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Metacognitive Knowledge, Metacognitive Strategies, and CALL

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Not many people consider transferring skills from the mundane roles they play in life to an on-line learning environment. So this exercise is very helpful in building self-esteem. -Open University Student

The task that brought about this comment required the learner, an Open University student of German, to use a concept map to make a list of all the roles he played in everyday real life, including being an online language learner. The learner then had to imagine that each of these was a job he was applying for and had to write down the qualities he could bring to each job, bearing in mind that the application should be successful. Next, the learner was asked to add to the list of qualities the abilities he possessed and was aware of but did not feel were being made use of at the time of writing. Finally, the learner was asked to focus on the jobs for which he did not seem to have many qualities (in his case, as in many others among his peers, the online language learner was identified as being one of these jobs) and, in such cases, to explore whether he could use qualities from other jobs in this role, thus transferring certain skills. The main aim of this exercise was to raise learners' awareness of their resources and skills and to help them unearth their positive qualities. The sessions ended with all participants in turn opening their individual concept maps in the virtual plenary room and sharing what they had found out about themselves, (i.e., their acquired self-knowledge).

The introductory comment summarizes the benefit that student drew from this particular task. He and his peers took part in a series of sessions designed to enhance learners' metacognitive knowledge (MCK)-particularly their self- or person knowledge-at the same time as increasing their meta-cognitive strategy (MCS) use with a special focus

on learner self-management in an online language learning environment.

The purpose of this chapter is to draw attention to an emerging body of research that explores the link between MCK, MCSs, and learner autonomy in self-directed language learning contexts such as distance language learning (DLL), where learners are working without the general control of a tutor and where the use of virtual learning spaces is becoming increasingly popular (Hauck & Hampel, in press; White, 2003). This chapter, then, explores the characteristics of MCK and MCSs and their function in second language acquisition second language acquisition (SLA), with a particular focus on language acquisition in self directed online contexts because principles of SLA are among the main theories that can inform developments in computer-assisted language learning (CALL) (Chapelle, 2000; Hampel, 2003).

OVERVIEW

Studies of the techniques used by proficient language learners (reviewed in Skehan, 1989) suggest an interrelationship between the range and frequency of strategies they employ and their performance in the target language. They have also revealed the key role played by MCSs (O'Malley & Chamot, 1990). MCK and MCSs make up the two distinct components of the broader notion of metacognition (Brown, Bransford, Ferrara, & Campione, 1983). Flavell (1976) defines MCK as "the knowledge concerning one's own cognitive processes and products or anything related to them" and metacognitive skills as "the active monitoring and consequent regulation and orchestration of these processes" (p. 232). Wenden (2001) offers a more easily accessible definition of MCK, describing this as "the part of long-term memory that contains what learners know about learning" (p. 45). Using the categories of RICK proposed by Havell (1979) for the purposes of learner training as a guide, Wenden (1991) further distinguishes between person knowledge (i.e., the influence of cognitive and affective factors, such as age, language aptitude, personality, and motivation, on learning in general and one's own learning experience in particular), task knowledge (i.e., the purpose and the demands of a task), and strategic

6. METACOGNITIVE KNOWLEDGE AND STRATEGIES

knowledge (i.e., the nature, adeptness, and effectiveness of strategies), depending on whether the focus is on the learner, the learning task, or the process of learning. In cognitive and SLA literature, person knowledge is commonly also referred to as self-knowledge (see, e.g., Rubin, 2001).

MCSs, on the other hand, can be described as the "general skills through which learners manage, direct, regulate, guide their learning" (~Venden, 1998, p. 519) and include planning, monitoring, and evaluating both language use and language learning-key elements in developing autonomy (Harris, 2003). In addition, self-management is an essential MCS for language learners in general and for self-directed language learners in virtual learning spaces in particular because it relates to students' ability to set up optimal learning conditions for themselves. White (1995) sees self-management as the definitive metacognitive strategy, in that it comprises both knowledge of cognition and control of cognition. In her view, the other metacognitive strategies, (i.e., planning, monitoring, and evaluating) are mainly concerned with cognition and therefore exercise the executive rather than the self-knowledge dimension of metacognition.

The tasks used in the sessions mentioned in the introduction comprised part of two studies carried out in 2002 and 2003 with a total of 54 Open University students of German and Spanish. The primary aim of the studies was to investigate whether metacognitive growth (White, 1999)-that is, extension and development of learning skills and knowledge about oneself as a learner-can be fostered in online distance language learners by awareness-raising activities for MCK acquisition as advocated by Wenden (1998) and supported learner self-management. A further aim was to explore how this new approach to more efficient MCS use through increased self-awareness might enhance learner autonomy in virtual learning spaces.

At the Open University, for example-the United Kingdom's largest modern foreign language learning provider with a 2003-2004 enrollment of approximately 5,000 students of French, German, and Spanish-learners depended for over half a decade on traditional methods of course delivery, such as print materials and video and audiocassettes as well up to 21 hours of face-to-face tutorials per academic year. Since 2002, however, the Department of Languages has made a progressive move to deliver all courses online, as well as

face to face, to provide students with more flexible opportunities to practice their speaking skills.

