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### Suggested Reference

Zhang, L. J. (2015). A Dynamic Metacognitive Systems Perspective on L2 Learner Development. In *TESOL 2015 International Convention & English Language Expo*. Toronto, Canada.

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TESOL Research Standing Council Colloquium  
*Cognitive and Metacognitive Perspectives on  
English Language Development*

*A Dynamic Metacognitive Systems  
Perspective on L2 Learner Development*

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FACULTY OF EDUCATION

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# Why Metacognition?

# What Does Metacognition Entail?

Dinsmore et al.'s (2008) review concludes that three terms (metacognition, self-regulation, and self-regulated learning) are nested within each other and they share the underlying notion of “a marriage between self-awareness and intention to act” (p. 404).

# What Does Metacognition Entail?

In their review of the historical roots of the concepts in the writings of Piaget and Vygotsky, Fox and Riconscente (2008) conclude that “metacognition and self-regulation are parallel and intertwining constructs that are clearly distinct yet mutually entailed both developmentally and in their functions in human thought and behavior. Neither subsumes nor subordinates the other” (p. 386).

# What Does Metacognition Entail?

Kaplan (2008) concludes that

“self-regulation itself is not a unitary construct: there is no *one* set of cognitive, metacognitive, motivational, and behavioral strategies that constitutes the desirable mode of engagement in every setting and task.” (p. 483)

# Metacognition in L2 Research

Since Wenden's (1986) call for giving more attention to learner metacognition in language learning and teaching, researchers in the field of applied linguistics have responded to the call to varying degrees (e.g., Cohen, 1998; Chamot & O'Malley, 1994; Gao & Zhang, 2011; Goh, 2008; Macaro, 2006; Oxford, 2011; Vandergrift & Goh, 2012; Zhang, 2010).



“Metacognition is a body of knowledge, though, of course, it *may change over time*. As is the case with other aspects of socialization, this knowledge may be acquired unconsciously, the outcome of observation and imitation, or consciously as learners listen to teachers, parents, or peers providing them with advice about how to learn. As they gain in cognitive maturity, learners may reflect on their learning process and revise earlier assumptions or develop new ones and, as will be illustrated by the studies in this volume, they are capable of bringing this knowledge to consciousness and talking about it.” (Wenden, 1999, pp. 435-436)



# Metacognition in L2 Research

Conceptualizing learning and teaching through the lens of metacognition enables a healthier response to criticisms leveled against language learner strategy research in order to advance this line of research (Dörnyei, 2005; Ellis, 1994, 2008; Rees-Miller, 1993; Tseng, Dörnyei & Schmitt, 2006; see also Chamot & Rubin, 1994; Gao, 2006; Rose, 2012a, 2012b; Oxford, 2011; for responses).

# Metacognition in L2 Research

- Metacognition is an important aspect in LLS research, especially when such a construct is related to both the cognitive and sociocultural dimensions of learning undergirded by an understanding that metacognition is a set of complex dynamic systems.

# A Closer Look at Metacognition

# Cognitive Perspective

The term “metacognition” is often associated with John Flavell (1979).

Metacognitive knowledge consists primarily of knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprise. (Flavell 1979, p. 5)

Metacognition can be differentiated into metcognitive knowledge and metacognitive experience, and one can distinguish between metcognitive and cognitive strategies. (Flavell 1981, p. 38)

## Dynamic Systems perspective

- Metacognition as dynamic systems has theoretical/practical implications for research on L2 teaching and learning .
- Metacognition as dynamic systems should be construed as something embedded in language learners, intertwined with many variables, both cognitive and sociocultural.

## Dynamic Systems perspective

- Being complex and dynamic, metacognition entails that learners' metacognition has to undergo *continuous change and adaptation* (my emphasis), 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.

# Cognitive Dimensions

Metacognition refers to knowledge about cognition and regulation of cognition.

- Knowledge about cognition refers to the knowledge or beliefs about what factors or variables interact in ways that affect the course and outcomes of the cognitive enterprise.
- Regulation of cognition suggests ways and strategies for doing things or for exercising execution of cognition.



