13 Teaching Metacognitively

Adaptive Inside-Out Thinking in the Language Classroom

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Introduction

Even the most effective instructional method or technique will not work in all situations, nor, perhaps, should it be expected to. Taking a multidimensional and nuanced view of teaching emphasizes the degree to which classroom instruction relates to “doing the right thing in the right way and at the right time in response to problems posed by particular people in particular places on particular occasions” (Duffy et al. 2009, 245). Success in language teaching, too, requires this kind of flexibility and is characterized by critical moment to moment decision-making in gauging what works well, for whom, and under which circumstances. Metacognitive teachers deliberately and actively monitor what they are doing, reflect on the rationale for doing so, and adapt their instructional repertoire as required by various situational demands (McCormick, Dimmitt, and Sullivan 2013). Teacher metacognition, among other things, can be used by teachers to efficiently reboot unsuccessful lessons or classroom activities, to improve their own professional learning and hone their practice more broadly, and to foster metacognition in learners. For these reasons, metacognition is a key ingredient in language teachers’ ability to make a difference in their students’ development as well as their own.

Despite the recognition that conscious and intentional thought and action are hallmarks of exemplary teaching, and that metacognition is an important contributing factor to instructional effectiveness, conceptual and empirical work in teacher metacognition is by some accounts, still in its infancy. Missing, so far, is a programmatic agenda for this body of work that connects language teacher metacognition to success in L2 teaching and in student learning, and provides evidence for other stakeholders (e.g. teacher educators, policy makers) to create the conditions and avenues in which current and future teachers can develop and engage in adaptive metacognition. The evidence that exists does suggest that effective teachers regulate and control their classroom thought and action, but also offers too few definitive answers with regard to whether teachers can be broadly construed as metacognitive professionals, whether teacher metacognition is associated with

improved student outcomes (e.g. engagement, overall development), or how teachers can develop this capacity if they do not already engage in metacognitive thought and action. The study we report in this chapter is part of a larger project designed precisely to explore these notions with language teachers.

We begin this chapter by reviewing the scholarship on teacher metacognition in order to situate our study within the larger discourse and understanding of teachers as metacognitive professionals. We then relate this to what we see as the role of language teachers in the complex social ecology of language classrooms. We investigate the extent to which language teachers can be said to engage in metacognitive thought and action, and examine salient developmental mechanisms that shape this capacity for language teacher metacognition. Throughout, we take a situated and dynamic perspective of teacher metacognition in line with recent calls from both general and language education for a more developmental orientation of studies of the work and lives of teachers (Dörnyei and Kubanyiova 2014; Richardson, Karabenick, and Watt 2014). It is our position that exploring the tensions between language teachers' metacognition and their classroom practice can help address the links between language teachers' inner lives, their teaching, and their students' L2 learning, thus contributing new insights for our field.

Conceptualizing Teacher Metacognition

As will be clear from many of the other contributions in this edited volume (but see both Fisher 2018 and Haukås 2018, this volume, for exceptions), a great deal of conceptual and empirical work in this domain to date has focused on language learner metacognition; The research that does examine teacher metacognition in depth has been conducted primarily with mathematics and science teachers (e.g. Hartman 2001a; Jiang, Ma and Gao 2016; Sherin, Jacobs, and Philipp 2011; Zohar and Barzilai 2013). The consensus in this modest body of work, however, is that individuals' awareness of their thoughts and actions as teachers—i.e. teacher metacognition—is a critical layer of professional expertise (Fairbanks et al. 2010). This is because the greater teachers' awareness of themselves and the better their ability to evaluate and adapt their practices, the more effectively these practitioners can enhance their students' own development (Hattie 2012). Thus, metacognition, broadly defined as “cognition about cognition” or “thinking about thinking”, has untapped potential to contribute to understanding how teachers can enhance both their instruction and students' learning processes in a variety of settings (Anderson 2002; Borg 2015; Graham and Phelps 2003).

When considering how practitioners develop, draw on and maintain the capacity to think about their thinking, various terms are included under the rubric of teacher metacognition, including “metacognitive actions” (Duffy et al. 2009), “metacognitive awareness” (McCormick, Dimmitt,

and Sullivan 2013), and “reflection” (Risko, Roskos, and Vukelich 2015). Others such as “self-regulation” or “executive function” are used synonymously (Corcoran and O’Flaherty 2017). As a consequence, synthesizing the literature on teachers as metacognitive professionals poses challenges partly because a range of terms are used to describe “the thoughtful and intentional mental activity in which teachers presumably engage” (Duffy et al. 2009, 242–3). Additionally, the particular aspects included in thinking about thinking add complex layers to this capacity, as these interconnected components complement each other and contribute to the kind of teaching that in turn enhances the learning process (Kiss 2012). Among the components thought to make up teacher metacognition are metacognitive knowledge, metacognitive skills (i.e. metacognitive regulation, metacognitive strategies) and metacognitive experiences.

