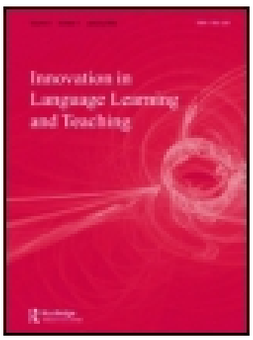

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Mindsets as sources of L2 speaking anxiety and self-confidence: the case of international teaching assistants in the U.S.

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ABSTRACT

Second language (L2) researchers have often studied how L2 speaking anxiety and self-confidence influence various aspects of the language learning process whereas the sources of these emotions have remained under-explored. Drawing on Dweck's (1999) theory of motivation, the present study examined L2 learners' mindsets (beliefs about the malleability of their language learning intelligence) as potential sources of L2 speaking anxiety and L2 self-confidence. Questionnaire data was collected from 92 international teaching assistants who use English as a second language in their teaching practice at a U.S. university. Multiple regression results showed that whereas the Fixed L2 Mindset (the belief that language learning ability cannot change) positively predicted L2 Speaking Anxiety, the Growth L2 Mindset (the belief that language learning ability can grow) positively predicted L2 Speaking Self-Confidence, confirming the hypothesized relationships between the conceptual principles of the mindsets theory and the nature of L2 anxiety and self-confidence. Theoretical and educational implications and future research directions are discussed.

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Language Mindsets; L2 Speaking Anxiety; L2 Speaking Self-Confidence; International Teaching Assistants

The notion of second language (L2) anxiety has been gaining increasing attention in the field of second language acquisition (SLA) over the past several decades (see Daubney, Dewaele, and Gkonou 2017). Scholars have investigated various aspects of the phenomenon and have found evidence for the negative effects of anxiety on L2 oral performance (e.g., Ahmetović, Bećirović, and Dubravac 2020; Hewitt and Stephenson 2012; Phillips 1992; Şimşek and Dörnyei 2017; Tóth 2017; Woodrow 2006), motivation (e.g., Papi 2010; Papi and Teimouri 2014; Teimouri 2017), willingness to communicate (e.g., Hashimoto 2002; Khajavy, MacIntyre, and Barabadi 2018), interaction (e.g., Gregersen and Horwitz 2002; Tóth 2017), persistence (Bailey, Onwuegbuzie, and Daley 2003), and achievement (Al-Khotaba et al. 2019; Bailey, Onwuegbuzie, and Daley 2003; Gardner and MacIntyre 1993; Horwitz 2017; Horwitz, Horwitz, and Cope 1986; MacIntyre 2017). Whereas there is almost consensus among researchers about the negative effects of L2 anxiety (for a meta-analysis see Teimouri, Goetze, and Plonsky 2019), the mechanisms underlying this emotional reaction and minimizing its impact cannot be fully understood if the sources of L2 anxiety are not closely examined. Even though a few studies (e.g., Akkakoson 2016; Papi 2010; Papi and Teimouri 2014; Sadighi and Dastpak 2017; Teimouri 2017) have highlighted the immediate cognitions (e.g., negative consequences of failure and making mistakes, negative evaluation, and embarrassment) that contribute to L2 anxiety, dispositional factors such as learner belief and motive systems that might underlie and generate the anxiety-producing cognitions have remained underexplored. To bridge this gap, this study draws on Dweck's theory of motivation from the field of social and educational psychology

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to explore language mindsets as the potential sources that can prevent or promote the feeling of anxiety while speaking in a second language.