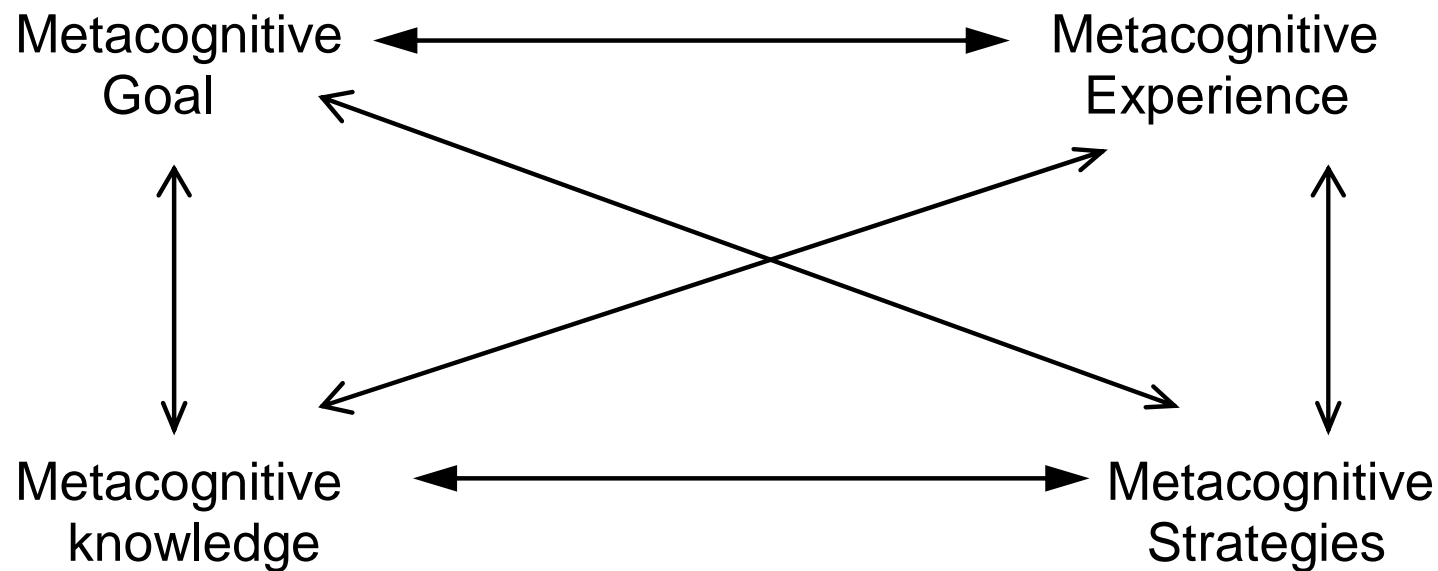
- Flavell and Wellman (1977) have distinguished three kinds of metacognitive knowledge:
  - *Person knowledge,*
  - *Task knowledge and*
  - *Strategy knowledge*
- Flavell's (1979, 1992) framework adds another dimension to the metacognitive knowledge framework established earlier on, which he refers to as metacognitive experiences.

- Metacognitive experiences are “any conscious cognitive or affective experience that accompanies and pertains to any intellectual enterprise” (Flavell, 1979, p. 906).
- These experiences occur when students are sensitive to external or internal feedback on their functioning and strategy use during the execution of the learning task (Marzano, Pickering & McTighe, 1993).