Relevance of MCK and MCSs for Self-Directed Online Language Learning

Self-direction refers to the processes by which learners plan how they will approach a task, their analysis of the task, and the monitoring of its implementation. The cognitive literature refers to the same processes as self-regulation (Wenden, 2001). The demands and opportunities of a self-directed language learning context such as DLL make it necessary for students to reevaluate their role(s) and responsibilities as language learners, and their need for self-direction requires there to develop a comparatively higher degree of MCK, particularly in terms of self- or person knowledge (White, 1995). On the basis of their considerations of the skills and strategies required by distance learners to achieve successful outcomes, Hurd, Beaven, and Ortega (2001) confirm this proposition. They maintain that the dilemma of self-directed learners is twofold: First, they have to find out by trial and error which strategies seem to work for them; second, they have to learn the skills of assessing their individual learning needs, including their strengths and weaknesses as learners. They have to be, therefore, self-aware and knowledgeable about their own perceptions, attitudes, and abilities. This constitutes a particular challenge for course writers and tutors "because there are few if any opportunities to 'get at' learners and find out about them" (Hurd et al., 2001, p. 345) to support them.

With the arrival of audiographics conferencing systems, the situation has changed. Unlike conventional distance learning contexts that offer limited opportunities for learners to work together synchronously, networked learning environments are available on a 24-hour-a-day, 7-day-a-week basis. They thus offer great potential for students both to learn and to practice a language and for shared reflection on the learning process and their role(s) in it.

One study (White, 1995) also reveals that self-directed learners make greater use of MCS than do classroom-based learners, self-management being the most frequently used of these strategies. Apart from the work of Harris (2003), Hurd (2000, 2002), Hurd et al. (2001), and White (1995, 1997, 1999), however, to date there seems to be little published research about the link between self-awareness, strategic competence, and learner autonomy taking into account the particular situation of such learners.

This is particularly true with regard to the role of MCK, MCS, and learner autonomy in self-directed language learning within virtual learning spaces. Hurd et al. (2001) have investigated the notion of autonomy in relation to DLL. They stress that conscious selection of strategies and self-directed involvement are characteristics of an autonomous approach and particularly relevant to those learning in independent contexts. Autonomous learners could thus be characterized as those who "have learned how to learn. They have acquired the learning strategies, the knowledge about learning, and the attitude that enable them to use these skills and knowledge confidently, flexibly, appropriately and independently of a teacher" (~Venden, 1991, p. 15).

The results of my own studies suggest that the degree to which online language learners are aware of both themselves-their attitudes, aptitudes, and beliefs-and of the affordances of the learning environment and the degree to which they demonstrate control and flexibility in the use of MCSs such as self-management and thus autonomy are interdependent. Successful learner self-management is a strong indicator of a high level of MCK III learners, (i.e., awareness of the circumstances in which they, as individuals, learn best and possession of the skills necessary to create- those conditions) (White, 1995).

Metacognitive Knowledge in SLA

Wenden's (2001) synthesis of SLA theories acknowledging the influence of cognitive, affective, and social learner variables as well as different learning strategies on language learning reveals that the impact of learners' MCK remains as yet unrecognized in SLA literature. This seems all the more surprising because the cognitive literature (summarized in Wenden, 1998) recognizes the essential role such knowledge plays in the effective use of learning strategies and thus in self-regulated or self-directed learning. Perkins and Salomon (1989, as cited in Wenden, 2001) found, for example, that metacognitive strategies are weak if they are not connected to a rich knowledge base. There does seem, then, to be a significant learner variable missing in current SLA theories: Whereas the learning strategies that are crucial to self-regulation and self-direction have become an accepted field of research and are included as one type of learner difference in SLA texts, the knowledge underpinning the application of these strategies has apparently been neglected. Based on her investigations into the function of MCK in language learning and on how it is referred to in

cognitive literature, Wenden (1998) arrives at the following characteristics of MCK:

- A part of a learner's store of acquired knowledge
- Relatively stable and stable
- Early developing

- A system of related ideas

- An abstract representation of a learner's experience. (p. 517)

According to Flavell (1979), MCK can be acquired consciously or unconsciously and can be activated deliberately or appear automatically, depending on the nature of the learning task involved. It can also influence the learning process without learners becoming aware of it: "[I]t may and probably does influence the course of the cognitive enterprise without entering itself into consciousness" (pp. 907-908).

Drawing on Wenden (1991), Victori (1996), and Butler (1997), Rubin (2001) proposes a four-way division of MCK including the learner's background (or prior) knowledge, which comprises, among other subcategories of MCK, *contextual knowledge*. In addition to the older, tripartite division of MCK (person, task, and strategic knowledge), this approach acknowledges the importance of learner awareness in terms of the learning environment (i.e., knowledge of the learning context). More than 5 years of experience with audio and audiographics conferencing tools in self-directed language learning at Open University have shown that a high level of person and contextual knowledge and the degree to which learners have control over it at various stages of the learning process are pivotal to effective learning in such environments (see Hampel & Hauck, 2004; Hauck & Hampel, in press; Kotter, Shield, & Stevens, 1999; Shield, Hauck, & Hewer, 2001; Shield, Hauck, & Kotter, 2000; Shield & Hewer, 1999; Stevens & Hewer, 1998).

