The Cognitive Basis of Foreign and Second Language Teachers' Global Attitudes in Classroom Teaching

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Abstract

Though some research has been done on second and foreign language (SL/FL) teachers' attitudes, little is known about their cognitive basis while this issue is central to formal teacher education. Employing the rationale of the theory of planned behavior, this in-depth small-scale study investigated the implicit theories which form the cognitive basis of global attitudes towards grammar teaching in informal learning situations. A concise overview of relevant studies on SL/FL teacher attitudes and beliefs on (grammar) classroom teaching was introduced to inform the specific research questions. A general patterns of behavior analysis was innovatively conducted to uncover teachers' global attitudes. Two types of global attitude towards grammar teaching (i.e., curriculum matter, task complexity) were found. These were divided into two hypothesized theories, namely the wholesale grammar teaching theory (WGTT) and the fragmented grammar teaching theory (FGTT). The cross-correlation and simple linear regression analyses showed that global attitudes significantly predicted their corresponding theories with the strongest predictor ß = 1.20, t(13) = 16.63, p < .001 and the lowest ß = .92, t(13) = 2.24, p = .04. The WGTT was found to be a uniform entity, whereas the FGTT entailed two distinct sub-categories.

Keywords: SL/FL teacher attitudes, Teacher implicit theories, Grammar teaching, Informal learning

Introduction

A significant amount of research on motivation in teaching and learning second and foreign languages (SL/FL) has focused on why learners choose to study these languages and what SL/FL teachers need to do in class to motivate them to learn more effectively (e.g., Dörnyei, 2003; Dörnyei, Henry, & Muir, 2016; Hadfield & Dörnyei, 2013). Although SL/FL teachers'

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motivation has received some attention (e.g., Dörnyei & Kubanyiova, 2014; Moeller, Theiler, & Wu, 2012), the role of SL/FL teachers' motivation in the instructional process has been largely left out of the equation. Perhaps because of the fragmentation of research paradigms in SL/FL teachers' cognition (e.g., Borg, 2015), questions like what drives teachers' behavior and its intensity in class have drawn significantly less research interest. This state of research, however, is at odds with the premise emphasized in some key studies that teachers' motivation plays an equally important role in the overall effectiveness of instruction (e.g., Ames & Ames, 1984; Hattie, 2003). So, what underpins SL/FL teachers' motivation in their teaching and what makes them expend more effort?

"To be motivated means *to be moved* to do something" (Ryan & Deci, 2000, p. 54). This impetus reflects knowledge and beliefs about the actions and goals in the tasks teachers perform. Teachers' motivation, thus, is not purely emotional but is contingent on the cognition they initially bring to their practice and later transform through their informal learning; that is, the learning which occurs as a byproduct of their teaching activities (Van Merriënboer, Kirschner, Paas, Sloep, & Caniëls, 2009). This cognition is often referred to as implicit theories (Clark & Peterson, 1986). An *implicittheory* is a coherent group of mostly implicit beliefs (i.e., learners are not consciously aware of them and cannot control them) which explain a phenomenon or a number of phenomena in a given domain, such as teaching. These theories possess a hierarchical structure in which some beliefs are more important than others (Rokeach, 1968). B*eliefs*, on the other hand, are "the subjective probability of a relation between the object of the belief and some other object, value, concept, or attribute" (Fishbein & Ajzen, 1975, p. 131), and are expressed roughly in a single sentence or statement (Chi, 2008). Here *subjective probability* refers to the teachers' judgment how probable this relationship is. An example of belief can be the teachers' judgment of how probable it is that certain grammar instructional activities result in students using certain grammar units fluently and accurately in real-life situations. Research on teacher learning shows that these theories and their constituent beliefs play a substantial role in shaping teacher practices as they initiate their informal learning with relatively well-established implicit theories due to their so-called "*apprenticeship of observation*" (Lortie, 1975). Although these theories do not necessarily contain misconceptions (e.g., false beliefs), there is a reasonable chance that novices dealing with complex subject matter, such as teaching, hold such (Chi, 2008).

According to the *theory of planned behavior* (e.g., Ajzen, 2005), there are three types of belief which inform a behavior while interacting with each other to influence one's motivation to perform a behavior. *Subjective norm* is the sum total of all beliefs which form the subjective perception of whether a certain salient group would approve of a behavior (Ajzen, 2012). *Control beliefs* refer to the presence of factors which will hinder or facilitate a given behavior (Ajzen & Giblert Cote, 2008). They provide the basis for teachers' *perceived behavioral control* (PBC). PBC reflects "the person's belief as to how easy or difficult performance of the behavior is likely to be" (Ajzen & Madden, 1986, p. 457). And finally, arguably the most important

category of beliefs is beliefs which provide the basis of SL/FL teachers' attitudes (Ajzen, 2012). The next section discusses this in depth.

