" students are likely to "switch off" even before the input is delivered to them. At this pre-input stage, therefore, motivation as choice is important and components of the multifaceted FLL motivation construct, such as attitudes, task value, feelings of competence, etc. mentioned above are likely to have important interpretive power for learners' variability in success or failure in FLL classrooms.

It could also be the case, that some learners' answer to the question "*do I want to do this task and why?*" is positive but not for the task itself but only for materialistic reasons; to gain the teacher's approval or a good mark.⁸ In this case, according to the self-determination theory mentioned earlier, learners are likely to be predisposed to act in a specific achievement (and not task) oriented way. This tendency on the part of extrinsically motivated learners is related to the issue discussed by Ames (1984) and Dweck (1986) under the heading *adaptive and maladaptive patterns*. Dweck uses the terms *adaptive (mastery goals)* and *maladaptive (performance goals) patterns* in the place of *task-involvement* and *ego-involvement*, which are used elsewhere for similar concepts (e.g. in Craven et al., 1991; Graham and Golan, 1991).⁹

Learners' selection of either adaptive or maladaptive motivational patterns, Dweck maintains, is likely to have a decisive role in the way they approach the learning task. For example, if the goal is to obtain a favourable judgement of ability, which is the case with competitive learning contexts, then children need to be certain that their ability is high before displaying it in a learning task. Otherwise, they will

⁷ For a review of the studies on the effect of attitudes, see Rethlingshafer (1963).

⁸ Extrinsic motivation has been found to prevail in Greek FLL classrooms (Manolopoulou-Sergi, 2001).

⁹ Lately the terms Achievement Motivation and Task Motivation are used (see International Conference on Achievement and Task Motivation organised by the School of Psychology, Aristotle University Thessaloniki, March 1998). For task motivation, see Dörnyei (2002, 2003).

choose to conceal their ability or protect it from negative evaluation. Performance goals (ego-involvement) then appear to promote defensive strategies rather than creative involvement with the learning task.

With learning goals (task-involvement), however, even if the learners' assessment of their present ability is low, they will tend to be challenged by tasks which foster learning. Also, learners with a learning goal are likely to be willing to risk displays of ignorance in order to acquire skills and knowledge (this tendency has been investigated in FLL/SLA as well, under the term *risk-taking*, see, for instance, Beebe (1983)). Moreover, rather than calculating their exact ability level and how it will be judged, they can think about the value of the skill to be developed or their interest in the task to be undertaken (Ames, 1984; Dweck, 1986).

Another important implication of this distinction is that, as research has shown, learners with performance goals, while appraising their involvement with the learning task, are more likely to interpret negative outcomes in terms of their ability. That is, they attribute errors or failures to a *lack of ability* and view them as predictive of continued failure. This type of appraisal, in turn, tends to result in defensive withdrawal of effort or debilitation in the face of obstacles, as is discussed within the attribution theory. In contrast, learners with learning goals tend to use obstacles as a cue to increase their effort or to analyze and vary their strategies (Ames, 1984; Dweck, 1986; Butler and Neuman, 1995).

Apart from the above cases of “switching off” and inappropriate approach to the learning task, it may also be the case that some learners are “open” to the input with a positive intention to perceive it. Again, motivation might play an important inhibiting role; it might block the top-down processes, which are very important for perception according to recent theories of perception (Eysenck, 2001). More specifically, as Eysenck (2001, p. 32) explains: “. . . perception may be largely determined by bottom-up processes when the viewing conditions are good, but involves top-down processes as the viewing conditions deteriorate because of very brief presentation times or lack of stimulus clarity”. In the latter case, the persons' prior experience and knowledge, their appraisal of the value of the to-be-perceived input, their feelings of competence, inter alia, may interfere and “block” their perception.