The findings from the studies in the area indicate that the level of metacognitive consciousness and control has a direct impact on the learners' perception of, for example, their proficiency in speaking another language, or of their aptitude for learning another language, especially in virtual learning spaces where learning can be more anonymous than in a face-to-face situation and the process of communication can be depersonalized (Lecourt, 1999). Kress and van Leeuwen (2001) point to the fact that technological developments may "signify the most profound loss of embodiment we have seen yet" (p.

92). In addition, multimodal language learning technologies, such as audiographics conferencing systems, make new demands on the learners, who have to operate several modes in one medium and make choices between modes to suit both the task at hand and their own learning styles (Kress & van Leeuwen, 2001). The learning environment therefore requires a certain degree of technical expertise. For certain learners, then, learning another language in such contexts might constitute a challenge for reasons other than those they believe or seem to be aware of. They might, for example, perceive themselves as being technologically challenged, whereas they have, in fact, subconscious doubts about their aptitude for learning another language in the first place. Thus, apart from their knowledge about language learning in cognitive terms, learners usually approach their studies with their own particular beliefs, assumptions, usually approach expectations regarding themselves as language learners, the language learning process, and the learning environment.

There is, however, no clear consensus about the distinctions between knowledge and beliefs; research findings about language learners' MCK are often reported as information about learner beliefs (see, e.g., Horwitz, 1987). Wenden (2001) contends that the characteristics of NICK_ as outlined previously in this chapter also define the nature of learner beliefs about language learning. According to Alexander and Dochy (1995), however, there are distinct differences between the two notions, depending largely on the value learners attach to them and their level of commitment to them. This leads Wenden (1998) to draw the conclusion that due to their "value-relatedness and idiosyncratic nature ... beliefs would be held more tenaciously than knowledge" (p. 517). Victori and Lockhart (1995) described many of the beliefs students hold as "naive" and found that these beliefs were not supported by research. Nevertheless, beliefs are generally held to be true by learners and guide their behavior. Based on her research into self-efficacy beliefs of language learners, Cotterall (1995) reports that "the beliefs ... learners hold have a profound influence on their learning behaviour" (p. 195). White (1999) argues that the belief systems learners hold or develop help them to define, understand, and adapt to new learning contexts; to define what is expected of them; and to act in accordance with those understandings.

Flavell (1987) sees beliefs as a sub-category of MCK, a view that explains why some studies subsume observations regarding learner beliefs under general MCK (see, e.g., Wenden, 2001). The results from

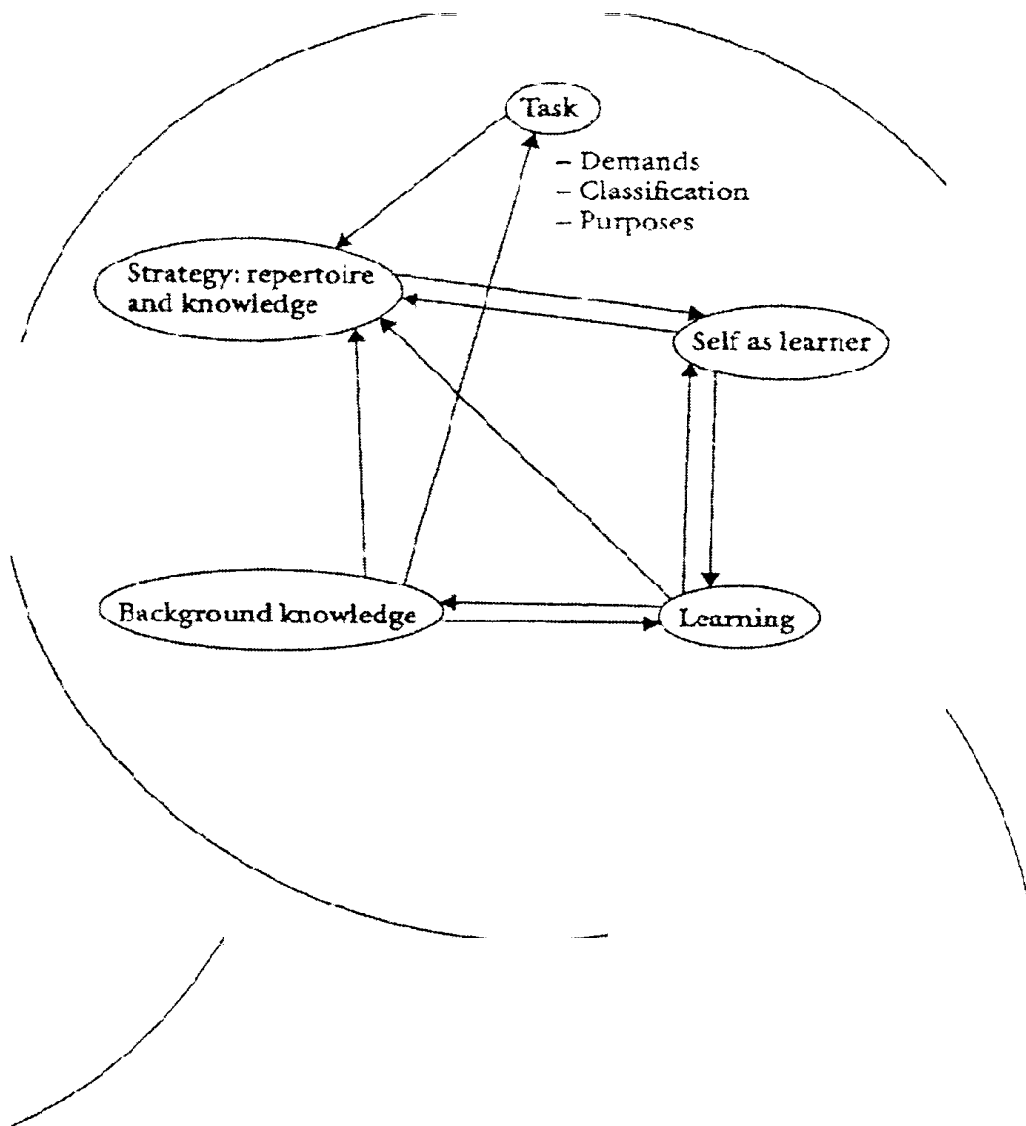
my own investigations suggest, however, that beliefs about the self-seen as a crucial affective component of person knowledge-require separate attention from beliefs about learning. A view that is also reflected in the representation given by Rubin (2001) of the interaction between so-called LSM (learner self-management) knowledge and beliefs

