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Thinking Metacognitively about Metacognition in Second and Foreign Language Learning , Teaching , and Research : Toward a Dynamic Metacognitive Systems Perspective

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Against a background where language learning/learner strategy (LLS) research was criticized , we would like to bring to the fore a key concept , metacognition , which has not been fully understood in the way that criticisms were levelled against LLS research . We argue that despite the justification for some points , such criticisms are not based on a complete understanding of the theoretical foundations of LLS research , nor on what metacognition entails , especially when these two constructs are related to both the cognitive and sociocultural domains of learning . Exactly because metacognition is undergirded by both cognitive and sociocultural underpinnings , it cannot be treated purely as a cognitive enterprise ; instead , it should be conceptualized as a set of complex dynamic systems . We argue that some of the criticisms of LLS research are problematic because of the critics limited understanding of LLS research . These critics have not pointed out close relationships between LLS research and metacognition . To disperse the confusion caused by such criticisms and to advance the field , we elaborate on a dynamic metacognitive systems perspective on second and foreign language learning , teaching and research . We maintain that thinking metacognitively about metacognition with dual or multiple perspectives is necessary . Doing so will enable us to see the contribution of the dynamic metacognitive systems perspective to enhancing our understanding of second and foreign learning , teaching , and research .

Keywords : Metacognition , second language (L2) learning , foreign language (FL) , dynamic metacognitive systems , language learning strategies (LLS) , China

INTRODUCTION

Over 30 years of research on language learning/ learner strategies (LLS) has resulted in LLS research coming to terms with the status quo it enjoys today . It has become a mature field of academic and pedagogical inquiry (Cohen & Macaro , 2007b ; Grenfell & Macaro , 2007 ; Macaro , 2006 ; Oxford , 2011) , with research findings benefiting classroom practice around the world (Gong *et al* . , 2011 ; Gu *et al* . , 2011 ; Rose , 2012 ; Zhang , 2008b ; Zhang , 2010a ; Zhang , Aryadoust , & Zhang , 2013) . Understandably , LLS research has an important component , metacognition , which is usually regarded as essential to understanding factors related to second or foreign language (hereafter referred to as L2) learners learning processes and strategies . Wenden (1986) called for giving more attention to learners metacognition in order to better understand their decision-making processes in completing learning tasks in various skill areas . Her call has been answered by scholars in the field of applied linguistics to varying degrees (e .g . , Cohen , 1998 ; Cross , 2010 ; Goh , 2008 ; Chamot & O Malley , 1994 ; Oxford , 2011 ; Vandergrift & Goh , 2012 ; Wen & Johnson , 1997 ; Zhang , 1999 , 2010a ; Zhang & Goh , 2006) . However , even though such efforts have been made , criticisms have still been levelled against LLS research in relatively recent times (e .g . , Dörnyei , 2005 ; Ellis , 1994 ; Rees-Miller , 1993 ; Tseng , Dörnyei , & Schmitt , 2006 ; see Gao , 2007 ; Gao & Zhang , 2011 ; Rose , 2012 for responses) , and even metacognition itself as a construct was also criticized for being too cognitive (e .g . , Palfreyman , 2003) . Such criticisms are ineluctable to scrutiny , too , because the problem of these critics focal point is their intensive interrogation of LLS mainly from cognitive perspectives . Metacognition as a relevantly sociocultural construct has been largely neglected in their criticisms (cf . Oxford , 2011 ; Palfreyman , 2003) .

In this paper we first present the criticisms , explain what metacognition entails , and then argue that such criticisms are actually based on an incomplete

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understanding of the theoretical backgrounds , against which LLS research has been conducted . It will become clear that an important element , metacognition , has not been taken into full consideration in these criticisms , especially when a construct such as metacognition is related to both the cognitive and sociocultural domains of learning . It appears that the LLS critics interpret LLS and even metacognition as if it were a monolithic construct . They fail to give due attention to the dynamic and complex nature of metacognition . In fact , LLS contributes to the dynamic metacognitive systems , which are cognitively and socioculturally constructed by learners in conjunction with the various factors pertaining to their belief systems , learning experiences , learning tasks , learners agency , contexts of learning and teaching and the co-occurrence of these . We elaborate not only on the dynamic metacognitive systems , which we think should embrace dual or even multiple perspectives ; we should also investigate their theoretical/practical implications . We conclude by stating that it is necessary for both researchers and teachers alike to think metacognitively about metacognition with dual or multiple perspectives . We aim to regard learner metacognition as dynamic systems for helping us see more clearly the contribution of metacognition to enhancing our understanding of LLS research and of second and foreign language learning , teaching , and research .