Metacognitive *knowledge* consists primarily of one’s conceptions and beliefs of task structures, and the interaction of one’s cognitive goals and abilities (Flavell 1979; Schraw 1998; Schraw and Moshman 1995). It is thought to play a key role in teacher metacognition, for instance, by helping teachers think critically about instructional “methods that might be used to achieve the same academic objectives and evaluate the advantages and disadvantages of each” (Hartman 2001b, 162). Others have explored metacognitive knowledge through the lens of knowing what a given skillset is, knowing how to use it, and knowing when and why to do so—declarative, procedural, and conditional knowledge, respectively (Pintrich 2002). Metacognitive *skills*, on the other hand, are processes used to guide, monitor, control and regulate cognition (Veenman 2016). As Efklides (2009) explains, “the deliberate character of MS (metacognitive skills) entails that the person consciously and purposively applies strategies, which ensure that his/her thinking will be in the desired direction and will bring about the outcome defined by the goal set” (79). Metacognitive skills implicate teachers’ awareness of their performance, the selection of appropriate strategies that can positively impact their teaching, and their appraisal of classroom outcomes and reevaluation of strategies that were used (Veenman et al. 2006). Finally, metacognitive *experiences* are any conscious cognitive or affective experiences which relate to an ongoing cognitive endeavor, such as teaching. Metacognitive experiences consist of feelings, estimates, or judgments related to the features of a task, the cognitive processing which takes place during the task, and the outcome of the task (Efklides 2009). For instance, teachers may experience satisfaction or dissatisfaction with how a classroom activity is progressing, estimate that they are prepared or unprepared to teach a class in the time required for the lesson, and judge certain instructional materials to be beneficial or otherwise for the lesson. Metacognitive experiences are an important aspect of teacher metacognition because they involve an active awareness on the part of a teacher who is performing a task, thus informing them in real time of their progress toward desired outcomes (Paris 2002).

The dominant representation of metacognition in this tradition, exemplified through the constructs reviewed above, has been one most compatible with a cognitive paradigm; this construes metacognition as a cognitive enterprise more or less independent of social and contextual elements. As Veenman et al. (2006) outline, most conceptualizations of metacognition interpret it as higher order cognition about cognition or as a higher order agent looking over and controlling the cognitive system and its functioning. To the extent that it is readily interpreted as a monolithic, latent construct rather than something that is emergent, dynamically adaptive, and socially situated in nature, these sorts of perspectives have essentialized teacher metacognition (Zhang and Zhang 2013). Despite its clearly social objectives, language teaching too has tended to be regarded primarily as a cognitive activity (Kubanyiova and Crookes 2016), yet scholarship also indicates that teachers' decisions and practices are regulated by contextual conditions, rather than solely individual thought (e.g. Whitehead 2016). For example, teachers who find themselves in professional settings heavily controlled by external stakeholders or external directives may default to classroom practices that have become routinized and habitual, utilizing metacognition in far fewer instances (Maloch et al. 2003; Valli and Buese 2007). Conversely, teachers who are in less constrained, non-routinized situations must make more decisions and therefore may require a higher degree of metacognition. This suggests that teacher metacognition varies with context and with individuals (Duffy et al. 2009), and because of this variability teachers must "shift their vision of teaching from a solo endeavor to an interactional event" (Tekkumru-Kisa and Stein 2015, 108).

Few would dispute the notion that teachers play a central mediating role in the dynamics of classroom ecology and influence learners' ongoing thoughts and actions within L2 instructed settings (Scarino 2014). By most accounts, successful language teachers are those who are thoughtfully adaptive in response to the complex and unanticipated problems that arise (see e.g. Hiver 2016; Hiver 2018; Hiver and Dörnyei 2017), and indeed some scholars have proposed that metacognition be treated as a more dynamic and situated system (Zhang and Zhang 2013) whose makeup and functioning are intertwined as a socio-cognitive conglomerate. In particular, the challenge of dealing with multiple contextual factors simultaneously requires teachers to "monitor and regulate their cognitive activity (. . .) identifying appropriate strategies, making moment-to-moment decisions to ensure students' learning and adjusting for individual differences" (Ghonsooly, Khajavy, and Mahjoobi 2014, 592). From this situated perspective, "successful teachers must recognize that virtually every situation is different, must see multiple perspectives and imagine multiple possibilities, and must apply professional knowledge differentially" (Fairbanks et al. 2010, 162). A teacher, therefore, develops and draws on "adaptive metacognition" by adapting one's self and one's environment in response to the complexities of teaching (Lin, Schwartz, and Hatano 2005).