Rubin (2001) clearly distinguishes between self-knowledge and learner beliefs. In addition, she differentiates between two kinds of learner beliefs-general beliefs about learning and more specific beliefs about language learning-maintaining that although these are held by an individual they are often not beliefs about the self. All four aspects of metacognition, namely learner self-knowledge and beliefs about the self as well as beliefs about learning as such and language learning in particular, are likely to have an impact on how learners apply strategies-especially MCSs-when learning a new language (see Fig. 6.1).

Metacognitive Strategies in SLA

Cohen (1998) defines second language learner strategies as a combination of second language learning as well as second language use strategies. Together, they encompass the actions taken by the learner to improve either the learning or the use of a second language, or both. In most learning strategy studies, the term *language learning strategies* is used to refer to a combination of learning and use strategies. Learning and use strategies can be further differentiated depending on whether they are metacognitive (planning for, monitoring, or evaluating the success of a learning activity), cognitive (rehearsal, organization, inferencing, summarizing, etc.), or social/ affective (cooperation, questioning, self-talk) strategies (O'Malley & Chamot, 1990). Chamot (2001) reports that more and less effective learners can be distinguished by the number and range of strategies they use, by

- Metacognitive - Cognitive
- Socio-affective



stv~e - Attributions [agencNJ - Motivation

- Cultural
- Linguistic
- Textual World
- :n general
- Language - Contextual

FIG. 6.1. LSM knowledge and beliefs. From "Language learner self-management." In *Journal of Asian Pacific Communication*, 1](1), 31. With kind permission of John Benjamins Publishing Co., Amsterdam/Philadelphia.

the way they apply strategies, and by the appropriateness of their chosen strategies. She found that "[g]ood language learners demonstrated adeptness at matching strategies to the task they were working on, while the less successful language learners seemed to lack the meta-cognitive knowledge about task requirements needed to select appropriate strategies" (p. 32). For Chamot, the differences between successful and less successful learners, therefore, do not necessarily

stem from the number of strategies they use. They are, rather, related to the learners' conscious choices and their flexibility when selecting and applying strategies to a certain learning task. Cohen (1998) goes even further and maintains that the distinction between strategic and nonstrategic processes is solely based on the element of consciousness. In the light of the classification of MCK used by Wenden (1991), the assessment of good language learners by Chamot (2001) does, in fact, only refer to task and strategic knowledge. Chamot and O'Malley (1994) expressed this even more clearly in their earlier considerations about "good and bad language learners": "[C]onclusions about strategic differences between good and bad language learners appear to suggest that explicit meta-cognitive knowledge about task characteristics and appropriate strategies for task solutions is a major determiner of language learning effectiveness" (p. 372).

A similar assumption could probably be made with regard to the learners' person or self-knowledge, taking into account observations by White (1999) about the importance of the learning context. Less successful learners, then, seem to lack the person knowledge or self-awareness needed to select appropriate learning strategies for successful interaction with the learning environment. Or, to put it more positively, good language learners could be characterized as being those who are aware of their perceptions, attitudes, and abilities and are knowledgeable about the learning process. They can, therefore, demonstrate adeptness at matching strategies to task requirements and learning context. With Hurd et al. (2001), I acknowledge however, that "[t]hose unaccustomed to reflection in any aspect of their lives, may find it difficult to accept this link between self-awareness, strategic competence and effective learning" and that they "may well resist it if they are not convinced of the so-called benefits and relevance to themselves as individual learners" (p. 343). Moreover, this could be particularly true for self-directed language learning in multimodal online contexts with their additional technological demands on learners. Our experience with online language learning at Open University suggests, however, that there is a direct link between person or self-knowledge; strategic competence, especially in terms of self-management skills; and successful learning in virtual learning spaces (see Hauck & Hampel, in press).