CRITICISMS ON LLS RESEARCH

Before a more holistic view on strategic learning in language learning and teaching framed in a dynamic metacognitive systems perspective is presented , we discuss briefly LLS in relation to the definitions , related research , and the criticisms leveled against them in the field of second and foreign language learning , teaching , and research . LLS research has blossomed . Probably because of the popularity it has enjoyed , LLS research has courted criticisms . Critics have presented three main criticisms of LLS research : (1) researchers have used different categorizations of LLS ; (2) using strategy inventory questionnaires in LLS research is problematic ; and (3) there is a tendency of an overgeneralization of strategy use across all aspects of language learning .

The first criticism is true . Indeed , different researchers have put various strategies into different categories . For example , leading figures in the field such as Andrew D . Cohen , Michael O Malley and Anna Uhl Chamot , and Rebecca L . Oxford offer definitions that are in one way or another slightly different . O Malley and Chamot (1990) think that strategies are "the special thoughts or behaviors that individuals use to help them comprehend , learn , or retain new information" (p . 1) . Oxford (1990) recognizes that "there is no complete agreement on exactly what strategies are ; how many strategies exist ; how they are defined , demarcated , and categorized ; and whether it is—or ever will be—possible to create a real , scientifically validated hierarchy , classification conflicts are inevitable" (p . 17) ; and her definition of LLSs is "specific actions taken by the learner to make learning easier , faster , more enjoyable , more self-directed , more effective and more transferrable to new situations" (p . 8) . Oxford s definition shares many features with that of O Malley and Chamot s (1990) , and her inclusion of self-directed involvement suggests that there are elements of consciousness and deliberateness in learners executing behaviors or actions in language learning . Cohen s (2007) definition also includes conscious mental activity as a key notion , which contains a goal or intention , an action to reach this goal , and a learning activity . But does having a unitary definition really matter ? This is a question deserving deliberations among LLS researchers . The critics recommend that a more feasible way of moving the field forward is conducting research in the framework of self-regulated learning (SRL) (Dörynei , 2005) . But unsurprisingly , the definition of SRL is equally fuzzy (e .g . , Kaplan , 2008) . So , it is not really wise advice for LLS researchers to follow . The second criticism is that much LLS research has been conducted using survey questionnaires (typically Oxford s Strategy Inventory for Language Learning—SILL , 1990) . This criticism has been well taken by scholars in the field . In fact , LLS researchers have already talked about the inherent problems of using such instruments for data collection . Like many research studies in educational psychology , the use of a survey questionnaire has its limitations (see Cohen , 2007) . The third criticism is partially true , because a large number of LLS researchers have in effect examined LLS use with

regard to different skill areas (e.g., Anderson, 2014; Gu, Hu, & Zhang, 2005; Gu, Hu, Zhang, & Bai, 2011; Macaro & Erler, 2008; Zhang, Gu, & Hu, 2008; see Rose, 2012b for a careful critique).