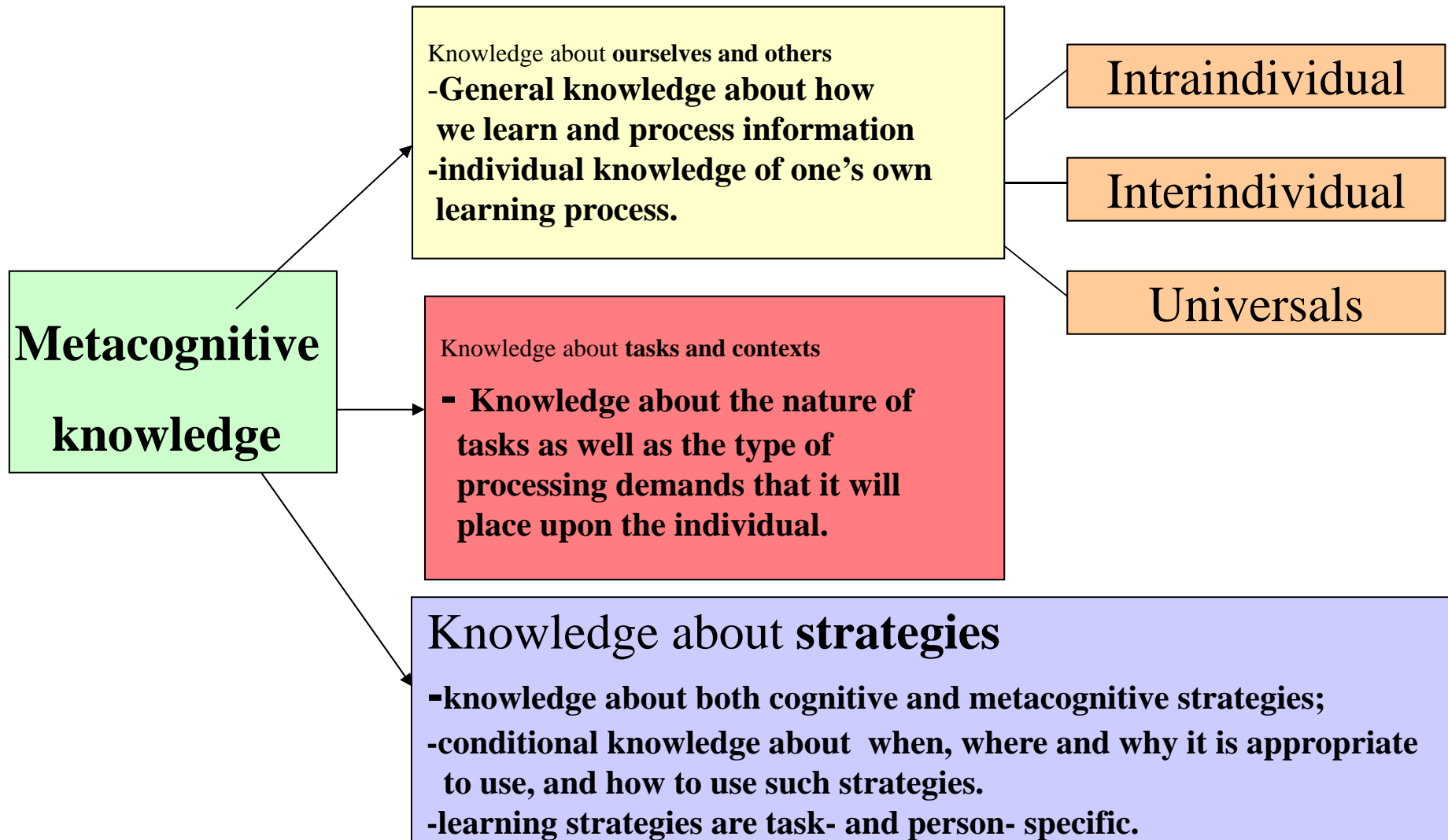
## *Characteristics of good and successful learners* **(Borkowski & Muthukrishna, 1992, p. 478)**

- 
1. know a large number of learning strategies
  2. understand when, where, and why these strategies are important
  3. select and monitor strategies wisely, are 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
-

# *A Framework for Metacognitively-scaffolded ESOL Instruction*



# *Metacognitive Knowledge, Metacognitive Experiences, & Strategy Use*



# *Types of metacognitive knowledge about EFL learning in students' metacognitive knowledge systems* (Flavell, 1979; Wenden, 1991)

Person/Self Knowledge	Task Knowledge	Strategy Knowledge
<ul style="list-style-type: none"> <li>- Cognitive factors that facilitate reading</li> <li>- Affective factors that facilitate learning (e.g. reading)</li> <li>- Self/self-efficacy</li> <li>- Problems and obstacles that prevent learning success</li> </ul>	<ul style="list-style-type: none"> <li>- Purpose or significance of task</li> <li>- Nature of language and communication</li> <li>- Need for deliberate effort</li> <li>- Task demands (factors that influence learning, eg reading comprehension)</li> <li>- Knowledge required to complete the task               <ul style="list-style-type: none"> <li>- steps and strategies</li> <li>- level of task difficulty</li> <li>- Nature of the task</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- General principles to determine strategy choice</li> <li>- Effective strategies for developing general reading skills</li> <li>- Effective strategies for completing particular tasks               <ul style="list-style-type: none"> <li>- Steps and strategies</li> <li>- Situations for strategy use</li> <li>- Monitoring strategy use</li> <li>- Evaluating effectiveness of strategy use</li> </ul> </li> </ul>