According to the taxonomy of language learning strategies in O'Malley and Chamot (1990), self-management involves "understanding the conditions that help one successfully accomplish language tasks and arranging for the presence of those conditions" (p. 137). However,

considering the situation of self-directed language learners, particularly those learning in virtual learning spaces, a slightly more comprehensive definition of self-management might be called for. For those learners then, self-management involves both understanding the conditions that help one successfully accomplish language learning tasks in independent and virtual learning contexts and arranging for the presence of those conditions in such contexts. Such a wider notion of self-management can be found in the interaction model of LSM by Rubin (2001), which illustrates the complex dynamic processes between the learning task, the procedures for LSM, and LSM knowledge and beliefs. The latter include, as mentioned earlier, contextual knowledge as a subcategory of background (or prior) knowledge. Rubin (2001) characterizes skilled self-managed learners as those who "possess sufficient knowledge and appropriate well-developed beliefs about self, the learning process, possible strategies, the nature of tasks, and prior knowledge" and who are able "to access their knowledge and beliefs in order to orchestrate their use of procedures" (p. 26). Her interaction model is an adapted and elaborated version of the one proposed by Butler (1997) and incorporates the knowledge/beliefs framework proposed by Wenden (1996). All three authors see the task as the starting point of any self-managed learning. In an alternative approach, the self and the learning environment were taken as the starting points in the two case studies reported in the following section, which are to date-to the author's knowledge-the only investigations into the role of MCK, MCS, and learner autonomy in self-directed online language learning.

PREVIOUS RESEARCH

This section reports on two case studies that were carried out with language learners at Open University. The tasks used in both studies are based on the procedures for the development of awareness-raising activities for MCK acquisition suggested by Wenden (1998): *elicitation* of learners' self- and contextual knowledge and beliefs, *articulation* of what has come to awareness, *confrontation* with alternative views, and *reflection* on the appropriateness of revising, expanding one's knowledge.

Following Wenden (1998), it was hypothesized that materials based on these procedures can help self-directed learners to acquire new concepts about SLA in different learning environments that they can then use to seek insights into how they, as individuals, learn best in

these environments. They would also be shown how these ideas and insights might help them in finding solutions to learning problems, particularly those related to the learning context, and eventually begin to experiment with different approaches to learning in different contexts without tutor guidance, (i.e., autonomously). Because interactive discussion between peers plays a vital role as an arena for metacognitive reflection and for sharing strategies (Donato & McCormick, 1994; Lehtonen, 2000), all tasks were carried out in pair or group work. All sessions were led by tutors because the absence of teacher mediation to scaffold LSM can be problematic. As Harris (2003) notes, "ironically, whilst the ultimate aim of LSM is to enable the learner to function independently, it may be just this aspect of S1 [strategy instruction] where initial support and scaffolding from the teacher is most indispensable" (p. 14).

Case Study 1: Participants and Setup

The participants in the 2002 study (N = 14) were adult language learners already in possession of an Open University diploma in German' and en

'This qualification corresponds to 2 years of stud- in higher education in the United Kingdom.

rolled in a so-called top-up course,' which was the first mainstream language course to offer online tutorials. Students were offered 5 online sessions spread over five weeks. Participation was voluntary, and students were told that the sessions would focus on the process of language learning in a virtual context and involve activities designed to help them become "better" online learners. Because the linguistic level of the participants was quite advanced (students in possession of an Open University diploma in German), students used German to reflect on the learning process and their role in it. Thus-in line with the rationale for introducing online tutorials at the Open University-the learners were also offered additional speaking practice in the target language.

Recent studies (see, e.g., an overview in McDonou(yh, 1999) indicate the value of introducing learners to the strategies they need. This approach, however, constitutes a new combination of both direct, interventionist, and decontextualized methods and indirect, embedded, and contextualized methods. While acknowledging that "developing the knowledge and skills that make up strategic competence, particularly use of meta-cognitive strategies, is more likely to come about through

decontextualized methods" (Hurd et al., 2001, p. 347), the first study took advantage of contextualized training that allows learners to "develop their learning strategy repertoires while learning the target language at the same time" (Cohen, 1998, p. 80). Qualitative and quantitative data were collected: The sessions were observed by two research assistants who took notes of the students' verbal interactions. After each session, the students received summarizing thoughts in English on the session's main points for reflection and were invited to send their comments back to the tutor. Together with the students' feedback on the summarizing thoughts, the content of the notes constituted the data to be analyzed qualitatively. All participants also received a questionnaire at the end of the five sessions to help researchers obtain information about how the tasks had been received by the learners and to find out whether their self-awareness as well as their awareness of their individual approaches to language learning online had increased.