Attitudes

An *attitude* is a person's tendency or favorableness towards a psychological object, such as behavior, person/object, or event (e.g., Fishbein & Ajzen, 1975). There are two types of attitude. The first type does not involve a concrete action, situation, or time and is called *global attitudes*. Examples in SL/FL teaching are attitudes towards communicative language teaching (CLT) or grammar teaching. The second type refers to a specific activity, situation, or time and is called *attitudes towards a behavior* (Ajzen & Giblert Cote, 2008). Here an example is the application of gap-fill-verb-tense practice at specified times and situations. Of these two types of attitude, global attitudes (GAs) are of special importance to teacher informal learning since they concern teacher instructional behaviors in a comprehensive way.

Teachers' GAs have a cognitive basis in strong and salient beliefs (e.g., Ajzen, 2012). These beliefs reflect teachers' expectations of how likely or unlikely the desired outcome of their behavior is. Knowing what implicit theories these salient and strong beliefs belong to is essential, since this can help researchers and teacher educators develop ways to influence teachers' behavior more directly. Interestingly, this question has attracted little research attention.

So far, the vast majority of research on SL/FL teacher attitudes has been conducted without clear definitional delineations between attitudes, beliefs, and implicit theories, whereby beliefs have been predominantly used as a term and little research has focused explicitly either on attitudes or implicit theories (Borg, 2006, 2015). Much of this research, concerning mostly English as a second or foreign language (ESL/EFL) teachers' beliefs, has revealed a gap between the extent to which teachers say that they are in favor of particular behaviors (i.e., their explicit attitudes/beliefs) and their actual behaviors. For example, Karavas-Doukas (1996) conducted a survey to investigate Greek English language teachers' attitudes towards CLT approaches in secondary school while also observing how the teachers deployed the approach in their classrooms. The results showed that, although not completely in favor, most teachers self-reported positive predispositions towards integrating the approach into their classroom practices. However, the observations of classroom teaching revealed discrepancies between what the respondents said they favored and their actual classroom behaviors. Also, a study on incidental focus on form techniques in communicative tasks conducted by Basturkmen, Loewen, and Ellis (2004) reached analogous conclusions. Although the study employed the theoretical construct of belief, its exhaustive number of research techniques registered tendencies or favorableness in the teachers' stated beliefs as well as teaching behaviors. Again, the findings pointed to a number of inconsistencies between the results of classroom observations and explicit beliefs about incidental focus on form techniques. Teachers expressed clear attitudes about when and how to apply incidental focus-on-form techniques during communicative teaching. Classroom observations, however, revealed that their teaching behavior did not by and large correspond to what they said. Notably, actual classroom behaviors often did not exhibit any tendencies whereas

the verbal responses stressed the importance of certain behaviors. Other studies have also provided similar evidence about the relationship between verbally declared attitudes and beliefs and their SL/FL teaching practices (e.g., Phipps & Borg, 2009; Sato & Kleinsasser, 1999).

On the other hand, these discrepancies have shown to occur less frequently in more experienced SL/FL teachers (Basturkmen, 2012). According to Basturkmen, teachers' beliefs are expected to differ by experience as "[m]ore experienced teachers are likely to have more experientially informed beliefs than relative novices, and principles and beliefs informed by teaching experiences might be expected to correspond clearly with teaching practices" (p. 288). Farrell and Bennis (2013), for instance, compared the congruence between an advanced beginner's (2.5 years of practice) and an experienced teacher's (19 years) explicit attitudes/beliefs about their practices and their actual practices. They used interviews and classroom observations. Their findings indicated that at points both teachers' practices and stated beliefs converged, but also diverged. However, more convergence was observed in the experienced teachers' explicit beliefs and practices than in the advanced beginner. Also Farrell and Lim (2005) looked at the differences between the grammar teaching beliefs and practices of two experienced ESL/EFL teachers. Although again, divergence was observed, especially in one of the teachers, the majority of stated beliefs about grammar teaching corresponded to what occurred in class. It was reasoned that contextual factors, such as time constraints, might play an important role in why the teachers choose different behaviors in class from what they favored as correct grammar teaching behavior.

Research Questions and Aims

In summary, the majority of studies (a) has not used a clear definitional distinction between beliefs, implicit theories, and attitudes and (b) has been largely focused on the correspondence between explicit SL/FL teachers' attitudes/beliefs and their behaviors towards mainly CLT and grammar teaching documenting a large number of discrepancies between the two (e.g., Karavas-Doukas, 1996; Sato & Kleinsasser, 1999). On the other hand, it is observed that these discrepancies occur far less often in more SL/FL experienced teachers since their beliefs change to being more informed by experience (Basturkmen, 2012). Thus, at this point it is not clear what GAs SL/FL teachers have since the evidence we have originated mostly from ESL/EFL teachers. Also, it is unclear what implicit theories provide the cognitive basis of these GAs, partly due to lack of definitional distinction. And finally, it is unknown if these theories are the same or different in different experience groups of SL/FL teachers. In this line, three questions are posed, also aiming to further the discussion on attitudes towards classroom grammar teaching:

1. What SL/FL teachers' GAs can be identified with regard to classroom grammar teaching activities?
2. What implicit theories can be inferred from these GAs?
3. Does SL/FL teacher experience predict these implicit theories?