## *Sociocultural views*

- Scholars have recently argued for inclusion, in explicit terms, of sociocultural dimensions in LLS research (e.g., Norton Pierce, 1995; see also Cross, 2010; Gao, 2006; Gao & Zhang, 2011; Zhang, 2010b).
- Although work on LLS research has documented this quite systematically with a cluster of LLS called “socioaffective”, the notion of metacognition as an explicit sociocultural construct is still absent.



- Gao and Zhang (2011) posit that in research endorsing sociocultural perspectives scholars should pay 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 (see e.g., Oxford, 2003).

- It is exactly because agency is regarded primarily as a sociological/sociocultural construct and metacognition primarily as a cognitive construct, they are seen as two worlds apart (Zuengler & Miller, 2006).

- Gao and Zhang (2001) argue against such division, 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 related to strategic learning. Therefore, research on learner autonomy/self-directed learning can capitalize on both areas.

- 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 and of sociocultural variables such as the environment that changes when a learner travels and studies abroad or at a different school.

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 (Larsen-Freeman & Cameron, 2008b, pp. 204-205).

# *Why Metacognition as Dynamic Systems?*

- Flavell (1985)
  - Metacognitive knowledge is not different from other kinds of knowledge, e.g., classical music or computer programmes. It is like other knowledge: Declarative or procedural.
  - It grows in a slow and gradual fashion through years of experience in the 'domain' of cognitive activity.

- Like other stored knowledge, it can be activated quite automatically.
- It can be flawed, just like other knowledge bases.
- ‘Awareness’, ‘realizations’ or ‘clicks and clunks’ of actual or anticipated cognitive success or failure serve as a base for metacognitive experiences (Anderson, 1980).



- However, EL learning is not a static process
- Acquisition of linguistic rules and application of them in real language use situations take place over time
- Individuals are very different, and they are inter-related entities in global cosmos.
- Learners' language learning capacity increase incrementally, and so is their language use ability, which is governed the availability of opportunities for language use

- Learners' metacognitive knowledge interacts with
  - Learning situations
  - Learning task and its requirements
  - Interlocutors
  - Possibilities of imagined communities
  - Border-crossing experiences
  - Intercultural communication
  - Intra-individual differences
  - Inter-individual differences

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 and the learning process as well as how to complete the learning tasks that constitute the essential nature of a dynamic systems perspective on metacognition.

# *Utility of Metacognition in EFL/ESOL Instruction*

- **Metacognitive experiences often occur when cognitions fail.**
  - Example : reading a paragraph or text by a learner. Cognitive goal is to understand text.  
Self questioning : “Do I understand it?”
- Metacognitive experiences involve the use of **metacognitive strategies** (use to control cognitive activities and to ensure that a cognitive goal has been met).
- Cognitive failure is compounded by metacognitive failure.

# Dynamic Relations among Metacognitive Elements

Metacognitive experiences	<i>prompt</i>	revision of metacognitive knowledge.
Metacognitive experiences	<i>prompt</i>	additional metacognitive experiences.
Metacognitive strategies	<i>induce</i>	cognitive strategy use and revision of metacognitive knowledge.
Cognitive Strategies	<i>produce</i>	metacognitive experiences

## *Developing Metacognitively- strong ESSOL Learners*

- Flavell (1979, 1992) and Garner (1994) have argued for giving greater attention to the role of metacognition in helping students take control of their learning (see also Baker & Brown, 1984; Schunk & Zimmerman, 2008; Zimmerman, 2011).
- They maintain that students' metacognition, i.e., their cognitive control and regulation over learning, can enhance learning efficiency.