Case Study 2: Participants and Setup

The second, longitudinal study formed part of a larger comparative investigation into face-to-face and online tutorials, focusing on complete beginners (German and Spanish). The students participating in this study ($N = 37$) came from both strands (face-to-face and online). In the first phase-October

These courses were designed to bring the qualification of Open University language students already in possession of an Open University diploma in line with the revised requirements for a language degree recently introduced at the university.

ber 2003-they attended a day school of five consecutive sessions, where the same materials as for the first study were used. The event was scheduled before the official start of their courses and participation was again-voluntary. Participants were told that the purpose of the study was to reflect on the process of language learning in various environments (face-to-face and virtual contexts) and that they would engage in activities designed to help them become "better" (online) learners. At the end of the event they completed the same questionnaire as the first group. At the time of writing, this study is still in progress and further data will be gathered from questionnaires administered at halfway points of the course and semistructured online or telephone interviews at its end. The aim of these questionnaires and interviews is to find out how far participants experience a long-term benefit from their increased

awareness in terms of self and learning environment in their language studies with Open University.

Findings

Unless stated otherwise, the selected findings summarized in Table 6.1 relate to both studies. There are, however, several limitations that should be borne in mind in any interpretation of the results:

Differences in Variables. The first study was carried out in the actual online environment, whereas the second study took place in a face-to-face setting. The participants of the first study were already online distance language learners, whereas those of the second group were about to embark on DLL and had opted for either online or face-to-face tutorials.

Potential Self-Selection of Participants. Because participation in the studies was voluntary and students were told that the focus of the sessions (online and face-to face) was on the (online) learning process and the role of the (online) language learner, the participants might have been learners who were, in general, open to reflective approaches and thus demonstrated a comparatively higher level of self-awareness than others at the outset.

Despite such limitations, the results from both studies so far seem to have sufficient similarities to justify the presentation of the data in the context of this chapter; the evaluation of the questionnaires from both studies shows that 94% of all participants *agreed* or *strongly a-greed* that "being self-aware or reflective are important characteristics for language learning" (Hauck, 2004, p. 183).

Regarding finding 2 in Table 6.1, one student from the first study commented that not only did she "benefit greatly from the opportunity to practice German" but that she also "began to think more flexibly about how= [she] approach[es] learning a language" (Hauck, 2004, p. 190).

Findings

TABLE 6.1 Reported Metacognitive Growth of Self-Directed Language Learners

Number Findings

<i>Study 1</i>	<i>Study 2</i>		
1	Students agreed or strongly agreed that taking part in the sessions has made them more aware of the ways in which they approach language learning in general.	100%	86%

2	Students agreed or strongly agreed that taking part in the sessions encourages them to be more flexible.	90%	84%
3	Students agreed or strongly agreed that taking part in the activities made them more aware of their preferred sensory channel (visual, auditory, kinesthetic) and acknowledged the relevance of this awareness in terms of language learning in different environments (audiographic conferencing vs. face to face).	87.5%	95%
4	Students agreed or strongly agreed that taking part in the activities raised their awareness in term of the varying sensory- preferences of other learners and their potential impact on successful learning outcomes in different language learning contexts.	100%	95%
	Students agreed or strongly agreed that they felt encouraged to reconsider their perceived weaknesses.	87.5%	84%
6	Students found the tasks aimed at encouraging them to reframe their perceived weaknesses and increase their awareness of their limiting beliefs useful or very useful.		
7	Students found the tasks designed to increase learners' awareness in terms of their resources and skills useful or very useful.	87.5%	88% the
8	Students agreed or strongly agreed that taking part in the sessions encouraged them to focus on their skills.	100%	95%
9	Students agreed or strongly agreed that they felt encouraged to transfer skills from other areas of life to language learning.	75%	78%
10	Students agreed or strongly agreed that-as a result of the sessions-they felt more positive about their abilities to speak German.	75%	

from previous studies (Hurd et al., 2001; White, 1999) show that the flexibility offered by self-instructed learning is mainly appreciated by students in terms of external circumstances insofar as it allows them to combine learning with other commitments. They do not necessarily associate flexibility with themselves as learners or in terms of possibilities offered by the learning environment. White (1999), for example, reports that in the early stages of her study "fewer learners thought of self-instruction as offering flexibility in terms of pace of learning, level of learning, how to learn and so on" (p. 449).

Regarding finding 7 in Table 6.1, such awareness seems to be crucial in terms of learners' self-efficacy beliefs, (i.e., what they believe about their ability to mobilize and manage the resources necessary to learn and to sustain the effort; Cotterall, 1995). Znumermann and Bandura (1994) found that learners' self-efficacy and achievement beliefs (i.e., what they believe about their effectiveness as learners and whether they believe that they can master certain skills or a specific subject) have a direct influence on their choice of learning objectives. They maintain that the stronger the learners' self-efficacy beliefs, the more challenging their learning goals will be and the more intensely they will seek to overcome obstacles faced in the course of learning. This can become particularly relevant for language learning in virtual spaces where obstacles might-at times-also be of a technical nature.