The Current Study

As Haukås (2018, this volume) has noted, there exist a number of studies demonstrating the benefits of metacognition to enhance language learning, and the language teacher's role in encouraging students to develop it; however, still little is known with respect to the metacognition of language teachers themselves and its particulars. One fundamental issue concerns the extent to which language teachers can in fact be thought of as metacognitive. As Duffy et al. (2009) point out, "while researchers and educators claim frequently that teachers are metacognitive, detailed characterizations based on empirical qualitative or quantitative evidence are scarce" (240). Related to this are concerns regarding what language teachers need to know and to be able to do in order to apply metacognition successfully in the classroom, whether language teachers at large possess this capacity, and the sort of processes that might help language teachers develop it if they do not. By extension, exploring whether and how metacognition contributes to successful language teaching would provide evidence for claims that more metacognitive teachers are more effective classroom practitioners. As mentioned earlier, there is also increasing acceptance that the perspectives which inform the study of teacher metacognition will need to be expanded from the currently dominant cognitive perspective. Doing so by bringing in insights from social and ecological perspectives is likely to contribute to a more unified understanding of metacognition. Additional empirical evidence regarding what teacher metacognition entails, how it develops and can be maintained, and how it impacts teachers' classroom practice is crucial to take the field forward. Given this need, the present study aims to further current understanding of the topic within the context of the work and lives of language teachers by addressing the following research questions:

RQ1: To what extent do L2 teachers engage in metacognitive thought and action?

RQ2: What salient developmental mechanisms shape this capacity for L2 teacher metacognition?

Participants

Using critical case sampling, a process which entailed selecting a small number of important cases likely to yield impactful knowledge, we collected data from 40 public sector Korean English-language secondary school teachers at various stages of their career (from 5 to 27 years of experience) and teaching in varying public school settings. All teachers were Korean L1 speakers with a Superior level of English proficiency on the ACTFL descriptors. The context for recruiting these participants was from within a larger cohort of public secondary school L2 teachers all enrolled in a voluntary six-month-long program of professional development at the largest provincial teacher

education institute in Korea, and in this study, we report on selected parts of the extended dataset collected from this project. Participants in this study were free to withdraw at any time and were not compensated for participating; however, none chose to opt out at any time during or after the data elicitation took place.

Data Collection

Following IRB¹ approval, data were collected over roughly 12 months beginning at the start of their professional development program and continuing into the first semester those teachers returned to their school assignments. Three primary sources of data were collected. First, we solicited reflective journal entries from each language teacher at multiple time points over the duration. The domain-specific (i.e. related specifically to L2 teaching rather than general classroom practice) prompts our participants responded to for these journal entries (100–500 words in length) were designed to encourage self-reflection as L2 practitioners (e.g. “Please tell us about yourself as a language teacher. What things do people need to know about you to understand who you are as a language teacher?”). Secondly, we collected observational data by video recording two full-length regular lessons at different time points in the year for each teacher. Rather than having an evaluative purpose, these observations were designed as a descriptive point of comparison for how teachers’ classroom processes and decisions could enable a greater understanding of the possibilities and limitations within their instructional repertoire; we were interested particularly in teachers’ deliberate intentionality and adaptive awareness in their classroom practice (aspects related explicitly to metacognition). Our final source of data were in-depth interviews with the participants in which we elicited individual verbal commentaries on their observed classes and journals. These interviews were informal in nature, yet followed a rough interview schedule designed to guide participants to debrief on the other sources of data. Each session lasted 20–30 minutes and took place in a low-key setting to reduce any power distance between researcher and participant. All data were collected with the signed consent of the teachers, who indicated a preference for using English as the medium of communication.

Data Analysis

We began data analysis by collaboratively reviewing observational data from each teachers’ two taught lessons repeatedly and a scheme of descriptive codes was used to categorize surface level aspects such as the type of environment the teacher created (e.g. *an inviting atmosphere; a low-anxiety environment*), characteristics of their delivery (e.g. *spontaneity in teacher talk*) and overt focus (e.g. *mathematical-like explanation of grammar usage*) at different points in each lesson, as well as more subtle practices or