Lack of anxiety has been considered to indicate learners' L2 self-confidence (Clément 1986), which itself can be defined as the sense of confidence in one's ability for the effective use the second language. Clément and Kruidenier (1985) were among the first researchers who introduced and investigated the construct of L2 self-confidence in the field of language learning and found it to be closely associated with language use anxiety and the perception of L2 proficiency. This construct has not been widely examined in many L2 studies. In their model of Willingness to Communicate (WTC) in a second language, MacIntyre et al. (1998) made a distinction between situational (state) communicative self-confidence and L2 self-confidence, which falls into the category of motivational propensities and could have lasting influences in the process. According to MacIntyre et al. (1998), L2 confidence has a cognitive and an affective component. The cognitive aspect of L2 confidence relates to 'self-evaluation of L2 skills, a judgment made by the speaker about the degree of mastery achieved in the L2' (551). The latter aspect is related to language anxiety, particularly feeling uncomfortable in using L2. The individuals who feel self-confident in using the L2 are, therefore, 'operationally defined in terms of low anxious affect and high self-perceptions of L2 competence' (Clément, Dörnyei, and Noels 1994, 422). Not unlike L2 anxiety, the sources of L2 self-confidence also have not been deeply examined and studies have been limited to exploring the role of classroom situations (Horwitz, Horwitz, and Cope 1986; Horwitz and Young 1991; MacIntyre and Gardner 1991). However, if, according to MacIntyre et al. (1998), L2 self-confidence is a motivational disposition than state, exploring the belief and motive systems underlying L2 self-confidence could further our understanding of this construct as well as its negatively associated emotion, L2 speaking anxiety.

According to Dweck (1999), individuals are socialized into and internalize beliefs about the malleability of their abilities. These beliefs create a semantic system through which the individuals view themselves, their potentials and experiences of success or failure. Dweck (1999) proposes that individuals who have a growth mindset believe that they can foster their intelligence by practice and effort and see challenges and failures as opportunities for learning. These learners typically set adaptive learning goals and are concerned with the development of their abilities (e.g., Lou and Noels 2016; Mercer and Ryan 2010; Papi, Rios et al. 2019). Individuals who endorse a fixed mindset, on the other hand, believe that their abilities cannot change regardless of their efforts or experiences, and see performance situations as opportunities to validate their abilities or threats to be avoided in order not to look incompetent to others (e.g., Lou and Noels 2016; Mercer and Ryan 2010; Papi, Rios et al. 2019). Such learners set performance goals and are highly concerned about how they might be perceived by others. That is, they might have high fear of negative evaluation, which is one of the main, if not the main, source of language anxiety and low self-confidence. The present study is based on the assumption that learners with a fixed language mindset are more prone to having such concerns about external judgment and evaluation are more likely to be anxious and less confident L2 speakers. Those with a growth language mindset, on the other hand, are speculated to be less worried about validating their abilities, which along with their focus on learning from failures could make them least concerned about external evaluation and resulting anxiety, and feel more confident that they would reach their learning goals regardless of the outcome of the pursuit.

This study aimed to understand an under-studied population, International Teaching Assistants (ITAs). ITAs are individuals who are enrolled in graduate programs such as education, engineering, mathematics, meteorology, and physics across the United States of America (USA). Many universities usually support ITAs through graduate teaching assistantship or graduate research assistantship, during their studies. Graduate teaching assistants (TA) are usually asked to teach undergraduate courses in their fields, hold office hours, assist students in the labs, grade assignments, and help design courses (Aslan 2016; Gorsuch 2016).

Previous studies have revealed that ITAs are experiencing several challenges such as struggles with negotiating with students (Williams 2011), feeling insecure about their English skills (e.g.,

Hebbani and Hendrix 2014; Kasztalska 2019), experiencing failure in communication with their students (e.g., Alberts 2008; Aslan 2016; Kim 2009), experiencing communication anxiety (Roach and Olaniran 2001), and facing linguistic, pedagogical and cultural challenges in academic interactions (Adebayo and Allen 2020; Zhou 2014). These challenges that ITAs are facing have encouraged scholars to look for ways to develop this unique group and help them to overcome their challenges. For this purpose, there are studies displaying training or mentoring programs which helped ITAs to develop professionally (Arshavskaya 2018; Williams and Case 2015) and to become sociable and meet their needs for a smooth transition (Jia and Bergerson 2008).

Although the previous studies have focused on the anxiety of students while learning English as a foreign language, the present study examines the English-speaking anxiety of the ITAs teaching various courses and helping professors in the context of an American university through the medium of English as a second language. This under-studied group of English learners commonly experience high levels of L2 speaking anxiety and low self-confidence as they are in a precarious situation in which they are considered the experts in the areas they are teaching, while they are still in the process of learning the language their students speak as a mother tongue. Therefore, whereas the knowledge of the subject matter may put them in a more confident position compared to their students, their relatively weaker L2 speaking skills may lead them to experience high levels of anxiety. This population of English learners, therefore, seems to be an interesting case for the study of L2 speaking anxiety. Gorsuch (2016) also highlights the significance of ITAs and emphasizes that 'this is the learner population that deserves more attention' (275) and she adds linguistic, social, professional, and cultural challenges that ITAs experience while using second language for professional and academic endeavors should be studied extensively.