Method

Respondents

SL/FL teachers were invited to participate in the research through letters and personal visits to public schools and universities in Bulgaria. To ensure the internal validity of the study, stratified sampling was conducted. First, to control for experience-expertise development relationship, the participants had to have work experience (years of professional service) of school teaching of up to 15 years. The 15-year ceiling was chosen so that all experience groups were evenly distributed and at the same time a large enough number of respondents were selected. Second, all respondents following any forms of formal education related to the subjects involved in the teaching of subject matter of interest at the moment of the research were excluded. In this case, formal education was defined as "age-graded, hierarchically organized, formally constituted system … [with] credentialing programs certifying one's knowledge competencies…" (Livingstone, 1999, p. 50). Third, to select respondents with optimally similar education qualifications, teachers were required to have graduated in the field of linguistics or alternatively in education studies with language specialization at university level. And finally, they were required to teach courses on the general language use (i.e., how to use the language in written and oral form for non-technical purposes).

21 teachers volunteered to take part in the research. Only 15 of them ($Mexp = 6.95$ years, $SDexp = 4.72$ years), teaching more or less common languages (i.e., Japanese, Hindi, English, Russian, Arabic, German, Chinese, and Norwegian) as either a foreign or second language, met the criteria (14 female, 1 male; all non-native speakers of the languages they taught). All participants held Bachelor or Master degree in the corresponding field, which differ by only one academic year in Bulgaria. The respondents were paid an honorarium of € 12.78 per hour for each interview.

Data Collection

The teachers were instructed to choose a class which contains a grammar unit or units that is part of their official syllabus. The classes which the teachers selected contained all grammatical components (i.e., syntactical, morphological, or phonological) and all of them were either introduction of a new grammar unit or practice of grammar unit(s). None of the classes involved CLT (e.g., there was little or no communication in the target language). The teachers were video-recorded while giving the class. These recordings were used in the subsequent interviews which were recorded within a period of 24 hours after the video-recording of the class, and later on transcribed following Van Someren, Barnard, and Sandberg (1994). The interviews themselves were conducted in Bulgarian and combined techniques of stimulated recall (Gass & Mackey, 2000) and explanation (e.g., Chi, Feltovich, & Glaser, 1981). Since it was important not to prompt/point the respondents' attention to specific aspects of the situations, uniform instructions were given to all respondents at the beginning of the interview. They were asked to explain what they were doing and why. In this manner, information of the teachers' grammar-related behaviors was collected but this also provided reliable information on the motivation of those

behaviors. It also ensured that there was no misinterpretation of complex grammar teaching behaviors in several SL/FLs. Additionally, information on the grade of the students was collected through a form which the teachers completed after the interviews. Data about the respondents' professional experience in years along with demographic information were collected via a questionnaire, but also crosschecked with the respondents in person.

Data Analysis

The transcribed protocols were first segmented. Each segment corresponded to a *schema* (i.e., "a data structure for representing our knowledge of concepts: those underlying objects, situations, events, sequences of events, actions and sequences of actions"; Rumelhart, 1980, p. 34). This was operationalized in such a way that each schema comprised of at least one action which was supported by an argument and an implicit or explicit goal. Thus, each protocol entailed multiple actions, situations, or time. To measure the complex and often implicit nature of the teachers' GAs towards grammar teaching, *general patterns of behavior* (GPB) were singled out. GPB are multiple-act indices which offset variations occurring in specific actions, situations, or time and tough to a lesser degree, also reflect subjective norm and PBC (Ajzen, 2005). GPB were discerned through behavioral aggregation first across all respondents and then in individual respondents. Aggregation was conducted through counting the times when the teachers consistently chose for certain categories of behavior in different schemata (e.g., Ajzen, 2005). As a result, two types of psychological objects were singled out based on these GPB (Ajzen & Gilbert Cote, 2008), namely curriculum matter and level of the complexity of tasks which students were given. For the purposes of the study, curriculum matter was defined as teachers' implicit theory of what knowledge students were entitled to (cf., Young, 2013). Despite the fact that student learning was isolated as an additional category of behavior, no GPB across respondents could be identified there. Further, each type of psychological object entailed two opposing GAs based on these GBP. The first GA which was identified within the curriculum object was that the teachers believed that grammar should be taught in wider grammatical, lexical, and socio-cultural context. This GA was reflected in comparative grammar references, the relationship of the grammar unit with other grammatical and lexical units in examples, varying meanings in different socio-cultural contexts, and in some cases metalinguistic analyses. An example schema which entails an activity within this GA is:

We must've spoken about kara and node [conjunctions of causality in Japanese] *with this group I'm just reminding them about it since*
Generally since the difference between the two which appears in ordinary everyday situations or in such simplified contexts which we find in the textbooks [is] *ok*
But in a social situation this can be problematic
If they are unable to tell the difference and that's why I'm putting this emphasis [differentiating the two grammar units in their use in real-life context]

Due to its higher elemental interactivity and adherence to the practical application of the grammar unit, this GA was dubbed *wholesale grammar teaching attitude*. The second GA within

this object related to beliefs that grammar should be taught without any further reference to wider grammar, lexical, and socio-cultural context. Here GPB entailed activities of teaching grammar unit in isolation from other grammar, lexical, and socio-cultural elements which connected it with its practical application. The following schema taken from a protocol illustrates an activity corresponding to this GA.