## *Developing Metacognitively- strong ESOL Learners*

- Students' metacognition can be enhanced through provision of training, instruction, dialogic discussion.
  - In L1 situations, it is shown that metacognitive strategy training/instruction can help learners to develop high degrees of self-awareness and efficacy when teachers help students take active control of their learning. This is because metacognition involves learners' internal monitoring and controlling of their learning processes (Baker & Brown, 1984; Cohen & Macaro, 2007; Dole et al., 1996; Ernesto, 2006; Garner, 1994).

## *Developing Metacognitively- strong ESOL Learners*

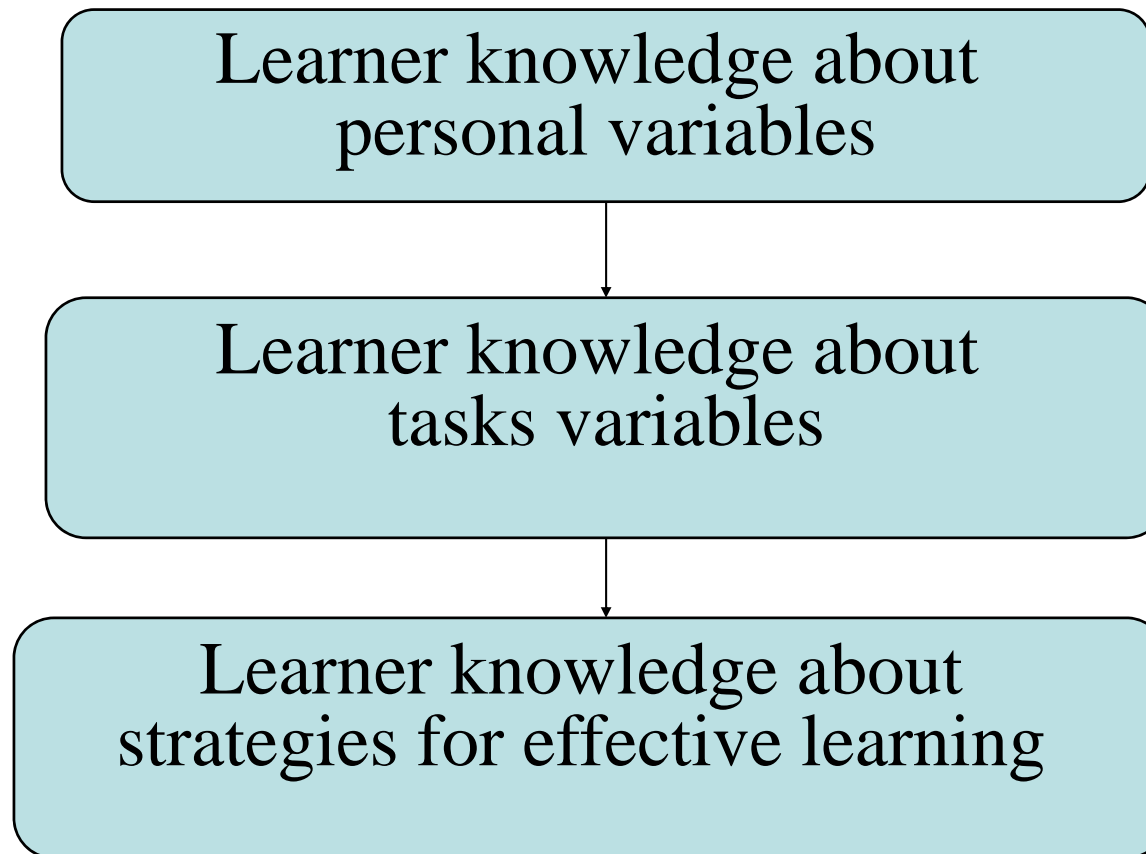
- In L2 settings, researchers also show that teachers' metacognitively-oriented instruction or learner metacognitive training in the ESL curriculum allows learners to have control over their own cognition (Macaro & Erler, 2008; Zhang, 2008).
- Teachers do so by enabling learners to coordinate their planning, organizing, and evaluating of the learning processes.