Instead of feeling constrained by a definitional inconsistency, we can still examine how learners make decisions to maximize their learning outcomes. Rose (2012a, b) has asked serious questions about where LLS research should go. Rose (2012a) has compared Dornyei's (2005) and associates' (Tseng, Dörnyei, & Schmitt, 2006) recommendation for an overhaul of LLS research to "throwing away the baby with the bathwater" (p. 92). This is obviously one significant area of continuing our exploration into the strategies language learners use. The other area that can assist this continuing development of LLS research is to resort to metacognition as a powerful lens through which learner behaviors and actions can be examine. Earlier criticisms on LLS research were based on the critics' limited understanding of LLS research (mainly focusing on the available taxonomies and questionnaires) and of metacognition (which has not been mentioned at all). Gao (2007) and Gao and Zhang (2011) have argued that such criticisms have not taken into full consideration of students' metacognition that has actually been incorporated into this body of research on LLS in applied linguistics (see e.g., Cohen, 1998; especially notably Chamot & O'Malley, 1994; Wenden, 1991, 1998, 2001; among others). These scholars' argument indicates that metacognition is a good lens through which LLS researchers can examine how learners perceive and carry out language learning tasks and deploy LLSs to successfully execute the learning process for maximal benefit. Unfortunately, except for a few studies (e.g., Cotterall & Murray, 2009; Cross, 2010; Vandergrift & Goh, 2012; White, 1999; Zhang & Goh, 2006; Zhang, 2001, 2010a), many studies have examined LLSs without focusing on the connection between students' metacognitive knowledge and their strategy use. Part of the reason that LLS research suffers such criticisms is that metacognition has not been explicitly advocated extensively.

METACOGNITION

A survey of the literature shows that metacognition embraces a range of beliefs, thinking, understanding, behaviors and strategies for current and future actions (Dunlosky & Lipko, 2007). An essential element within the metacognitive knowledge systems refers to, but not exclusively, cognitive and socio-cognitive dimensions in human development and learning. In contemporary cognitive psychology, research findings corroborate with earlier statements such as the one by Flavell (1979) that metacognitive knowledge systems generally entail not only thinking about thinking or cognitions about cognition, but also regulation and execution of cognition typically materialized through students' behaviors and deployment of strategies for problem-solving in different social and learning contexts. These processes of execution offer students rich metacognitive experiences that enable them to do similar things more efficiently with clear understandings of what they do and why they do so (Paris, 2002). Flavell (1979) states that

> metacognitive knowledge is . . . stored world knowledge that has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions, and experiences . . . Metacognitive experiences are any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise . . . metacognitive knowledge and metacognitive experiences differ from other kinds only in their content and function, not in their form or quality . . . Metacognitive experiences can activate strategies aimed at either of two types of goals-cognitive or metacognitive. (pp. 906-907)

Essentially, Flavell's definition (1979) manages to capture not only metacognitive knowledge but also metacognitive experiences and strategy deployment. His distinction of the three key concepts—metacognitive knowledge, metacognitive experiences and strategy use—is also important for understanding students' learning processes when their learning behaviors or actions are examined in relation to sociocultural and specific learning and teaching situations. His tripartite view on metacognition that includes learners' person knowledge, task knowledge and strategy knowledge is a neat taxonomy of students' metacognitive knowledge systems.

Indeed, scholars have incorporated the concept of metacognition into their own frameworks for researching and analyzing LLSs in the field of second language research (e.g., Wenden, 1991;

White , 1999) . Most often , in these frameworks , the term *metacognitive strategies* is used to reflect metacognitive aspects of learning . Wenden s (1998) effort within Flavell s model has been a consistent source of inspiration for researchers and practitioners who are interested in researching students metacognition for better understanding L2 students learning processes and outcomes (Goh , 1997 ; Vandergrift , 2005 ; Vandergrift & Goh , 2012) . It is heartening that several studies report findings on students metacognition in the form of learner beliefs about general language learning (e .g . , Zhang & Xiao , 2006) , L2 listening (Goh , 1997) , or L2 reading (Zhang , 2001 , 2010a) . The results show that successful language learners possessed a richer repertoire of beliefs about effective language learning , and their less successful peers either did not have clear beliefs about language learning or their beliefs were misguided by their incorrect understanding of the various factors related to learning effectiveness (Cotterall & Murray , 2009) . These variables included students own self-efficacy , their perceptions of the learning tasks , their knowledge of LLSs , their agency (Gao , 2010) , and the sociocultural context in which they deploy their metacognitive knowledge and learning strategies for effective language learning (see Table 1) .