Theoretical background

Mindsets

According to Dweck (1999), from early childhood individuals are socialized into and internalize beliefs about the malleability of their abilities. These beliefs create a semantic system through which the individuals view themselves, their potentials and experiences of success or failure. Dweck calls these implicit beliefs about the nature of talent *mindsets* (also called the implicit theories of intelligence). A growth mindset (also called 'an incremental theory of intelligence') concerns the belief that intelligence is malleable and can always grow through experience, and a fixed mindset (also called 'an entity theory of intelligence') represents the belief that intelligence is fixed and can never change regardless of the individual's actions and efforts. Individuals with a growth mindset view effort as a tool for becoming smarter, whereas those with a fixed mindset view effort as an indication of their lack of ability. In addition, individuals with a growth mindset view mistakes as areas where improvements need to be made; however, those with a fixed mindset believe that mistakes show their lack of ability (Dweck and Molden 2005). Individuals with a growth mindset show eagerness to work harder after failure whereas the ones with a fixed mindset tend to avoid challenging situations that may lead to their failure.

Mindsets have been extensively studied in different domains in educational and social psychology. A growth mindset has been found to be associated with higher achievement in math and classroom motivation (Blackwell, Trzesniewski, and Dweck 2007), achievement (Yeager et al. 2016), higher GPA in core academic courses (Paunesku et al. 2015), and higher math and reading scores (Good, Aronson, and Inzlicht 2003). In the field of SLA, mindsets recently have been receiving increasing attention as well. In a qualitative study using semi-structured interviews with tertiary-level EFL learners at universities in Austria (N=5) and Japan (N=4), Mercer and Ryan (2010) found that mindsets could be domain-specific and exist on a continuum. Lou and Noels (2017) found that language learners with a growth mindset tend to set learning goals and show mastery-oriented response patterns in the face of challenging situations. Those with a fixed mindset, on the other hand, tended to pursue

performance goals and maladaptive performance-oriented response patterns in failure situations. A growth language mindset has been found to predict higher L2 writing motivation of English as a Second Language (ESL) students and a positive orientation towards feedback on their writing (Waller and Papi 2017). Mindsets have also been examined in relation to feedback-seeking behavior. Papi, Rios et al. (2019) showed that a growth L2 mindset and the learning-approach goal predicted both feedback monitoring (attending to the feedback in the environment), and feedback inquiry (directly asking for feedback) whereas those with a fixed L2 mindset only used the method of inquiry to seek feedback. In L2 writing, Papi, Bondarenko et al. (2020) found that a growth language mindset positively predicted the value of feedback, which in turn positively predicted both feedback-seeking behavior. By contrast, a fixed L2 mindset predicted the cost of feedback seeking, which in turn negatively predicted feedback-seeking behavior. Mindsets have also been examined in relation to rejection sensitivity. In two studies among ESL speakers in Canada, Lou and Noels (2019) found that immigrant ESL learners with fixed mindsets were generally more worried about being rejected by native speakers (see also Lou and Noels 2020a). However, they found that this could change through simple reading interventions. More specifically, learners who read an article emphasizing a growth view of language learning ability were found to experience less language-based rejection sensitivity whereas those who read an article emphasizing a fixed view of language learning ability were found to expect more sensitivity to rejection in interactions with native speakers. Lou and Noels (2020b) found that among language minority students a growth mindset was associated with lower L2 anxiety but higher L2 use and proficiency. Mindsets have also been examined in relation to foreign language achievement. Khajavy, MacIntyre, and Hariri (2020) examined grit, language mindset, and language achievement. They found that language mindset weakly but positively predicted L2 achievement. Learners with growth language mindset have been found to desire all types of corrective feedback (explicit and implicit) whereas those with a fixed language mindset showed a preference only for the implicit types of corrective feedback (e.g., conversational recasts) or no corrective feedback at all (Papi et al. in press).