characteristics that were still noticeable to the experienced eye (e.g. *teacher's sense of fun was contagious for students*). These descriptive first-pass analyses were used as stimuli for the interviews. Using NVivo 11, we then began initial thematic coding of the reflective journal data (e.g. *self as conformist; self as an investment*). "Theming the data" (Saldaña 2015) in this way privileged accounts of commonalities across cases and uniqueness within each case, and was further intended to shed light on relationships existing between themes. Following this, we juxtaposed these themes with the third data source—the in-depth interviews—using elaborative coding (Auerbach and Silverstein 2003), a technique used primarily to refine codes and themes that support or modify the observations made from the earlier data sources. Our final level of data analysis used hypothesis coding, a type of exploratory theory-driven code, to synthesize all data sources in a cross-case comparative analysis. Hypothesis coding uses researcher-generated codes to assess a researcher-generated hypothesis (i.e. tied to the research questions) about the qualitative dataset, and as such is suited to analytic induction of causes and explanations in the data (Bernard 2011).

A challenge we faced in reporting this study, one regularly encountered in qualitative case-based research, was that of providing a coherent and compelling research narrative to the reader based only on selective excerpts from our fairly extensive dataset. To counteract the concern that data might be used opportunistically to fit a range of conclusions, we endeavor to address our research questions thematically while still being representative of the respective participants' whole data-sets. In the interests of principled extract selection, we have included extended stretches of discourse from select participants that best typified salient conceptual links in the data. While it may not be possible to avoid issues of subjectivity or researcher bias entirely in reporting data of this sort, transparency is essential. In the following section, data are reported verbatim and participant chosen pseudonyms are used.

Results

This study was designed to explore the extent to which L2 teachers engage in metacognitive thought and action in their professional practice, and the process of how they do so. Here we report on findings from our dataset thematically (i.e. by integrating observational data, teachers' journal entries, and the verbal commentary interviews), emphasizing the contextual and instrumental features of language teacher metacognition that are closely associated with L2 teachers' classroom practice.

Sense of Self: Initial Conditions for Language Teacher Metacognition

Through our analyses of the dataset, we were intrigued first and foremost that the conditions that initiated language teacher metacognition appear to

originate in teachers’ self-referential images and self-guides. This is because, based on how teachers represented themselves and who they viewed themselves as in their teaching role (e.g. self as conformist, self as mirror of another, self as an investment), they appear to have developed a propensity for acting or adjusting classroom actions in certain ways. In order to think and react to situations metacognitively, of course, individuals first need to determine that some course of action is necessary. Our dataset indicates that on a primary level such a determination stemmed more from abstractions in self-evaluation (i.e. self-appraisals) and their self-guides (i.e. the possible identities that L2 teachers might assume) than it did from analytical reflection on their varied L2 instructional processes (see Table 13.1).

Table 13.1 Original stimulus for L2 teachers’ metacognition.

<i>Self-appraisals</i>			<i>Self-referential imagery</i>	
	with heightened emotionality	with real-time awareness	with high congruence	with low congruence
<i>N</i>	11	15	4	10

N = 40 for this study

Thus, facets of language teacher metacognition were rooted in what we term ‘inside-out thinking’ that involved self-appraisals and self-referential images, which functioned as the initial conditions for metacognition to manifest.

On the one hand, self-appraisals for these teachers were typically automatic evaluative processes: they were direct, immediate, and intuitive. These appraisals can be characterized as equilibrating manifestations of teachers’ sense of self that had phenomenological validity on the time scale in which L2 teachers’ instructional thought processes and decisions unfold—i.e. real-time. In this sense, language teacher metacognition can be thought of as a self-developmental dimension that implicated, before all else, the self-evaluative thoughts of these L2 teachers. These facets of self-appraisal are apparent in the following verbal commentary given by a teacher who reported using mental imagery to slow time down and visualize herself as a heuristic for adapting or continuing a course of action in class.

With my sometimes unfriendly and uncooperative students I need to improve my enthusiastic attitude or look confident and charismatic in leading class. And, I noticed that almost every class I have the same way I think about myself. When the focus is off me and students are working, I look at the clock and in my mind I slow time down to slow motion. Then I zoom in onto myself and see how things are going with me, and ask myself what more I need to do. When I zoom out again time speeds up, so then I continue or change based on what I see or think during that time. I zoom in to myself and then zoom out back to

the class every time an activity changes. (. . .) I cannot say I am poor at managing class, but because of who I am I have to always make an effort to stay with things in the classroom. So, depending on how well I think my performance as a teacher is going, I will apply more effort or relax somewhat. I think this is the main way I am able to lead students to interact with one another and have a successful class.