Table 1 Types of Metacognitive Knowledge about EFL Learning in Students Metacognitive Knowledge Systems (based on Zhang , 1999)

Person/Self Knowledge	Task Knowledge	Strategy Knowledge
- Cognitive factors that facilitate language learning - Affective factors - that facilitate language learning - Self/self-efficacy - Problems and obstacles that prevent success in language learning - Environment that facilitates learning	- Purpose or significance of task - Nature of language and communication - Need for deliberate effort - Task demands (factors that influence language learning) - Knowledge required to complete the task - Steps and strategies - Level of task difficulty - Nature of the task	- General principles to determine strategy choice - Effective strategies for developing general language skills/proficiency - Effective strategies for completing particular tasks - Steps and strategies - Situations for strategy use - Monitoring strategy use - Evaluating effectiveness of strategy use

We think that it is time to propose a view that envisions the whole enterprise of strategic language learning , based on findings from LLS research , as dynamic metacognitive knowledge systems , which not only include the learner , the learning task , learner agency , the learning environment (social as well as pedagogical) , but also the evolving nature of learners metacognitive knowledge systems . Thus , researchers need to identify socioculture- and context-specific and task-specific combinations of LLSs , whose use changes over time and space , and is guided by learners metacognitive knowledge .

THINKING METACOGNITIVELY ABOUT METACOGNITION : TOWARD A DYNAMIC SYSTEMS PERSPECTIVE

The reason why we would like to recommend that researchers and practitioners think metacognitively about metacognition as an integral part of strategic learner development is that metacognition has not been ruminated sufficiently in the field of L2 research , as was briefly mentioned above (except for , e .g . , Chamot & O Malley , 1994 ; Cross , 2010 ; Vandergrift & Goh , 2012 ; Wenden , 1998 , 2001 ; Zhang , 2001 , 2010a ; and the immensely important work carried out in the field of first language education , e .g . , Hacker , 1998 , 2010 ; Harris *et al* . , 2010 ; Hartman , 2001 ; Israel , 2005 ; Paris , 2002 ; Zimmerman , 2011) . More often , metacognition has only been reviewed as a cognitive construct and criticisms have thus been raised against it on such a basis . To achieve the objective of thinking metacognitively about metacognition , we would like to expand the notion of metacognition by resorting to both cognitive and sociocultural perspectives . We would like to highlight that , in effect , even in the heavily cognitive-dominant literature , the connotation in which metacognition is embodied does include sociocultural factors (see e .g . , Flavell , 1979 ; Wenden , 1998) . In fact , our quick

search in the available literature has enabled us to see the importance of metacognition in the whole enterprise of cognition , sociocognition , and learning . In specific terms , the level of metacognition learners possess or demonstrate distinguishes expert from novice learners , as shown in the work done in previous studies , as illustrated in Table 2 (also refer to Table 1 above) .

Table 2 Characteristics of Good and Successful Learners
(based on Borkowski & Muthukrishna , 1992 , p . 478)

1 . know a large number of learning strategies
2 . understand when , where , and why these strategies are important
3 . select and monitor strategies wisely and is extremely reflective and planful
4 . adhere to an incremental view regarding the growth of mind
5 . believe in carefully deployed effort
6 . are intrinsically motivated and task-oriented and have clear mastery goals
7 . have concrete , multiple images of possible selves
8 . know a great deal about many topics and have rapid access to that knowledge
9 . do not have fear for failure ; they regard failure as essential for success ; hence , they are not anxious about tests ; they take them as learning opportunities

In our view , metacognition should be treated as dynamic systems , and it should be construed as something embedded in language learners , which is intertwined with many modifiable variables , both cognitive and sociocultural . Yet , in the criticisms such complexity has not been fully acknowledged . Being complex and dynamic , metacognition entails that learners metacognition has to undergo continuous change and adaptation , which are to be enacted upon by learners and induced by the learning tasks , task environments , and sociocultural-sociopolitical contexts , where learning takes place in its situated" locales . As will be seen next , metacognition is not a monolithic construct , and it does not rest firmly if it is regarded purely as a cognitive endeavor that learners take . Critics of LLS research , who ignore the significance of metacognition , suffer from a narrow understanding that LLS is purely cognitive . There are also sociocultural dimensions to it . We first examine the cognitive dimensions of metacognition before moving on to its sociocultural ones .