While mindsets have extensively been studied in educational psychology and to some extent in a few SLA studies, the connections between mindsets on one hand and L2 speaking anxiety and self-confidence, on the other hand, have remained underexplored. Given individuals with fixed mindsets have been found to be highly concerned about validating their abilities through social comparison, this study speculates that such preoccupation with others' opinions of one's ability are likely to contribute to the experience of L2 speaking anxiety. Conversely, those with a growth language mindset, who view challenging situations as opportunities for learning and growth, and tend to be less worried about validating their abilities, are speculated to experience lower levels of L2 speaking anxiety and higher levels of confidence in their speaking abilities.

L2 speaking anxiety

Anxiety has been one of the most researched learner variables in the field of language learning. It has been treated as a trait, state, or a situation-specific construct. Early research on the role of anxiety in language learning drew on Spielberger's (1983) distinction between *trait anxiety* and *state anxiety*, with the former being a relatively stable characteristic of a person and the latter being a transient emotion that fluctuates from moment to moment. MacIntyre and Gardner (1991) define trait anxiety as 'a general personality trait that is relevant across several situations' (87), the state anxiety as the 'here-and-now experience of anxiety as an emotional state' (87) and situation-specific anxiety as 'the specific forms of anxiety that occur consistently over time within a given situation' (87).

MacIntyre (2017) provides an insightful review of L2 anxiety research and its development. He categorizes studies into three approaches: *Confounded approach, specialized approach* and *dynamic approach*. Within the confounded approach includes, researchers used general anxiety measures in their studies, which led to inconsistent results concerning the relationship between anxiety and

language achievement (e.g., Chaistain 1975; Kleinmann 1977). The specialized approach includes research studies that mostly adopted Horwitz, Horwitz, and Cope (1986) re-conceptualization and reorientation of anxiety specific in the context of second language learning, which led to more consistent findings in this area (e.g., Aida 1994; MacIntyre and Gardner 1989). The dynamic approach includes research studies related to L2 anxiety and its continuous interaction with other factors such as linguistic abilities, physiological reactions, and pragmatics over time in contextualized settings (e.g., Gregersen, MacIntyre, and Meza 2014; MacIntyre and Serroul 2014). Even though numerous studies have been conducted within the three approaches, exploring the dispositional sources of L2 anxiety has received little attention in the field. To bridge this gap, the present study explores how learners' belief and motive systems influence learners' experience of anxiety while speaking in a second language. To the best of our knowledge, even though a couple of studies have shown the connection between goal-related motivational constructs and L2 anxiety (Papi 2010; Papi and Teimouri 2014; Teimouri 2017), the present study is the first one that employs Dweck's theory to directly examine how mindsets as dispositional characteristics could lead to the experience of L2 speaking anxiety by international teaching assistants (ITAs) teaching various courses in the context of a major university in the United States. It is anticipated that a growth L2 mindset will be negatively associated with L2 speaking anxiety but a fixed L2 mindset will be a positive predictor of L2 speaking anxiety.

L2 speaking self-Confidence

Clément (1980) was the first L2 researcher who formally introduced the notion of linguistic self-confidence as an important factor in L2 learning and motivation. He speculated that self-confidence could be developed in multicultural contexts with the help of frequent and quality contact with the L2 community. In a study in the context of Canada, Clément and Kruidenier (1985) found evidence supporting Clément's predictions and confirmed that self-confidence plays an important role in L2 motivation. In the late 1990s, MacIntyre and colleagues (1998) introduced this construct as an important component of L2 communication. They suggested that two facets of self-confidence in their model affected willingness to communicate (WTC): State communicative self-confidence and L2 self-confidence. The former was considered more situation-specific and temporary whereas the latter was defined as a more stable 'overall belief in being able to communicate in the L2 in an adaptive and efficient manner' (MacIntyre et al, 1998, p. 551). MacIntyre et al. (1998) argued that there are two components underlying L2 self-confidence. One of them, which is a cognitive component, is self-evaluation of L2 skills, 'a judgement made by the speaker about the degree of mastery achieved in L2' (551). The other component is language anxiety, 'the discomfort experienced when using a L2' (551), which is an affective component to L2 confidence. Given the close conceptual link between L2 anxiety and self-confidence, it would be interesting to explore how different motivational characteristics can lead to these qualitatively different affective experiences related to L2 speaking.