(Dami)

Because they functioned continuously in real-time, these appraisals allowed the teachers ($n = 26$) who drew on them to slow things down and hone in on their “with-it-ness” (Kounin 1970) signifying an immediate awareness of and attention to the unfolding of classroom events and interactions. These appraisals also elicited emotions that triggered action tendencies and modified actions indirectly (see Table 13.1). These did so by changing the L2 teachers’ intuitive self-estimates of their relative success in an ongoing manner through the subsequent use of course corrections to their classroom presence and instructional interactions with their L2 learners.

For other teachers ($n = 14$), thinking about the self included metacognitions about their abilities and professional potential. This self-relevant thinking concerning the phenomenological aspects of their L2 classroom persona (e.g. who I *am*; who I *can*, *should*, *would* or *would not like to be*) was used by teachers to sort through the ambiguity and complexity associated with being metacognitive while teaching, and this sense of self provided structure and guidelines that allowed the teachers to interpret and build meaning from their L2 classroom experiences and to maintain a coherent picture of self in relation to their professional setting. This is illustrated well by one teacher’s verbal commentary on her observed classes in which she evaluates who she would like to be as an L2 teacher, when compared to how she and others see herself now, against aspects of her classroom practice.

For twelve years I have been teaching all kinds of students and I think I’m naturally good at structuring information and delivering it, like you can see in these classes, because I give students time to think what’s next on their own. Things are calm in my class, but I happened to know from others too that I sometimes make my teaching quite predictable to lower tension on the pacing or momentum of the class. This could be something I use to deal with teaching 30 students in one class, but there’s nothing really exciting. (. . .) What I really wanted to do was make learning [English] exciting, and for that I need to take a risk more. I need to push myself out of the comfort zone. You know, once my class was stabilized and I got confidence in my teaching, I did not take a high risk when it comes to trying different things. I should not be happy with what I am now, and I need to push myself forward. (. . .) I know very well that learning often happens spontaneously, so I want to respond

better to unexpected situations in the classroom. I need my classroom to be like a real situation, not a scripted drama.

(Songhee)

Additionally, the greater the incongruence reported by L2 teachers between their self-guides and their experience of unfolding classroom events, the more prominent their metacognitive response was. Put differently, our data suggests that an insufficient degree of consistency between teachers' self-specific imagery and actual L2 instructional circumstances was associated with more intense analytical reasoning and sense-making, whereas L2 teachers who reported higher levels of congruence were less likely to engage in such metacognitive reasoning and adaptive behavior (see Table 13.1). However, what is also apparent from the dataset is that the self-referential thought engendered by self-guides provided context for the self-appraisals that occurred on more finely grained timescales of seconds and minutes, and had an equal impact on thought and behavior in real time.

Indicators of Language Teacher Metacognition in Action

All 40 of the L2 teachers we observed exhibited characteristics of what might broadly be termed effective practice; that is, individuals were all relatively successful in communicating their lesson objectives, defining tasks while planning, employing instructional tools and engaging students in their L2 classrooms. However, our results indicate that, as a matter of routine, only some of them (i.e. just over half) thought carefully about what they were doing in their L2 classroom practice and the reasons for which they were doing so. From the analysis of our dataset, what signified language teacher metacognition was an additional layer of teacher thought and action which became available for public scrutiny because it had either been verbalized, consciously reported, or was accessible through other means—such as an overt display in professional practice. Individuals who exhibited this were better able to monitor, interpret, evaluate, and explain L2 classroom events. One excerpt in particular exemplifies this view of the indicators of language teacher metacognition associated with a practitioner who is both conscious of what they are doing and mindful of why:

In my experience, successful [language] teachers seem to be those who know that teaching is about trial and error. Personally, I always try different things until I find something that suits my learners and takes effect. I constantly check my teaching habits and philosophy before starting something in the class to find out why I am doing something or why I ask the students to do something. I also try hard as a teacher to take different measures to think about what is going on as I teach and pay attention to any difficulties I face in the process. This is how I can apply knowledge about myself and my teaching and also what I have picked

up about my students to revise my way if I find it necessary. So, this kind of flexibility and openness is the key to success I think. (. . .) In a way, this helps me gain trust and respect from students, but it also makes me aware that any behaviors I do affects students directly. So, I myself should have confidence and belief that my class is meaningful. And to do this, I always double check as class is running if my materials and instructions are worth it for students to devote their time and efforts.

(Jiwon)

Thus, the salient behavioral indices of language teacher metacognition which emerged from our extensive lesson observations included L2 teachers' awareness of the relative success of instruction, attention to various forms of self-specific feedback from others (i.e. students and colleagues), concern for students' understanding and responsiveness to their need for other forms of instructional support, appreciation for the procedural direction of lessons as they unfolded, and recognition of their ongoing role as mediator of students' L2 learning processes in the classroom setting.