Cognitive Dimensions

Although students metacognition or metacognitive knowledge has also been well recognized as an important factor that has to be considered seriously when planning and executing learner development programs that are interconnected with LLS research among LLS researchers (Cohen & Macaro , 2007b ; Wenden , 2001 ; Zhang , 2008b , 2010a) , so far insufficient empirical work has been reported in the literature . Macaro (2006) recommends that strategy training within a cognitive framework be conducted with lengthy periods of time with a focus on metacognition . Vandergrift (2005) emphasizes the importance of metacognitive strategies in L2 learning , which include overseeing , regulating , and directing the language learning task , and thinking about the process of learning . As dynamic systems , L2 learners metacognition about language learning plays a significant role in helping them achieve success (Chamot , 2005 ; Cross , 2010 ; Macaro & Erler , 2008 ; Oxford , 1990 ; Vandergrift , 2005 ; Vandergrift & Goh , 2012 ; Wenden , 1998) .

Viewed from a cognitive perspective , despite a plethora of definitions in the field of psychology , metacognition includes the core elements that still pertain to what Flavell (1979 , p . 907) postulated as metacognitive knowledge systems , which comprise primarily knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises" (for reviews , see Hartman , 2001 ; Paris , 2002 ; Veenman , Van Holt-Walters , & Afflerbach , 2006) . As applied to L2 research on teaching and learning , Wenden (1991 , 1998 , 1999) , Chamot and O Malley (1994) , and Macaro (2006) recognize the significance of students metacognition about the multifarious aspects of language learning , stressing that this knowledge base can help teachers facilitate L2 students

language development . Chamot and O Malley (1994) , for example , point out that

> metacognition . . . may be the major factor in determining the effectiveness of individuals attempts to learn another language and . . .explicit metacognitive knowledge about task characteristics and appropriate strategies for task solution is a major determiner of language learning effectiveness . (p . 372)

Sociocultural Dimensions

The prevalent misrepresented view of metacognition is that it is purely a cognitive enterprise that does not really involve sociocultural elements . Therefore , learning is just a cognitive endeavor . However , scholars have recently argued for inclusion , in explicit terms , of sociocultural dimensions in LLS research to avoid such misrepresentations (e .g . , Cross , 2010 ; Gao , 2010 ; Gao & Zhang , 2011 ; Norton Pierce , 1995 ; Zhang , 2010b) . This is because learners will have to view learning as essentially not only as a cognitive process but also a social one .In the field of applied linguistics or language learning and teaching , Larsen-Freeman and Cameroon (2008 , p . 135) have argued for the importance of looking at learning from a complexity point of view , positing that

> . . .not only do we get a more variegated portrayal of language-using patterns , we also get a different , more emic , or learner-centred , account of their development . Learning is not the taking in of linguistic forms by learners , but the constant adaptation of their linguistic resources in the service of meaning-making in response to the affordances that emerge in the communicative situation , which is , in turn , affected by learners adaptability .

Although LLS researchers have documented this quite systematically with a cluster of LLS called socioaffective strategies" , the notion of metacognition as an explicit sociocultural construct is still not explicitly brought to the fore . Gao and Zhang (2011) pointed out that in research endorsing sociocultural perspectives scholars have paid particular attention to the fact that language learners autonomous learning takes place within specific contextual structures and result from interactions between contextual conditions and human agency . It is exactly because agency is regarded primarily as a sociological/sociocutlural construct and metacognition primarily as a cognitive construct , they are often seen as two worlds apart (Zuengler & Miller , 2006) . Gao and Zhang (2011) argued that such division is unnecessary , as each strand of research leads to findings concerning different aspects of learners autonomous learning , or to use an ancient proverb , all roads lead to Rome" . Because metacognition embraces a range of beliefs , thinkings , understandings , behaviors , and strategies for current and future actions , which are most often systematic (despite occasional slips) , it is a prerequisite for examining learner autonomy and self-directed learning , which are socioculturally defined activities . Therefore , research on learner autonomy/self-directed learning can capitalize on both areas . To further support this argument with more empirical data , Cross (2010) carried a study that was intended to explore six pairs of Japanese EFL students metacognitive awareness of listening . In each of five lessons these learners participated in a sequence of tasks , which involved the explicit verbalization of LLSs as part of a pedagogical cycle designed to stimulate their metacognitive awareness of the processes of EFL listening . He took peer-peer dialogue as the central mechanism that mediated the construction and co-construction of metacognitive awareness , and it also acted as the primary unit of analysis . His analyses illustrated that through , and in , dialogue as part of a structured pedagogical cycle , learners were afforded , and exploited , opportunities to enhance their metacognitive awareness of L2 listening" (p . 282) .