In general when I'm trying to explain something related to grammar I always try to systematize it either through a table or a formula And here I realize that last time I wrote down a formula which was with a minus sign and an equals sign and I gave examples to illustrate what the aorist masculine singular form looks likeBut in this case I'm avoiding doing it because I believe they have it written somewhere

In this case, many teachers followed the information and exercises on the grammar unit provided in the curriculum materials (e.g., textbooks) which they were using very strictly. Thus, this GA was termed *"follow-the-book" grammar teaching attitude*.

The second psychological object concerned the level of task complexity which the teachers gave their students. Two GAs were again isolated. While some of the teachers believed that they needed to give their students more complex tasks, the others believed that overfacilitated and simplified tasks were more appropriate. Specifically, the heightened task complexity attitude manifested itself in tasks which contained metalinguistic analysis or students working with multiple grammar and lexical units without any prompts, or students working with multiple extra curriculum materials. This GA was called *high task complexity attitude*.

Example:

This is also important since there's no such thing as a perfect textbook which gives the most perfect explanation as there's no such teacher

In general it's umm

This is again social and contextual and so onEnhancement of the textbook

Because we're working ... with this group with one, two, three textbooks plus additional texts for translation we've simply made the curriculum diverse and extremely contextually oriented

Beliefs in overfacilitated or simplified activities assigned to students were reflected in prompting answers to students, allowing students to skip practice and give unelaborated answers, giving students assignments which require application of superficial rules (e.g., 'Unlike 'although', 'nevertheless' is positioned at the beginning of the sentence').

Example:

When I indicate the punctuation [during dictation] *to help them avoid writing the terms as words* [part of the text being dictated]

I dictate the terms in Arabic and Bulgarian respectively

Nuqta is a dot and I tell them a dot [in Bulgarian]

While trying to use the correct intonation to make sure they understand a dot is required

In this case, the GA was termed *low complexity task attitude*.

The overall coding scheme is presented in the Appendix. Next, it was determined that the teachers favored behaviors which agreed with a certain complexity required for their execution.

This directly corresponded to how close the teachers presented the grammar unit or units to their practical application. *Complexity* was defined as the number of elements and interactivity of those elements in the behavior (Van Merriënboer & Sweller, 2005). Consequently, positive GAs towards more complex activities were compiled in a hypothesized theory called wholesale grammar teaching theory (WGTT) and positive GAs towards less complex activities in a hypothesized theory called fragmented grammar teaching theory (i.e., FGTT; with fewer elements and low interactivity between those elements). Simple linear regression analysis was carried out to test the extent to which each separate GA predicted the corresponding theory. In this manner all GAs related to a given theory were tested separately against the total score of GAs related to this particular theory. Analogous to a Likert scale, a 50% threshold was established to identify which teachers belonged to which GTT. To explore the third research question, simple linear regression was also performed for the relationship between duration of informal learning (i.e., years of professional teaching experience) and the two theories.

Segments which contained schemata with no action were not included in the analysis. Confused, or in other words difficult to follow, and inconsistent segments, such as at some point characterizing an exercise as exciting and boosting students' self-confidence and later on as run-of-the-mill mundane practice, were also excluded from the analysis since they could not be categorized as a specific category with the needed certainty.

The segmenting of the protocols, behavioral aggregation, and the development of the codes concerning GPB across respondents was performed by the field researcher on three separate occasions over a period of two years. Then verification of individual activities within GPB was carried out by two coders. The first coder was again the field researcher and the second was hired to perform second coding. The second coder was a linguist and educational specialist working at university level. This coder had no information about who the respondents were, their professional teaching experience, or their exact educational background. The inter-coder reliability was first calculated by counting the greatest number of coded schemata, as defined in the codes, by any rater, and second by counting as disagreement those schemata coded in a different way by the other coder (Mackey, Polio, & McDonough, 2004). The reliability was 94.7%. The differences, which were in 5.3% of the coded schemata, were resolved in a discussion on the extent to which the cases where the disagreement occurred corresponded to the code definitions and the grade/level of the students.

Results
Research Question 1
In total, 31.36% of the schema segments were related to grammar teaching identified through the GPB. Due to confusion or inconsistency, 16% of all schemata could not be attributed to either type of GPB with the necessary certainty. Another 52.47% of the segments could not be categorized as psychological objects with GBP across respondents or did not entail actions.
The teachers favored the wholesale grammar teaching attitude 2.73 times on average (see Table 1). In contrast, the frequency of "follow-the-book" grammar teaching attitude was much higher

(i.e., $M = 4.33$). Regarding task complexity of activities assigned to students, the teachers chose low complexity tasks twice as often as high complexity tasks (i.e., $M = 1.67$ versus $M = .80$). It should be noted, however, that the variance in all variables was significant, frequently exceeding the mean scores (see Table 1).

Table 1

Means and Standard Deviations of SL/FL Teachers' Attitudes and Teaching Experience

Attitude	M	SD
Wholesale grammar teaching	2.73	3.43
'Follow-the-book' grammar teaching	4.33	5.31
High complexity tasks	.80	1.15
Low complexity tasks	1.67	3.56
Teaching experience	6.95	4.72

Note. $n = 15$.