Allocation of attention is what follows the initial stage of perception discussed above. According to Robinson (2003, p. 631) “attention is the process that encodes language input, keeps it active in working and short-term memory, and retrieves it from long-term memory”. Unfortunately, attention is selective; parts of the input are attended. However, as recent research and theoretical postulations in the FLL acquisition suggest, only those elements of the input that are attended and, therefore, *noticed* are likely to be stored in the long-term memory and, thus, be learnt. To this effect, the noticing hypothesis has received a lot of attention in the FLL acquisition field and has been considered as worth researching and taking into consideration by practitioner teachers in their everyday teaching practice (for the noticing hypothesis see, Schmidt, 1990; Skehan's, 1998; Doughty, 2001; Robinson, 2003; inter alia).

What determines selection has been an issue of controversy. For instance, Skehan's (1998) maintains that attention is limited in capacity and, therefore, selection of what parts of the input will be attended will be determined by learners during the

task. Thus, complexity and difficulty of tasks play an important role in this view because they might overload learners' attentional capacity and consequently lead them to focus on meaning rather than form with detrimental effects for their inter-language development. Robinson (2003, pp. 635), however, argues that "selection serves as a means of action control rather than as a response to capacity limitations. Actions are responses to task demands, and allocation of attention to input with the goal of meeting these demands is the result of control processes, operationalised in short-term/working memory.". These control processes can be grouped into three broad categories, according to Robinson (2003, p. 635): "those involved in task analysis, in selection and control of the cognitive and metacognitive strategies for performing the task, and in monitoring the effectiveness of these strategies".

How does motivation affect attention in either view? I believe that we can argue for the intervening role of motivation in both views of attention mentioned above, namely, the limited capacity and the action control views. If we examine attention within the limited capacity view, then it is quite likely that learners' motivation will lead them to focus towards the aspects of the input that their motive dictates and due to the limited capacity of their attention, other aspects of the input will be ignored.

Indeed, it has been found that extrinsically motivated learners orient their attention towards the surface characteristics of the input and consequently do not process it deeply (Entwistle, 1987; Fransson, 1986). In particular, persons who are not preoccupied with the learning task per se, tend to process the input at a surface level (Graham and Golan, 1991). Shallow processing requires little cognitive effort; there are relatively few demands on one's limited processing capacities when attending to surface features of incoming stimuli. Deep processing, on the other hand, which is endorsed by intrinsically motivated learners, entails greater elaboration and, thus, greater cognitive effort.

Additionally, motivational orientation affects learners' goal selection and approach to the task in the classroom, as was already maintained earlier in our discussion of the pre-perception stage. More specifically, according to self-determination theory, learners guided by extrinsic motivation, who have as their goal the rewards offered, are not interested in the task per se. Thus, they approach the learning task with their effort focused on the parameters which are considered as instrumentally relevant to the receipt of the rewards. Their attention is distracted, therefore, from the input as such, and this, I argue, may affect attention and subsequently detection (in Tomlin and Villa's, 1994 terms) or noticing (in Schmidt's terms) of the new elements of the input which require further processing. As Voss and Schauble state:

... motivation can produce distraction, if goals other than those required for the task at hand produce a breakdown in the inhibitory process. Indeed, classroom attention and concentration require considerable focus, and thinking about seemingly "more important" but unrelated issues can readily disrupt the excitation-inhibition process (Voss and Schauble, 1992, p. 110).

This disruption might also be caused by ego involved learners' anxiety. Indeed, in cases of emotional stress, such as anxiety, attention may be narrowed and certain

aspects of the situation may be ignored while otherwise they might have been attended to. In an effort to provide an empirically tested answer to the question of how *anxiety* interferes with the FLL learning process, MacIntyre and Gardner (1991) conducted research showing that language anxiety produces limitations on two key stages of cognitive processing; namely, *working memory*, and *secondary memory retrieval*. Thus, it would be easy to understand why those with lower levels of anxiety, when compared to anxious students, tend to learn better, to be more willing to volunteer answers in language class (Ely, 1986), and to be more socially active with the target language group (MacIntyre and Gardner, 1991, p. 530). In a very recent article, where MacIntyre (2002) discusses the relation among motivation, anxiety, and emotion in SLA, he rightly argues for the fundamental role of emotion (and therefore, anxiety) for motivation (ibid: p. 61). Most importantly, he reports research findings which substantiate the importance of anxiety in all three stages of the information-processing model, namely, input, central processing, and output (MacIntyre, 2002, p. 65).