Importantly, metacognition appeared to play a functional and instrumental role in L2 teacher thought and action. Because it was manifested as an explicit form of monitoring of self and of the conditions and contexts in which teachers' work unfolded, metacognition afforded teachers an awareness and control over their teaching-specific thought and action. Through simultaneous comparison of our various data sources, it was only L2 teachers who showed evidence of accurately knowing and monitoring what they were doing in their practice ($n = 22$) who possessed the more advanced metacognitive abilities such as evaluating ongoing practices, adapting practices appropriately, and planning future interventions as a consequence of this, a position illustrated in the following data excerpt.

In almost every area of [language] teaching, people are attracted to what they consider the easiest and best way of doing things. And, that includes me too. What I've found is that I need knowledge and experience in order to teach well, but there's something else too that has to do with managing myself as a professional. (. . .) Anyway, the role of experience cannot be ignored, but this kind of checking up on yourself and supervising yourself is one back-up that not many teachers have, even if they have years of experience. It's a way of giving yourself support or disapproval so you know if you are on the right track or if you choose to go on or turn around. (. . .) You know that in most public schools here, the class size, students' expectations and goals are all the same, and the conditions at the institution too. So, unless teachers pay careful attention and monitor themselves, they can fall into this category of looking for the most comfortable way in the classroom for all teaching situations.

(Hyejin)

Our data suggests that, while language teacher metacognition develops parallel to and through the acquisition of teaching expertise, without the ability to effectively monitor, teachers were unlikely to have the capacity to make high quality adaptations during L2 instruction or provide a rationale for adaptations they did execute. Thus more broadly, this aspect of actively monitoring oneself was closely associated with L2 teachers' ability to view teaching as a purposeful but complex and dynamic social activity.

Language Teacher Metacognition as a Situated Adaptivity

The reality in many of the classroom periods we observed was that L2 instruction frequently (i.e. in 90% of observations) produced unpredictable situations which required more than routine procedures on the part of teachers for successful resolution. Teachers' real-time decisions and adaptations were regulated more by contextual conditions or local conditions in the L2 classroom environment. Consequently, how much metacognitive thought and control teachers exerted depended on what the teachers were required to do, how frequently the teachers had to do it, and students' developmental needs and interests in the context of the teachers' L2 instructional goals. The following excerpt exemplifies what was a commonality in much of the dataset: that teaching metacognitively involves a particular adaptation of L2 teacher thought and behavior to the immediate environment, and was reserved for non-routine situations and occurrences.

You see here? Ok, so, the class was going fine until this point, and I spent some time giving this student explanation and examples that other students didn't need. But he still didn't understand, or at least that's what he said. Maybe he just didn't want to cooperate with his group members. So, anyway, I had the choice to ignore him or do something about it—maybe directly or indirectly. Everyone else is busy working, and I had maybe 5 or 10 seconds to think about a solution and a response to his difficulty. Not even that long, really. (. . .) So, 90 or 95% of the time I don't have to think too much and I just go through the steps of teaching as I've planned before the class. But then things like this happen and I am out of a predictable situation, and so I have to think deeply and process what I am going to think or do about it.

(Lina)

Language teacher metacognition, like in the verbal commentary Lina provides above, was not a hard-assembled mechanism that existed off-line in some form of context-independent performance. Instead, our data suggest that language teacher metacognition is only realized within the immediate context of L2 teaching situations, decisions, and tasks—a soft-assembled, temporary occurrence involving only the tools and structures available and necessary for dealing with unanticipated problems and unique situations.

Thus, the situated and dynamic nature of teacher metacognition implies that when L2 teachers are adaptively aware of the particular people and problems encountered in their classroom practice, this ongoing thinking about thinking will lead to better ideas, decisions, actions, and performance.

In addition to being activated in context, language teacher metacognition appears to also be shaped by it. Our data analyses showed that language teacher metacognition was consistently associated with the type of instruction and tasks our participants implemented in their L2 classes. This resulted in levels of metacognitive thought and control in the classroom that teachers deliberately dialed up or dialed down depending on the type of instruction they had chosen. For instance, when L2 teachers implemented personalized classroom tasks or those that encouraged the use of higher order thinking and open-ended responses, they exhibited more awareness and adapted their instruction in more thoughtful ways than when they implemented more closed tasks that involved less meaningful use of language. Here is one example of a teacher's verbal commentary on their use of the former type of activity.