Research Question 2

To test how GAs were associated in the hypothesized implicit theories, first cross-correlation analysis was conducted. As shown in Table 2, only the wholesale grammar teaching and high complexity task attitude were significantly correlated ($r(13) = .61$, $p < .02$). No other significant relationships were identified.

Table 2

Cross-Correlations between Wholesale Grammar Teaching, High Complexity Task, 'Follow-the-book' Grammar Teaching, and Low Task Complexity Attitudes

	1	*2*	*3*	*4*
Wholesale grammar teaching attitude	1			
High complexity task attitude	.61*	1		
'Follow-the-book' grammar teaching attitude	-.26	-.34	1	
Low complexity task attitude	-.23	-.16	-.05	1

Note. $n = 15$.

* $p < .05$, one-tailed test.

Further, as seen in Table 3, the simple linear regression analysis showed that the wholesale grammar teaching attitude was a significant predictor of the WGTT ($ß = 1.20$, $t(13) = 16.63$, $p < .001$). It also explained a significant proportion of the variance in this theory, $R^2 = .96$, $F(1,13) = 276.69$. Although the analysis yielded lower values, the effect of teachers' favorableness to using higher level task complexity on the WGTT was also significant. The high complexity task attitude explained 59% of the variance in the WGTT and significantly predicted it (i.e., $ß = 2.86$, $t(13) = 4.31$, $p < .001$).

Table 3

Simple Linear Regression of WGTT on Wholesale Grammar Teaching and High Complexity Task Attitudes

Variable	β	t	F	R^2	R^2 Adj.	Sig. (p)
Wholesale grammar teaching attitude	1.20	16.63	276.69	.96	.96	.001**
High complexity task attitude	2.86	4.31	18.55	.59	.56	.001**

Note. $n = 15$.

** $p< .001$, one-tailed test.

As shown in Table 3, the regression analysis indicated that positive GAs towards "follow-the-book" grammar teaching activities significantly predicted the FGTT ($\beta = .97$, $t(13) = 5.21$, $p < .001$). It also explained a substantial proportion of the variance in the theory ($R^2 = .68$, $F(1,13) = 27.13$). Favorableness to lower level complexity tasks proved to be a less strong predictor of this theory (i.e., $\beta = .92$, $t(13) = 2.24$, $p = .04$), but still significantly explained 28% of its variance.

Table 4

Simple Linear Regression of FGTT on 'Follow-the-book' Grammar Teaching and Low Complexity Task Attitudes

Variable	β	t	F	R^2	R^2 Adj.	Sig. (p)
'Follow-the-book' grammar teaching attitude	.97	5.21	27.13	.68	.65	.001**
Low complexity task attitude	.92	2.24	5.00	.28	.22	.04*

Note. $n = 15$.

* $p< .05$, ** $p< .001$, one-tailed test.

Next the teachers were allocated to each theory according to the 50% criterion. The vast majority of the teachers in the sample were allocated to FGTT (i.e., 10 teachers). These teachers adhered 87.16% on average to this theory, whereas the highest percentage was 100% and the lowest was 60%. Thus the variation was significant. The other five teachers were found to belong to WGTT. Here the percentage of adherence was higher (i.e., 95.83%) and the range was narrower. The highest percentage was 100, but the lowest 88.24.

Research Question 3

The two theories were also regressed on the teachers' experience ($M = 6.95$, $SD = 4.72$). The analysis revealed that teaching experience was not a significant predictor of the teachers' adherence to either WGTT or FGTT (i.e., $\beta = .19$, $t(13) = .86$, $p = $ n. s. and $\beta = -.07$, $t(13) = -. 18$, $p = $ n. s. respectively).

Discussion

This study looked into the questions of what GAs towards grammar SL/FL teachers had and what implicit theories underpin these GAs, as measured by their GPB. The effect of the duration of informal learning on these implicit theories was also investigated. In total four SL/FL GAs

towards grammar were found, namely wholesale grammar teaching and 'follow-the-book' attitude, and high and low complexity task attitude. The statistical analysis showed that all GAs significantly predicted the hypothesized teacher implicit theories. However, while the wholesale grammar teaching attitude significantly correlated with the high complexity task attitude, forming the WGTT, the "follow-the-book" grammar teaching and low complexity task attitudes did not, thus revealing the lack of uniformity in the FGTT.

The 50% threshold indicated that the majority of the teachers adhered mostly to the FGTT and far fewer to WGTT. Regarding the relationship between the duration of SL/FL teachers' informal learning and these theories, the analysis showed that the teacher professional experience did not play a significant part in either theory.