Metacognition is believed to involve both declarative (self-knowledge, world knowledge, task knowledge, strategy knowledge) and procedural knowledge (planning for learning, monitoring a learning task while it is in progress, and evaluating learning once a task has been completed; ... Evidence that language learners actually engage in metacognitive knowledge and processes is reported in most of the research on language learner strategies, both descriptive and instructional. Even young children in language immersion classrooms can often describe their thinking processes, demonstrating metacognitive awareness in their ability to describe their own thinking ... (p. 124)

## *Developing Metacognitively- strong Learners*

- Metacognitively-scaffolded instruction has the potential of approximating the goal of helping learners to improve performance, because through dialogic classroom processes, learners are offered more options to actively engage in meaningful language learning activities.
- There is a rich body of literature showing that higher proficiency students are more likely to use metacognitive strategies than lower-proficiency ones and that the former tend to use them more flexibly and effectively (for reviews, see Bernhardt, 1991; Chamot, 2005; Harris, in press; Oxford, 2000; Zhang, 2008).

# *Developing Metacognitively- strong ESOL Learners*



# *Focus on the Metalanguage/ Language Learning Tasks*

- *Stress the importance of language use*
  - emphasises language use by which developing learners' understanding of the *audience, purpose, context* and *culture* of how English is used is crucial in language learning and teaching

## ***Focus on the Metalanguage/ Language Learning Tasks***

Language is a system for making meaning; it is a means of communication and expression; language use is determined by purpose, audience, context, and culture; language has a grammar and linguistic structures and patterns, which can be used to create various discourse forms or text types depending on the linguistic choices made. Learners have to be taught how to make these linguistic choices to suit the purpose, audience, context and culture.



## *Using Metalanguage to Facilitate Language Learning*

- Teaching and learning can be centred on the metalanguage features such as text types, as shown in Table 1.
- The text type info is supposed to facilitate students' learning of the language materials.



<b>Text type /genre</b>		<b>Main purpose/context</b>	<b>Audience</b>
Narratives		To entertain and please readers/listeners	Anyone who reads or listens to a story
Recounts (Personal and factual/historical)	Personal recounts	To relates events, usually in a chronological order of what the writer personally sees or experiences	Close friends for personal recounts;
	Factual/historical recounts	To record specifics of an incident or event	Any interested reader or listener
Expositions		To persuade or convince people or to argue for or against a point	Voluntary readers or listeners
Explanations		To describe or explain how physical entities or phenomena objectively	People who need this knowledge
Information reports		To document and organize factual information such as news report or an announcement	People who need this information
Procedures		To direct readers or listeners to carry out a procedure correctly	People who need to know how to do something
Conversations and Short functional texts		To interact for socialization or academic discussion or to relay messages for transactional purposes	People interested in joining conversations on particular topics or for obtaining messages