In every class, I try to stop to think about the character of the tasks I prepare and ask students to spend their time on. They are important for students and for me. I confess as a teacher, before I hardly thought while teaching about questions like 'what are my students learning as they do a task?' 'why are they learning that and not something else?' 'how do I know my students have been successful?' I used to love getting students to just answer a lot of questions, listen and complete the blanks, finish all the handouts. I mean, I did make my planning decisions on the specific objectives of my lesson and then organized the activities presented to students. But, I didn't need or want to spend time thinking about what was happening because it's so boring. Then I realized that I didn't know what students were learning, or if different students were developing in different ways from each other. I didn't know myself how to really say their learning was successful. And of course that's the point of teaching. So, if I was unaware of that then I need to prepare better tasks than the ones just in the textbook. And for these things like authentic stories or real-life role plays, it's non-stop thinking and managing while I'm in the class. There is so much thought that I have to put while in the actual class.

(Jihyun)

Our data suggests that teachers who emphasized the types of L2 learning activities likely to promote active engagement and develop learners' self-regulation also unintentionally increased their own use of those salient behavioral indices of metacognition highlighted earlier. Viewed from the other direction, in L2 teaching settings where teachers reported having inadequate instructional support from colleagues, using fewer meditational tools

of instructional materials and technology, receiving less direction or monitoring from superiors and mentors, and teaching largely independently, much more limited teacher metacognition was found in these L2 teachers' classroom work. The consequence of this is that language teacher metacognition appears to be motivated by the affordances of L2 instructional settings, norms, assumptions, and practices. Let us turn now to what we see as the implications of our findings and relate these back to our central research questions.

Discussion

With regards to our first research question, our findings indicate that while all the language teachers who were part of our sample could be characterized as successful teachers who adopted high-leverage practices in their L2 classroom instruction, some ($n = 22$) stood apart from others. These L2 teachers were individuals who had developed the capacity for careful intentional thought about their classroom practices and the underlying rationale for such instructional behavior. Although, initially, we suspected that L2 practitioners who reported being more reflective were also more metacognitive, this conclusion was not supported by our dataset. Instead, our data suggest that language teacher metacognition is more of a superordinate adaptive capacity whereas reflection can be thought of as one potential mechanism by which teachers may develop metacognition by schematizing experiences and by considering and reconsidering beliefs and practices in the context of the evidence these expanding schema provide (Marcos and Tillema 2006). However, there may be instances when reflection that involves self-critical or obsessive thinking is not productive if the L2 teacher becomes lost in thought, pondering mental states, abilities, and choices of actions. This non-purposive manifestation of reflection may result in delayed responding or avoidance of problems. When accompanied by uncertainty, indecision, and confusion about attributions for performance (i.e. relative success or failure), reflection may inhibit action altogether (Paris 2002).

It would be much more accurate to frame language teacher metacognition as the situative adaptation of teacher thought and behavior to the demands of their L2 teaching environment. This adaptivity of thought and action is perhaps what is implied by the more generic definitions of teachers thinking about their own thinking regarding their teaching (Hartman 2001b; Jiang, Ma, and Gao 2016), and our findings emphasize that this capacity to monitor, interpret, evaluate, and intervene on L2 classroom events occurred prior to, during, and subsequent to episodes of teaching these teachers engage in. Interestingly, many teachers appeared to be occupied with general classroom instructional issues and less so with the specificities of being a language teacher (e.g. use of L1 or L2 in teacher talk) that we expected. Language teacher metacognition should be seen, therefore, as instrumental and purposeful in the sense that it involves thought and action related to teachers'

instructional goals, their students' characteristics and needs, the level and sequencing of instructional content, teaching strategies and materials used, as well as issues related to the broader curriculum and assessment, all with a view to maximizing L2 instructional effectiveness. Consequently, although we note that no dimension of our dataset provides evidence of improved student L2 learning, teaching effectiveness can be thought of in association with teacher metacognition (Sherin, Jacobs, and Philipp 2011). Metacognitive L2 teachers are better able to reflect on how their actions will encourage or mediate their students' development as metacognitive learners, through deliberate support in planning, reflective questioning, modeling, scaffolding, and explicit strategy explanation. These L2 teachers also approach their own learning and development metacognitively, which can aid in both the ways they approach their own teaching of content and the ways in which they support L2 learners' metacognitive development. In other words, there may be substance to the claim that metacognitive L2 teachers (i.e. those who teach with metacognition) are those best situated to foster L2 learner metacognition (i.e. to teach for metacognition) (Duffy et al. 2009)—this may also apply to other domains such as self-regulation and autonomy.