The results demonstrate that SL/FL teachers' GAs and their corresponding implicit theories present the focal point through which teachers interpret the curriculum materials and construct their own version of curriculum. For teachers with wholesale grammar teaching attitude, students' ability to apply grammar in real life is far more important than the mere execution of curriculum-prescribed exercises and tasks. Specifically, this attitude reflects the connections between the grammar unit at hand and its lexical, grammatical, and socio-cultural context of use. Thus, teachers espousing this attitude prioritize teaching activities which aim to foster real-life skills in students. In contrast, 'follow-the-book' grammar teachers prioritize an approach of imparting separate units of grammar knowledge, mostly following the prescriptions of curriculum materials with very little or no grammatical, lexical, or socio-cultural context. This means that wholesale grammar teachers and "follow-the-book" teachers differ in the hierarchical structure of their implicit theories and this reflects the different nature of their global goals and principles. What precise goals "follow-the-book" grammar attitude teachers have is unclear from the data and this question should be further investigated. However, it is highly likely that their goals are predominantly informed by subjective norm, such as beliefs about assessment and institutional prescriptions, parent and student expectations (see, for example, Nishino, 2012). In other words, by performing the behavior of strictly following curriculum material prescriptions, these teachers believe that they achieve the goal of meeting the expectations of important others. These conclusions are also further underscored by the fact that unlike the wholesale grammar teaching attitude which formed a uniform entity together with the high complexity task attitude, the 'follow-the-book' grammar attitude did not have such a relationship with the low complexity task attitude where low control beliefs of student capacity to learn were observed.

The finding that the wholesale grammar teaching attitude significantly correlated with the high complexity task attitude, shaping WGTT, suggests that the level of complexity of the tasks which the wholesale-grammar teachers assigned their students mirrored the complexity of the instructional tasks they were performing. This group of teachers performed more complex tasks and also expected their students to carry out tasks of higher, close to real-life complexity despite the fact that they did not employ CLT in their classes. This testifies to the more consistent nature of this theory. In contrast, the lack of significant correlation between the "follow-the-book" grammar teaching and low-complexity-task attitude means that the teachers who adhered to the

"follow-the-book" grammar teaching attitude did not also necessarily favor assigning simplified/overfacilitated activities to their students. On the other hand, the fact that the low complexity task attitude positively predicted the FGTT suggests that the teachers who adhered to this GA were also very likely to hold the "follow-the-book" grammar teaching attitude. This can be explained by the inconsistent nature of these teachers' grammar implicit theory. Namely, following the curriculum which suggests activities of different complexity levels (i.e., curriculum materials provide tasks of various complexity levels) and favoring simplified/overfacilitated student activities at the same time indicate inconsistent or misconceived assumptions about the relationship between curriculum materials and student learning. However, due to the aims of the study, it is hard to say based on the data here what precise misconceptions are embedded in these teachers' implicit theory.

Next, provided that the teachers' GAs were measured through GPB, the fact that complexity was the division line between the two implicit theories underpinning these attitudes seems a logical result of the effect of PBC on the teachers' activity choices. Namely, the teachers consistently chose teaching activities with different levels of complexity, and therefore they chose how much effort they invested in those activities (e.g., Pollock, Chandler, & Sweller, 2002). Given effort is an indicator of PBC (Ajzen, 2002), it can be concluded that teachers adhering to WGTT have a higher level of PBC compared to FGTT teachers. More specifically, due to the large number of elements which their grammar teaching attitudes require, the WGTT teachers' expended much more effort in comparison to their FGTT counterparts. FGTT teachers' attitudes included grammar activities which lacked in linguistic and social-cultural context, and thus entailed fewer elements and less interactivity between these elements. Although the present study cannot speak of the specifics of teachers' PBC beliefs, it is safe to conclude that WGTT teachers may believe that the resources and opportunities they have, such as knowledge of tasks they perform and students' willingness and abilities to learn, are sufficient for achieving their instructional goals. In contrast, FGTT teachers may be less inclined to believe that the resources and opportunities they avail themselves of are adequate. Although a further investigation is needed to detail the specifics, support for this premise can be found in Guskey (1988) where teachers who favored application of complex instructional innovation were also found to have positive beliefs about their knowledge to perform the tasks and also students' ability to achieve high results. Here future research also needs to shed more light on what the relationship between teachers' actual knowledge of grammar application and their implicitly held grammar teaching theories is.

Though somewhat surprising, since one would expect teacher-held theories not just to become more congruent with behavior but also differ per experience group (Basturkmen, 2012), the finding that experience is a poor predictor of the teachers' implicit theories has two plausible explanations. First, the present study focused only on investigating implicit theories with regard to SL/FL teachers' GAs towards grammar as measured through GBP, whereas most studies have measured only explicit beliefs/attitudes towards grammar of which teachers are aware and can control. The results, thus, show that implicit theories might be more difficult to change with

informal learning than explicit attitudes/beliefs. Teachers' implicit theories about language teaching and learning, as in many other knowledge domains, start evolving long before the beginning of their teaching careers when teachers experience the language as learners. Such long-held theories are by definition hard to change (Nisbett & Ross, 1980). Second, the studies which have observed convergence between stated beliefs/attitudes and practices may have documented knowledge, not beliefs. Implicit theories often entail misconceptions such as equating teaching with learning (Patrick & Pintrich, 2001). This can lead to a mismatch between explicit beliefs and behavior whereas evidence suggests that knowledge dominated teacher cognition is less prone to such mismatches (e.g., Parr & Limbrick, 2010). This also means that stricter definitional delineation between knowledge and beliefs needs to be used in future research.