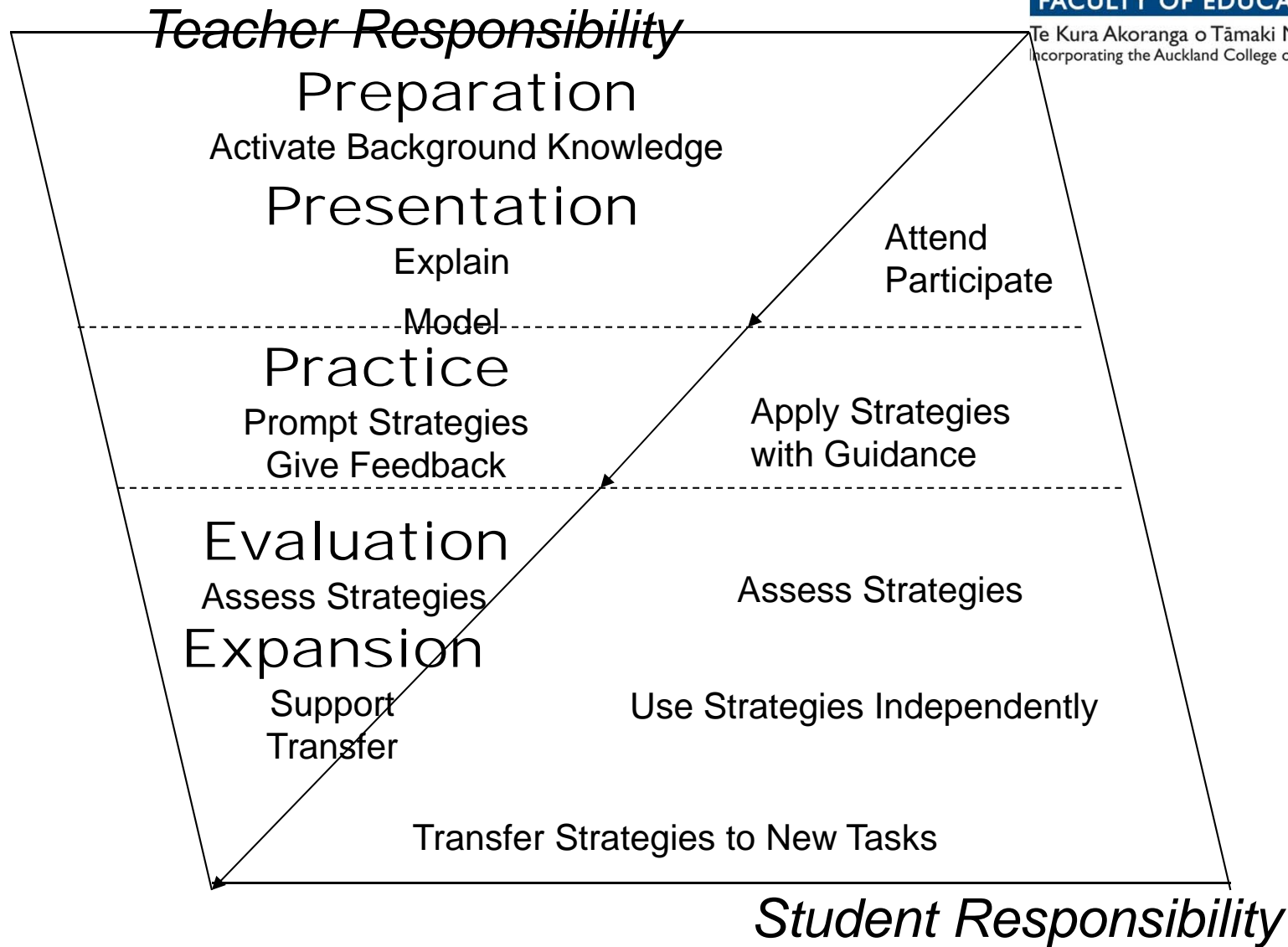
## *Focus on Strategic Learning*

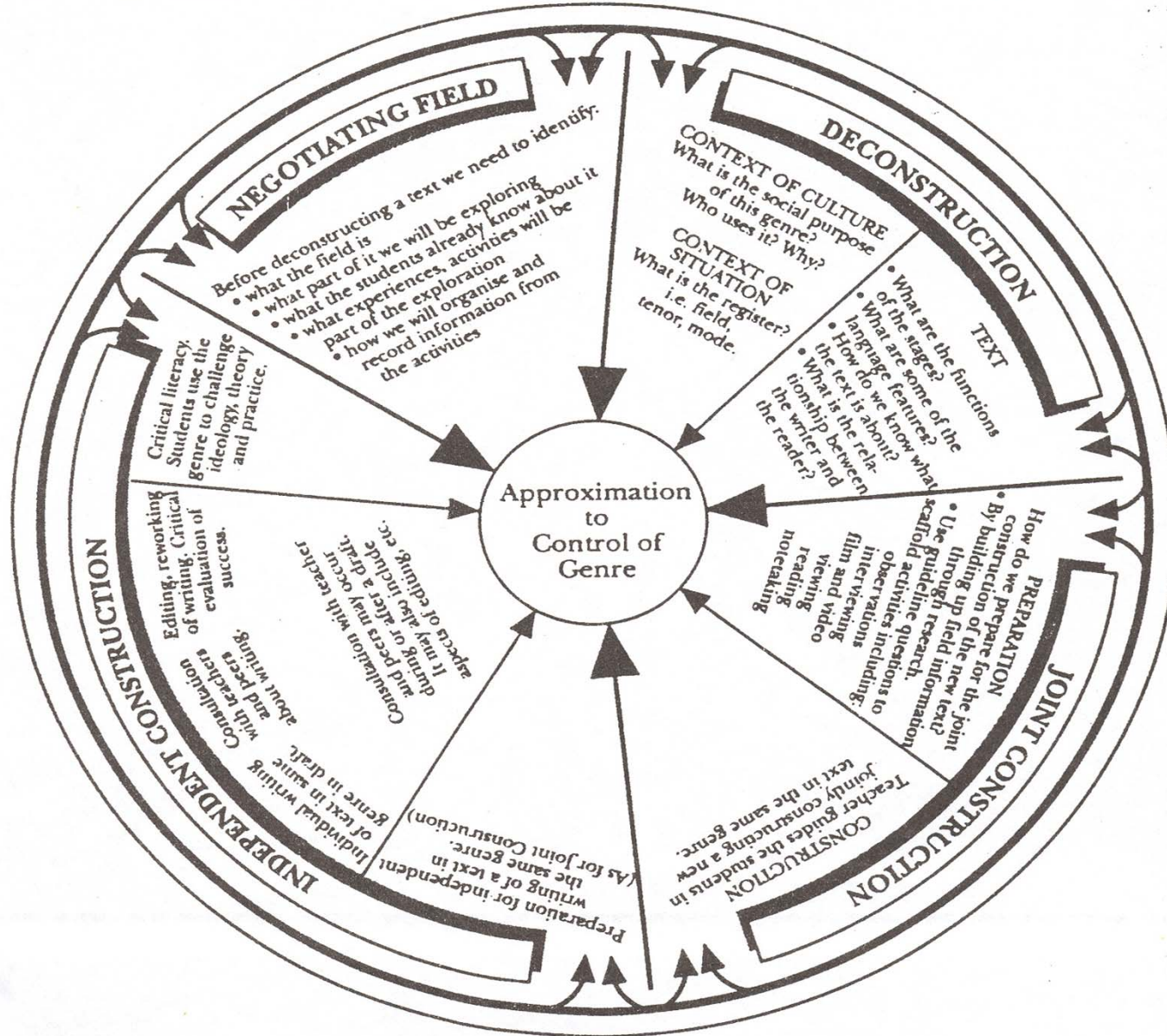
- Despite controversies about what can be as a specific definition for “learning strategies”, researchers have concluded the correlation between language learning achievements and learner strategy use (see Cohen & Macaro, 2007, for a recent review).

## *Focus on Strategic Learning*

- Cognitive models of expert and developing writers
- Research on self-regulation, e.g., goal-setting, self-evaluation, self-efficacy
- Research on strategy instruction in general - direct explanation, modeling, guided practice

# Metacognitively-scaffolded EFL/ESL/ESOL Instruction Framework







- The significance of the interactive relationship between self-regulated or self-directed learning (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 in classrooms and beyond.

# A Case in Point: Bill

China: EFL learning was conceived of as:  
grammar learning, passing examinations,  
Memorizing rules, texts and vocabulary

Singapore: ESL learning:  
Reading in English  
extensively, including  
magazines, newspapers,  
and textbooks, with a  
heavy emphasis on  
vocabulary learning (e.g.  
using a digital/electronic  
dictionary to memorize at  
least 10 words every day)

USA – MIT–NUS Alliance Masters  
Programme:

- Content learning, with some focus on language learning
- Socialization through the use of English
- English as a means to achieving academic and personal goals
- Vocabulary is no longer the only main focus

“Thinking back on what I did while I was in Senior High School in China, I can recall that I placed emphasis on memorisation a lot, including *shengci* (new words), grammar rules, and even dialogues and other texts, because I wanted to pass the examination with good results.”

“The more I take your class, the more I realised the importance of a big vocabulary size. So I need to expand my vocabulary as quickly as possible. I can do so by intensive word study, and finishing the reading assignments you have given us, especially “The Article Explorer” worksheet.”

“I am convinced that the way I learned English vocabulary in China and Singapore had laid a good foundation for my academic study and socialization in English. But since I am no longer in Singapore only, I need to develop higher levels of competence in communicating with classmates and friends. English has become the only significant language for me here.”

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