An additional aim of this study (i.e. RQ 2) was to shed light on the developmental mechanisms or processes that might shape L2 teachers' capacity for metacognition. Considering the participants in our sample who engaged in metacognition and the factors that stimulated their metacognition, our findings underscore the ways in which language teacher metacognition can develop either when it is self-stimulated, in the case of teachers considering their representation of self to others or examining their own thoughts and actions during classroom events, or stimulated by contextual conditions of uncertainty or unpredictability in the L2 classroom environment and various accompanying constraints (e.g. curricular objectives). In the case of self-referential thinking, L2 teachers' self-appraisals functioned as a real time equilibrium-finding mechanism through deliberate consideration of such things as what students might be thinking about the teacher and their teaching ability, or estimating how successfully the lesson is running and whether expectations for the lesson are being met. Additionally, benchmarking salient and desired self-guides enabled teachers to determine whether a course of action was necessary in the L2 classroom and how any prominent incongruences between teachers' experience of unfolding classroom events and their self-guides could be reduced. Thus, as we have signaled earlier, our data suggests that language teacher metacognition can be thought of as a self-developmental dimension that implicates, before all else, the self-evaluative thoughts of L2 teachers. An additional finding was that, because non-routine episodes and situations required more metacognition on the part of teachers for successful resolution, this uncertainty or unpredictability could be seen as having a positive influence on the development of language teacher metacognition. Instances in which students failed to understand, were unsuccessful in their L2 learning, or became disengaged

in class caused teachers to re-examine their own thinking and make explicit the rationale behind their instructional practices. By pondering what they are doing in class to contribute to this effect and how they might resolve the issue, situations such as these can stimulate the development of metacognition as teachers revise how they are thinking or what they are doing in order to achieve desired outcomes. Thus, considering the conditions under which language teacher metacognition develops is fruitful as it allows us to examine teachers' reasons for being metacognitive and makes it possible to examine the consequences of language teacher metacognition to determine if these thoughts and actions are functional, useful, and adaptive for the individuals (i.e. teachers and learners) and purposes (i.e. L2 teaching and learning) under examination (Paris 2002).

Conclusion

As indicated by the findings of our study, language teacher metacognition may originate in teacher self-referential thought associated with personal values or it may be triggered adaptively by critical monitoring of L2 teaching-specific episodes, but it may also be linked to teachers' broader reflection on external factors such as sociocultural practices of the local teaching and learning community. Some of the limitations of our study also offer connections from our findings to further avenues for research. First, we would encourage future work in this area to adopt a strong orientation towards research designs that make the links between language teacher metacognition, classroom practice, and L2 student development more explicit empirically. This is also perhaps the most effective way to apply research about language teacher metacognition to the broader endeavor of second language teacher education (SLTE). One way this might be accomplished is to demonstrate whether and to what extent language teacher metacognition links to such things as enhanced teacher learning and L2 classroom practice, students' own metacognition, and student achievement. Although our study has a time-series element to it, future work in language teacher metacognition would also benefit greatly from longitudinal case-based designs which elicit intensive dynamic data from multiple timescales that can tap into real-time variations in teacher metacognition (e.g. using an idiodynamic method) and tap into teachers' own representations of their metacognition in the moment (e.g. through think-aloud protocols). Since it is developmental, accurate treatment of any applied implications requires consideration of the conditions and contexts that initiate or encourage the self-organized (i.e. bottom-up and emergent) development of language teacher metacognition, and this can only be done through a greater reliance on dynamic methods of investigation.

Limitations aside, we see the findings on language teacher metacognition brought to light in this study as having the potential to spark new questions for exploration and new implications for SLTE. Let us wrap up this chapter by

considering these practical applications. One powerful way L2 teachers might come to develop greater metacognitive thought and action in their practice is through productive mentoring partnerships (Moir et al. 2009) designed to provide a non-evaluative, support network for teachers to critically reflect on their positioning towards teaching and learning, increase congruence with their possible identities, and soft-assemble the situated adaptivity needed to teach metacognitively. This mentorship could take place within the scope of SLTE programs or be embedded in the teaching locale itself, and would draw less on the social aspect of learning to teach language per se, and more specifically on L2 teachers' learning to gain critical awareness and exercise control over selves, thoughts, and behaviors in their daily practice. Teachers would, in a sense, be "socialized into" metacognitive teaching through monitoring and evaluating their personal goals and visions, and strategic classroom behavior on multiple timescales and for various purposes (see also Veenman 2016). For mentorship relationships to impact the development of language teacher metacognition they must be sensitive to change and context as teachers from both ends of the spectrum (i.e. more metacognitive and less metacognitive teachers) find common ground in their professional knowledge and share common reference points from their experience. Consequently, mentorship that empowers language teachers to exercise more metacognitive control over their practice may be the key to achieving optimal growth and performance as language teaching professionals.

Note

- 1 Institutional review boards are independent ethics committees that review, approve and monitor human subject research.

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