In conclusion, although due to the small sample size these results cannot be generalized to a larger population, it can be contended that the implications of the SL/FL teachers' implicit theories on their informal learning might be far more important than previously thought since the findings show that implicit theories do not differ significantly in groups of teachers with different amounts of experience. Moreover, through defining concrete task priorities differently, teachers inevitably learn about student learning differently. For instance, WGTT teachers may predominantly learn how students apply subject matter knowledge in tasks with high, close to real-life complexity, whereas FGTT teachers may predominantly learn how students perform curriculum-based exercises such as gap-fill exercises. This makes discussions on what language knowledge teachers believe that their students are entitled to and the choice of student assignments imperative for teachers' preparation programs. More specifically, programs should focus on (a) how real-life subject matter is interpreted by curriculum materials and therefore what the differences between the two are, and (b) what goals different curriculum paradigms have as well as how these reflect student learning characteristics. In this line, comparisons and contrasts between various curriculum paradigms need to be included in teacher preparation programs. This will help student teachers understand relations and features of these paradigms which they would not normally notice when they work with individual ones (Gadgil, Nokes-Malach, & Chi, 2012). The results here suggest that programs which do not involve in-depth content on these relationships and features are unlikely to address misconceptions in teachers' implicit theories as well as influence their attitude orientation so that teachers develop an accurate understanding of their roles in the instructional process.

References

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology. 32*, 665–683. doi: 10.1111/j.1559-1816.2002.tb00236.x.

Ajzen, I. (2005). *Attitudes, personality, and behavior*. Milton-Keynes, England: Open University Press / McGraw-Hill.

Ajzen, I. (2012). The theory of planned behavior. In P. A. M. Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 438–459). London, UK: Sage.

Ajzen, I., & Gilbert Cote, N. (2008). Attitudes and prediction of behavior. In W. D. Crano, & R. Prislin (Eds.). *Attitudes and attitude change* (pp. 289–311). New York, NY: Psychology Press.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*, 453–474. doi: 10.1016/0022-1031(86)90045-4.

Ames, C., & Ames, R. (1984). Systems of student and teacher motivation: Toward a qualitative definition. *Journal of Educational Psychology, 76*, 535–556. doi: 10.1037/0022-0663.76.4.535.

Basturkmen, H. (2012). Review of research into the correspondence between language teachers' stated beliefs and practices. *System, 40*, 282–295. doi: 10.1016/j.system.2012.05.001.

Basturkmen, H., Loewen, S., & Ellis, R. (2004). Teachers' stated beliefs about incidental focus on form and their classroom practice. *Applied Linguistics, 25*, 243–272. doi: 10.1093/applin/25.2.243.

Borg, S. (2006). Language teacher cognition. In A. Burns & J. C. Richards (Eds.), *Second language teacher education* (pp. 163–171). New York, NY: Cambridge.

Borg, S. (2015). *Teacher cognition and language education: Research and practice*. London, UK: Bloomsbury Academic.

Chi, M. T. H. (2008). Three types of conceptual change: Belief revision, mental model transformation, and categorical shift. In S. Vosniadou (Ed.), *Handbook of research on conceptual change* (pp. 61–82). Hillsdale, NJ: Erlbaum.

Chi, M. T. H., Feltovich, P., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. *Cognitive Science, 5*, 121–152. doi: 10.1207/s15516709cog0502_2.

Clark, C., & Peterson, P. (1986). Teachers' thought processes. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (pp. 255–296). New York, NY: Macmillan.

Dörnyei, Z. (2003). Attitudes, orientations, and motivations in language learning: Advances in theory, research, and applications. In Z. Dörnyei (Ed.), *Attitudes, orientations and motivations in language learning* (pp. 3–32). Oxford, UK: Blackwell.

Dörnyei, Z., & Kubanyiova, M. (2014). *Motivating learners, motivating teachers: Building vision in the language classroom*. Cambridge, UK: Cambridge University Press.

Dörnyei, Z., Henry, A., & Muir, C. (2016). *Motivational currents in language learning: Frameworks for focused interventions*. New York, NY: Routledge.

Farrell, T. S. C., & Bennis, K. (2013). Reflecting on EFL teacher beliefs and classroom practices: A case study. *RELC Journal, 44*, 163–176. doi: 10.1177/0033688213488463.

Farrell, T. S. C., & Lim, P. C. P. (2005). Conceptions of grammar teaching: A case study of teachers' beliefs and classroom practices. *TESL-EJ, 9*, 1–13. Retrieved from http://www.tesl-ej.org/wordpress/issues/volume9/ej34/ej34a9/.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Gadgil, S., Nokes-Malach, T. J., & Chi, M. T. H. (2012). Effectiveness of holistic mental model confrontation in driving conceptual change. *Learning and Instruction, 22*, 47–61. doi: 10.1016/j.learninstruc.2011.06.002.

Gass, S. M., & Mackey, A. (2000). *Stimulated recall methodology in second language research*. Mahwah, NJ: Erlbaum.

Guskey, T. (1988). Teacher efficacy, self-concept and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education, 4,* 63–69. doi: 10.1016/0742-051X(88)90025-X.