If we view attention within the action control framework, I believe the pervasive role of motivation is even more salient. As mentioned earlier, Robinson (2003, p. 635) argues that control processes, such as those involved in task analysis, in selection and control of the cognitive and metacognitive strategies for performing the task, and in monitoring the effectiveness of these strategies determine the actions that will be taken in the face of the input and will select the particular aspects that will be attended and, therefore, processed further. Certainly, the activation of control processes presupposes *choice* and *effort* on the part of learners. therefore, motivation is there. In particular, in the situated approach of discussing motivation, mentioned earlier, we have adopted the activation of “motivational processing” during the execution of the task, which is seen as “the interplay of the appraisal and the action control systems” (Dörnyei, 2002, p. 142). As will be discussed in the central processing stage section below, this activation leads to the retrieval and use of appropriate learning strategies, which again, as will be shown, have been found to be influenced by motivation.

After having discussed the effects of motivation on the initial stage of information processing, we will proceed to argue for its important effects during the central processing stage.

4.2. Central processing

Central processing has to do with the memory systems of the learners; short-term, working and long-term memory systems. To start with, I must stress that I am of the view that the central processing stage is highly influenced by the input stage; the way learners have handled the input (influenced by their motivation) at these initial stages will determine its central processing, and, of course, output.

Indeed, as stressed earlier and has become evident in our discussion of the input stage, memory is already functioning at that stage. One could argue that memory is functioning at the pre-input stage as well, in the form of episodic memory or semantic memory (Eysenck, 2001, pp. 200–203), which activates previous experiences

of success or failure, values attributed to the subject matter to be learnt, etc., which might enhance or “block” the learner’s intention to be involved in the task¹⁰ or their strategic approach to the task. In this sense, the central processing stage is highly affected by the input stage. One could even argue that the input stage and the central processing stage are functioning more or less simultaneously, since attention and memory have been discussed as interrelated. Robinson (2003, p. 631), for instance, quite clearly states that: “Attention can . . . be viewed as a process for which memory provides structure and constraint”. More specifically, he explains that: “attention is a subset of short-term memory, and short-term memory is that part of long-term memory in a currently heightened state of activation”.

What is activated during the central processing stage is relevant to the task action control strategies. As Dörnyei (2002) suggests, this is based on learners’ appraisal of the learning outcome. It could also be triggered by the learners’ goals (e.g. to learn or to obtain a good mark). Therefore, motivation is likely to determine which actions will be taken by learners. Indeed, as has been mentioned in the previous section, research has shown that extrinsically motivated learners tend to process the input offered in the classroom at a surface level, and this, as is argued within the Levels-of-Processing Memory Theory (Craik and Lockhart, 1972), is likely not to allow more elaborate processing of the input and its storage in long-term memory. Certainly, more elaborate processing presupposes the learners’ use of learning strategies.

The issue of learning strategies has been extensively discussed (Papaefthymiou-Lytra, 1981; Oxford, 1999; Brown, 2000, pp. 122–135; Oxford, 2001; *inter alia*) in the FLL field, and some research (Schmidt et al., 1996, p. 18) has substantiated the possibility of a link between aspects of motivation and the use of learning strategies. Oxford and Nyikos (1989), for instance, have found that motivation often leads learners to use a variety of learning strategies which can develop greater skill in language learning. The causal relationship of motivation and language learning strategies has also been verified by Gardner et al. (1997). Also, Manolopoulou-Sergi (2001) has argued that the constituents of the complex motivational FLL construct are highly likely to affect learners’ attention and use of other learning strategies in the FLL classroom.

Similarly, the link of activation and use of self-regulatory strategies¹¹ and learning strategies, in general, have often been linked to motivation in educational psychology (Pressley et al., 1992; Boekaerts, 1999; Pintrich, 1999; Lemos, 1999; *inter alia*) since the voluntary use of strategies to facilitate one’s learning, presupposes the person’s commitment (thus, motivation).