Regarding finding 9, the comment in the introduction to this chapter illustrates this point and hints at the strong link between cognitive and affective factors, such as self-esteem influencing language acquisition. Individual student feedback from the first study also suggests a positive influence of increased self-awareness on other affective factors, such as the learners' personal ability beliefs, their attitude, and so forth: "I now feel encouraged to approach the things I find difficult differently and with a far more positive attitude"; "You have shown us a useful strategy to overcome our inhibitions and doubts with regard to language learning" (Hauck, 2004, p. 183).

Furthermore the results from both studies underpin one of the characteristic features of MCK mentioned by Wenden (2001)-that is, that seemingly arbitrary learner statements about language learning do belong to a so-called system of related ideas that have either been accepted without further questioning or have been validated by the learners' experience. One student who participated in the first study, for example, wrote:

I think that putting students to work together is often a waste of time. Just as a class requires a competent teacher, so a group of students requires a competent leader. Leaders seldom emerge, as the difficulty in forming self-help groups attests to. OUSA [Open University Student Association first class] conferences seem to be the preserve of a small group of enthusiasts, which rein-forces the point. Most students prefer strong support and leadership from the tutor. (Hauck, 2004, p. 183)

Activities designed for NICK acquisition can, however, assist language learners in reevaluating their individual learning experiences in a certain learning environment and in questioning their beliefs regarding

both the learning process and their role in it. In this way, the activities contribute to an increase in the learners' conscious regulation of their learning and to their autonomy. Feedback from two participants from the first study substantiates this hypothesis:

I now have a completely different perspective of how I perceive myself in a learning environment.

I feel more positive about my potential The sessions certainly gave me the "permission" to think about language learning in a totally new light Physical tutorials are fine when they happen, but there can never be quite enough, ... With online learning we can make our personal surroundings whatever we want them to be, and ... feel in control.

The capacity to take control of one's own learning is another determining factor of learner autonomy (Benson, 2001; Holec, 1981; Little, 1991). Understanding one's role in the language learning process is essential for developing this capacity. Such understanding and self-awareness are particularly relevant in self-directed learning because it cannot be assumed that self-direction per se gives rise to autonomy (White, 1990).

Summary of Main Points of Findings

NICK can be acquired consciously or unconsciously. Wenden (1998) hypothesized that awareness-raising activities for *NICK* acquisition can help self-directed learners to acquire new ideas about SLA in different learning environments-with a focus on virtual learning spaces-which they can then use to explore how they as individuals learn best in these environments. The main purpose of the studies was to find out whether such activities and supported LSM can lead to metacognitive growth in (online) language learners and thus enhance their autonomy.

Overall, analysis of the data collected from the studies indicates that this approach can enhance the cognitive capacities underlying effective LSM, such as detachment and critical reflection (Little, 1991). The results further suggest that direct, interventionist, and contextualized methods (Study 1) as well as direct, interventionist, and decontextualized methods (Study 2) can foster learner reflection on the following: self-knowledge, beliefs about self, beliefs about learning in general, beliefs about language learning in particular.

These methods can also enhance their strategic and contextual knowledge. They also confirm that MCK is stable but suggest that it

does not necessarily have to remain stable (see characteristics of MCK mentioned in the overview). Thus, it seems that language learners' awareness of how to manage themselves and their learning more efficiently both in face-to-face settings and online learning environments (i.e., their MCK), can be systematically developed. Because the participants of the second study were complete beginners in terms of self-directed learning with either face-to-face or audiographics tutorials, the findings of the second study also confirm the observation made by White (1999) that "[a]ttention to [learner] expectations and beliefs can contribute to our understanding of the realities of the early stages of self-instruction in language" (p. 444).

The results of both studies emphasize that learners need "regular opportunities through their learning to develop meta-cognitive awareness" (Hurd, 2000, p. 49) as well as "guidance in improving and expanding their knowledge about learning so that they may ... become more autonomous in their approach to the learning of their new language" (Wenden, 1998, p. 531). Considering that learning a language is said to implicate self-concept and self-expression in a way that does not occur in other disciplines (Horwitz, Horwitz, & Cope, 1991) learners may more specifically need guidance in improving and expanding their knowledge about themselves and learning a second language in new environments, such as audiographics conferencing, to achieve a higher degree of autonomy.

FUTURE DIRECTIONS

Drawing on Wenden (2001), I outline the research and pedagogical implications resulting from my considerations in the following sections.

Research Implications

Whereas research on learning strategies in general and metacognitive strategies in particular seems to be well established, research into MCK (for a summary of this research, see Wenden, 2001) of language learners needs to be expanded and diversified. So far, the main focus of this research appears to have been on the content of learners' MCK, the relationship between MCK and learner approaches to learning, attempts to demonstrate how MCK develops and evolves, and intervention studies based on procedures aiming at learner revision and expansion of MCK. The case studies described in this chapter belong to the latter category. It has not yet been proven, however, whether the increase in person, strategic, and contextual knowledge noted in these studies will automatically result in greater choice and flexibility when selecting and

applying strategies to specific tasks (i.e., lead to an increase in task knowledge). Thus, the following-to date-unanswered questions require further rigorous investigation:

How does NICK influence self-directed language acquisition in virtual learning spaces?