Hadfield, J., & Dörnyei, Z. (2013). *Motivating learning*. Harlow, UK: Longman.

Hattie, J. A. C. (2003, October). *Teachers make a difference: What is the research evidence?* Keynote presentation at the Building Teacher Quality: The ACER Annual Conference, Melbourne, Australia. Retrieved from http://research.acer.edu.au/cgi/viewcontent.cgi?article=1003&context=research_conference_2003.

Karavas-Doukas, E. (1996). Using attitude scales to investigate teachers' attitudes to communicative approach. *English Language Teaching Journal, 50*, 187–198. doi: 10.1093/elt/50.3.187.

Livingstone, D. W. (1999). Exploring the iceberg of adult learning: Findings of the first Canadian survey of informal learning practices. *The Canadian Journal for the Study of Adult Education, 13*, 49–72. Retrieved from https://cjsae.library.dal.ca/index.php/cjsae/article/view/2000.

Lortie, D. (1975). *Schoolteacher: A sociological study*. Chicago, IL: University of Chicago Press.

Mackey, A., Polio, C., & McDonough, K. (2004). The relationship between experience, education and teachers' use of incidental focus-on-form techniques. *Language Teaching Research, 8*, 301–327. doi: 10.1191/1362168804lr147oa.

Moeller, A. J., Theiler, J. M., & Wu, C. (2012). Goal setting and student achievement: A longitudinal study. *Modern Language Journal, 96*, 153–169. doi: 10.1111/j.1540-4781.2011.01231.x.

Nisbett, R. E., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgement*. Englewood Cliffs, NJ: Prentice-Hall.

Nishino, T. (2012). Modeling teacher beliefs and practices in context: A multimethod approach. *Modern Language Journal, 96*, 380–389. doi: 10.1111/j.1540-4781.2012.01364.x.

Parr, J. M., & Limbrick, L. (2010). Contextualizing practice: Hallmarks of effective teachers of writing. *Teaching and Teacher Education, 26*, 583–590. doi: 10.1016/j.tate.2009.09.004.

Patrick, H., & Pintrich, P. R. (2001). Conceptual change in teachers' intuitive conceptions of learning, motivation, and instruction: The role of motivational and epistemological beliefs. In B. Torff, & R. J. Sternberg (Eds.), *Understanding and teaching the intuitive mind: Student and teacher learning* (pp. 117–143). Mahwah, NJ: Erlbaum.

Phipps, S., & Borg, S. (2009). Exploring tensions between teachers' grammar teaching beliefs and practices. *System, 37*, 380–390. doi: 10.1016/j.system.2009.03.002.

Pollock, E., Chandler, P., & Sweller, J. (2002). Assimilating complex information. *Learning and Instruction, 12*, 61–86. doi: 10.1016/S0959-4752(01)00016-0.

Rokeach, M. (1969). *Beliefs, attitudes, and values: A theory of organization and change*. San Francisco, CA: Jossey-Bass.

Rumelhart, D. E. (1980). Schemata: The building blocks of cognition. In R. J. Spiro, et al. (Eds.), *Theoretical issues in reading comprehension* (pp. 33–58). Hillsdale, NJ: Erlbaum.

Ryan, R. M, & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67. doi: 10.1006/ceps.1999.1020.

Sato, K., & Kleinsasser, R. C. (1999). Communicative Language Teaching: Practical understanding. *Modern Language Journal, 83*, 494–517. doi: 10.1111/0026-7902.00037.

Van Merriënboer, J. J. G., & Sweller, J. (2005). Cognitive load theory and complex learning: Recent developments and future directions. *Educational Psychology Review, 17*, 147–177. doi: 10.1007/s10648-005-3951-0.

Van Merriënboer, J. J. G., Kirschner, P. A., Paas, F., Sloep, P. B., & Caniëls, M. C. J. (2009). Towards an integrated approach for research on lifelong learning. *Educational Technology Magazine, 49*, 3-15. Retrieved from https://www.jstor.org/stable/i40186190.

Van Someren, M. W., Barnard, Y. F., & Sandberg, J. A. C. (1994). *The think-aloud method: A practical guide to modelling cognitive processes*. San Diego, CA: Academic Press.

Young, M. (2013). Overcoming the crisis in curriculum theory: A knowledge-based approach. *Journal of Curriculum Studies, 45*, 101–118. doi: 10.1080/00220272.2013.764505.

Appendix
Type 1 activities
Teachers:

1.1 Relate the lesson subject matter (i.e., grammar unit) to other language and non-language context

1.2 Use complex tasks (i.e., assign extra-curriculum activities; require students to use words, expressions, and grammar rules/procedures from memory; use metalinguistic analysis in case of errors; and work with multiple curriculum materials). Motivation such as giving extra work such as punishment for misbehavior must not be considered valid in this case.

Type 2 activities
Teachers:

2.1 Mention subject-matter matter regarding the class at the moment of task execution with little or no reference to other (language and non-language) context

2.2 Simplify subject matter and overfacilitate tasks (i.e., assign activities from a single set of curriculum materials; prompt answers; require application of superficial rules; and allow students to skip practice).