¹⁰ Experiments reported in Vernon (1971, p. 181), for instance, support the view that motivation (and pleasurable emotion) might to some extent facilitate perception, making it rapid and accurate. Thus, a pleasurable feeling might produce a general state of elation, which would stimulate the observer to perceive more efficiently. Also, it has been found that those who have experienced success in a task have some tendency to attend preferentially to the rewarded or successful situation (Vernon, 1971).

¹¹ See Boekaerts (1997) for a conceptual review on self-regulated learning.

4.3. Output

In the three-stage information processing model of learning, output is the stage where learners demonstrate the knowledge they have acquired during the other two stages.

Output has been discussed as important for the FLL process because as Swain (1985, p. 252) proposed, it can “provide opportunities for contextualized, meaningful use, to test out hypotheses about the target language, and to move the learner from a purely semantic analysis of the language to a syntactic analysis of it”. By exploiting learners’ output, teachers could also proceed to informative feedback and thus facilitate learners’ noticing.¹² Indeed, recent publications point, on the one hand, to interfaces between Second Language Acquisition and language testing (Bachman and Cohen (eds), 1998), and, on the other, to important relationships between test-takers’ reported use of cognitive and metacognitive strategies and their performance on second or foreign language tests (Purpura, 1999).

Output is very much related to willingness to communicate (WTC) (Dörnyei, 2002; Dörnyei, 2003). The construct of willingness to communicate has been defined as comprising several layers subsuming a range of linguistic and psychological variables, such as linguistic self confidence, communicative competence and experience, etc. (see Dörnyei, 2003, p. 9, for a fuller discussion of this construct).

This construct actually determines the learners’ intention to deliver their output. I believe that motivation is again likely to determine whether this intention will be put into action (see Aijen, 1988 for the issue of turning an intention into action). More specifically, I take the view that motivation questions, such as “*is the delivering of output worth doing ?*” or “*will my output be correct ?*”, or “*why am I supposed to deliver this output ?*”, etc. will cross the learners’ minds and enhance or “block” their willingness to communicate.

It is quite evident, for instance, that learners with achievement motivation would not risk demonstrating an imperfect output because they value more a good grade in the course, success in the exam, than the learning task itself. Also, it is quite likely that such learners would not risk a reproach from the teacher, a smirk from a classmate, punishment or embarrassment that their deficient output might engineer. This needs to be tested and verified by research.

If output takes the form of a test (which is often the case in FLL classrooms), the role of motivation may again be very significant. More specifically, motivation may have a two-fold influence on output in the form of tests. The first one is reported in Purpura (1999) and has to do with the learners’ strategy use, which, as has been argued earlier, is likely to be influenced by motivation. The second has to do with Dörnyei’s post-actional phase of task motivation, where retrospection and appraisal of success or failure in the task takes place. In this sense, failure on the test might be attributed to lack of ability (which is often the case with achievement and extrinsically motivated learners) and this, in turn, will determine their future commitment to

¹² For the importance of classroom interaction, see VanLier (1988); Tsui (2001); Gass (2003); *inter alia*.

the learning process.¹³ Indeed, the impact of tests on students' motivation for learning has been reported as significant in the very recent relevant literature (EPP, 2002; Harlen and Crick, 2003).

A vicious circle is apparent here; a failure in a test will possibly create a negative predisposition, which will affect learners at the input stage and inhibit them from perceiving and allocating their attention to the new input the next time they are taught something new in their FLL classroom.

5. Conclusion

The present article has argued for the influential role of motivation in all three stages of the information processing model of FLL, namely, the input, central processing, and output stages. This effort, being similar to Skehan's (1998) attempt to relate language aptitude to second language acquisition from an information processing perspective, is a novel approach to understanding the role of FL motivation. It widens the perspective with which we have viewed and discussed FL motivation and makes its role for effective learning more explicit. To this effect, an appeal for more research in this direction is made because investigation of the role of motivation in each stage of the FLL process is likely to, *first*, provide answers to the issue of the learners' variability in FLL, and, *second*, facilitate FLL teachers in their everyday teaching practice, especially in the context of the currently widely accepted task-based and strategy-based instruction methods whose premises lie in the information model of FLL.

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¹³ Alternative assessment might prove better in this aspect (see O'Malley and Valdez Pierce, 1996).

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