Metacognition as Dynamic Systems

In the available literature , metacognition is defined as a range of beliefs , thinking , understanding , behaviors and strategies for current and future actions , which are subject to social , contextual and cultural modifications as and when the location where the learning enterprise takes places changes . Metacognition in such cases is most often dynamic and systematic . In contemporary cognitive psychology , research findings corroborate with earlier statements such as the one by Flavell (1979) that metacognitive knowledge systems generally entail not only thinking about thinking or cognitions about cognition , but also regulation and execution of cognition typically

materialized through students behaviors and deployment of strategies for problem-solving (Veenman *et al*., 2006; Winne, 2005). Flavell s definition mentioned earlier in this paper appears to capture not only metacognitive knowledge but also metacognitive experiences and strategy deployment. Zimmerman (2002) posits that when students fail to self-regulate effectively, their failure is not only contributed by their poor metacognition purely from a cognitive perspective. He maintains that self-regulation involves more than metacognitive knowledge and skill; instead, it involves an underlying sense of self-efficacy and personal agency and the motivational and behavioral processes to put these self beliefs into effect. These are closely related to sociocultural views of learning. Such theoretical positioning makes imperative that we recognize the multifaceted nature of strategic learning. Taking a dynamic systems theory perspective in accordance with what Larsen-Freeman and Cameron (2008, pp. 204-205) have proposed, Zheng (2011) has argued that

> A dynamic system usually has many different types of elements or variables at different levels. These variables are interlinked with each other and also interact and change constantly in time. From this perspective, an individual L2 learner can be regarded as a dynamic system consisting of cognitive variables such as intentionality, working memory, intelligence, motivation, aptitude, L1 and L2 knowledge. These cognitive variables are also related to the social system including the degree of exposure to the L2, maturity, level of education, and the environment with which the individual interacts (de Bot *et al*., 2007, pp. 7-8). The context of language learning is further elaborated as including the cognitive context (e.g., working memory or intentionality), the social context (e.g., the relationships with other learners and the teacher), the physical environment, the pedagogical context (e.g., the task or materials) and the sociopolitical environment, just to name a few. (p. 63)

As a result, language learning is best viewed as a series of situated events and as "an embodied action" (Larsen-Freeman & Cameron, 2008, p. 108). In the learner s engagement with the learning task, learning is "an iterative process [that] works both within the individual and between individuals at the social level" (de Bot *et al*., 2007, p. 11). It is these dynamic aspects of how learners perceive themselves, learning tasks, learning processes, and how they value others views of them and how to complete the learning tasks in specific learning and teaching environments that constitute the essential nature of a dynamic systems perspective on metacognition.

UTILITY OF METACOGNITION IN LLS DEPLOYMENT FOR SELF-DIRECTED LEARNING

Metacognition has an important place in the existing LLS classification systems. Scholars generally agree that general LLSs and strategies in relation to other skills such as listening, speaking, and writing are essential building blocks of students metacognitive knowledge systems. Because of this understanding, in the field of L2 research, a large number of quantitative studies on general LLSs have been reported, and specific skills such as reading have been studied both quantitatively and qualitatively (Macaro & Erler, 2008). It is true that many studies on general LLSs were conducted using Oxford s (1990) Strategy Inventory for Language Learning (SILL), which has been criticized for not being sensitive to cultural differences and language skill difference. It is also worth noting that reading, writing, listening and speaking researchers seldom resort to the general LLS classification systems (e.g., O Malley & Chamot, 1990; Oxford, 1990; among others; see Cohen & Macaro, 2007a, 2007b, for a systematic review). So the specific nature of each individual language skill requires different and yet related metacognitive knowledge and strategies. In fact, as early as 1977, Gagné (1977, p. 35) postulated that strategies are "skills by means of which learners regulate their own internal processes of attending, learning, remembering, and thinking." Evidently, this statement already refers to metacognitive elements.