Which factors lead to changes in learners' NICK over time?

Is tutor intervention a prerequisite for changes in learners' MCK and thus for the promotion of learner autonomy in online language learning?

In addition, the results from such investigations might vary for different types of virtual learning spaces depending on context and modality.

Pedagogical Implications

The findings reported earlier indicate that tutor intervention based on the suggested approach to task design can support changes in learners' metacognitive (person, strategic, and contextual) knowledge and lead to the learners' more active involvement in the regulation of their learning. Considering that "we cannot take for granted that learners will already have reflected on their learning, nor can we assume that all learners can articulate their thoughts" (Ridley, 1997, p. 8; as cited in Hurd, 2000, p. 48), further tasks and materials designed to guide students in becoming aware of their self-concept as online language learners and in developing a more reflective approach to learning in a virtual context need to be developed and tested. At the same time the two methodological approaches used in the studies-direct, interventionist, and contextualized versus direct, interventionist, and decontextualized-and the potential benefits for language learners with varying levels of competence need to be looked at more closely. However, parallel to research into the necessity for tutor mediation to foster MCK acquisition and LSM in virtual contexts free-standing tasks might also warrant consideration.

ISSUES

The issues to be taken into consideration in relation to research into NICK and LSM are twofold: First, there are methodological questions. In the studies reported earlier it was hoped that by using a variety of tools, the data would provide a comprehensive picture of the link between varying degrees

of learner self-knowledge, successful self-management, and learner autonomy in different learning environments. However, it is likely that-in addition to the potential self-selection of participants-the data-gathering procedures chosen in the first study (questionnaires and invited comments on the sessions' main points for reflection) and even more so in the second, longitudinal study (questionnaires and semi structured interviews) influenced the development and the expansion of the participants MCK and their MCS use in ways that are not linked to the content of the initial tutormediated sessions. Thus it is not necessarily the case that any metacognitive growth reported by the participants results exclusively from the approach to activity design for metacognitive knowledge acquisition advocated by Wenden (1998). This observation is shared by White (1999) in the discussion of the results of a longitudinal study where she developed and adapted appropriate instruments (interviews, ranking exercises, questionnaires, etc.) during the research cycle depending on the kind of information she received in a previous phase: "It is ... possible that the data gathering procedures used in the study affected the expectations and beliefs of learners; through being asked to articulate their viewpoint at regular intervals, they may have become more aware of themselves, their context and learning processes" (White, 1999, p. 454).

Second, there are learner-inherent issues. The degree to which language learners in self-directed contexts experience metacognitive growth is influenced not only by the approach taken to instigate that growth and the tools used to measure it but also by two other factors mentioned by White (1999): tolerance of ambiguity and locus of control. Tolerance of ambiguity relates to periods of uncertainty experienced by self-directed learners-particularly those who are new to the process-and their reaction to it: "[T]olerance of ambiguity is a response formulated by the learner to feelings of uncertainty or confusion, whereby the uncertainty is accommodated so that it does not obstruct progress" (White, 1999, p. 451). How learners handle such phases of confusion depends on whether they perceive themselves as being in control of the qualities underlying successful learner self-regulation (i.e., whether their locus of control is internal or whether they see external factors as key components to success). Drawing on social learning theory, White (1999) defines locus of control as

the orientation of an individual towards what determines their success or failure: a belief in one's ability to shape events is referred to as internal locus of control, while a belief that outside forces control performance is referred to as external locus of control" (p. 452). However, in the latter case the findings of the studies summarized earlier suggest a positive influence of an increase in self- or person knowledge on learners' ability beliefs and seem to justify the chosen approach.

CONCLUSION

This chapter illustrated the relevance of MCK and MCS for language learning in general and self-directed language learning in online environments, audiographics conferencing in particular. The findings presented substantiate the claim made by Wenden (2001) that MCK needs to be systematically addressed by SLA theories as one of the learner variables influencing the language learning process. Following from her conclusions, I would argue that the theoretical implications of recognizing the function of MCK in acquiring another language in online environments are twofold:

1. Understanding how MCK influences self-directed language learning in virtual learning spaces can provide new insights into how learners approach acquiring another language in such environments.
2. Acknowledging the function of MCK in the self-direction of language learning in virtual learning spaces can contribute to a clearer understanding of how learner autonomy can be fostered and thus gradually increased in such environments.

As illustrated in this chapter, MCK is a prerequisite to learner self-regulation and thus essential to the development and enhancement of autonomy. Benson (2001) sees the ability to draw on this type of knowledge as one characteristic of autonomous learners. The ability manifests itself in a reflective approach to learning. Building on their acquired MCK, their self- or person knowledge in particular, autonomous learners strive to gain a better understanding of themselves as language learners and the learning process in different environments. They reflect on their experience to draw their own conclusions about effective approaches to language acquisition in various contexts (i.e., the use of MCSs). Thus, they continuously expand and further develop their body of MCK and MCSs.

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