The importance of self-directed learning has been frequently reiterated by scholars in the field of educational psychology and second language research (e.g., Ellis, 2004; Wenden, 1987; Joachim, Brunstein, & Glaser, 2011, among others). Ellis (2004, p. 543), for example, points out from the perspective of SLA that "self-efficacy/confidence in language learning has more to do with how learners perceive their ability as language learners and their progress

in relation to the particular context in which they are learning ." Therefore , acknowledging the importance of understanding second or foreign language students metacognitive knowledge systems in relation to second or foreign learning achievement makes it imperative that teachers consider their students knowledge base in designing , preparing , and delivering effective language instruction programs and lessons . Teachers have also to consider their students lived experiences and the sociocultural situations where learning takes place . Only after due consideration is given to these aspects can they start developing learner autonomy based on their students self-efficacy/confidence , motivation/investment (Cross , 2010 ; Gao & Zhang , 2011 ; Pierce Norton , 1995 ; Zhang , 2010a , b) , i .e . , metacognition about person/self , tasks , strategies , and student readiness (Cotterall & Murray , 2009 ; Zhang & Zhang , 2008) , which have already been found to be prerequisites for helping students better exercise their agency and for developing learner autonomy or self-directed learning capacities (Gao & Zhang , 2011) . Teachers can also explore ways in which they can help : (a) raise their students awareness of metacognitive knowledge : (b) reinforce their task knowledge : (c) empower them with strategy knowledge ; and (d) allow for them to exercise agency over their learning agendas . These are important considerations when the long-term goal of teaching and learning is to develop self-directed learners , the process of which requires teacher expertise (Parr & Limbrick , 2010 ; Zhang , 2004 ; 2005 ; Zhang & Ben Said , 2013) .

CONCLUSION

Given the dynamic nature of learners metacognitive knowledge systems , teachers need to pay attention to the changing nature of their students metacognitive knowledge systems . Thus , it is essential that students metacognitive knowledge systems be treated as dynamic , which are ever-evolving and should be nestled in their cultural locations . Teachers with this understanding will be rewarded through their students steady development , over time , towards higher levels of academic and/or general proficiency gains in the target language . Students metacognition about second or foreign language learning in different societies could be viewed in relation to what students in these societies perceive as important and bring into their classes .

These cultural practices and beliefs should be valued accordingly . Students metacognition about second or foreign language learning , and hence their thinking about learning and language learning strategies , and themselves as learning agents , need to be understood through cultural understanding , as learning is a situated activity" , in which learners can gain sometimes legitimate peripheral participation" (Lave & Wenger , 1991 , p . 29 ; see also Edwards , An , & Li , 2007 ; Gieve & Clark , 2005) . Canagarajah (2007) postulates that it is necessary to nestle and reframe a cognitive view of language acquisition within a socially-embedded system so that these commonly used constructs are not treated in isolation but in osmosis so that they are understood as interactionally open and ecologically situated" (p . 921) . The developmental trajectories of students need to be taken into serious consideration when their language development and related metacognitive knowledge systems are examined in light of this sociocultural understanding .

More significantly , the interactive relationship between self-regulated or self-directed learning (Kaplan , 2008 ; Ridley *et al* . , 1992 ; Wenden , 2001 ; Zimmerman , 2002) and metacognition indicates that learners can draw on their metacognitive knowledge to make decisions for smoother progress towards higher proficiency in the target language (Cotterall & Murray , 2009) . The same is also true for researchers and practitioners who are committed to developing their students into highly competent L2 learners/users in classrooms and beyond .

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Thinking Metacognitively about Metacognition in Second and Foreign Language Learning, Teaching, and Research:Toward a Dynamic Metacognitive Systems Perspective

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