The main purpose of this study is to examine why some of these ITAs experience debilitating amounts of anxiety while speaking English in their classes whereas others might feel confident in using English to teach the native speakers of this language. Even though there most likely are numerous situational and personal reasons for such variability, in this study we will focus on the role of language mindsets as sources of the ITAs' experiences of L2 speaking anxiety and self-confidence.

Research questions

Based on the literature reviewed above, the research questions which guide the study are stated as follows:

1. What are the relationships between ITAs' language mindsets and their L2 speaking anxiety?
2. What are the relationships between ITAs' language mindsets and their L2 self-confidence?

Based upon the literature above, a growth L2 mindset, but not a fixed mindset, is expected to positively predict L2 self-confidence whereas a fixed L2 mindset, but not a growth mindset, is anticipated to positively predict L2 speaking anxiety.

Method

Participants

Ninety-two ITAs (Female = 53) pursuing their graduate degrees in different majors at a large university in the U.S. participated in this study. Participants ranged in age from 23 to 47 years old (M = 29.65, SD = 4.45). They were in different years of their teaching assistantship assignments ranging from their first year to beyond their third year with 5 missing responses ($N_{1st\ year} = 27$; $N_{2nd\ year} = 35$; $N_{third\ year} = 8$; $N_{above\ third\ year} = 17$). Almost half of them were instructors of record (N=44) and the other half were assisting an instructor of record (N=43), with 5 missing responses. Instructors of record performs primary teaching duties and have full instructional responsibilities for a class under the supervision of a faculty member. On the other hand, the TAs who are not instructors of record assist the main instructors in the teaching function but do not have primary responsibility for teaching. In other words, they can be graders, tutors, recitation leaders, lab supervisors, assistant to faculty instructor under the supervision of a faculty member (Florida State University 2020–2021). The instructors of record have to teach their classes in English and to the native speakers of the language whereas the other group has the pressure of helping their supervisor and students while having a supervisor who might assess their performance. Both groups thus have different and similar reasons to be anxious. ITAs are expected to use English professionally and their language proficiency level should be sufficient. They should get a minimum score of 45–50 on the SPEAK test, which is offered by the university, or a minimum of 23–26 on the speaking section of the TOEFL iBT (Educational Testing Service) to meet the university requirements for certification of spoken English (Florida State University 2020–2021). Their native languages were Bengali, Chinese, Dannish, Farsi, Hebrew, Indian, Italian, Marathi, Portuguese, Spanish, Vietnamese and Turkish.

Procedures

Data collection started in spring 2018 using both online and paper versions of the questionnaire survey. Upon receiving the Institutional Review Board's (IRB) approval, the researchers contacted the international office of the university and the International Teaching Assistant (ITA) program coordinator, who in turn contacted the ITAs who were attendees of the ITA program. Upon getting permission from the instructors, the researchers visited the current ITAs in their classes to gather data. The participants were informed that their participation was voluntary, no identifying information were to be collected, and they had the right to discontinue their participation at any point during data collection. It took the participants approximately 10–15 minutes to complete the questionnaire.

Instruments

The questionnaire used in the current research study included two parts. The first part of the questionnaire included 30 items measuring L2 speaking anxiety (22 items) and language mindsets (8 items) and the second part contained demographic questions. In order to measure L2 speaking anxiety of the ITAs, 22 items from the Foreign Language Classroom Anxiety (FLCA) Scale, developed by Horwitz, Horwitz, and Cope (1986) were adapted to reflect ITAs' anxiety in speaking situations. The original scale was responded to on a 5-point Likert scale from '*strongly agree*' to '*strongly disagree*', however, the adopted version of the scale is based on a 6-point Likert scale with no neutral midpoint which could be difficult to interpret.

Papi et al.'s (2019) items, which were adapted based upon Dweck's mindset scale, were used to measure ITAs' language mindsets. There were eight items in total which were responded to on a 6-point Likert scale from 1 indicating '*strongly disagree*' to 6 indicating '*strongly agree*'. In the current study, first singular pronoun 'I' was used instead of 'You' to make it more relevant to the respondents' beliefs about themselves rather than others. The second part of the questionnaire included items for documenting participants' gender, age, native language, hometown, educational background, teaching experience and year of study in the U.S.

Results

Using SPSS 25 (IBM), the 22 items adopted from Horwitz, Horwitz, and Cope (1986) questionnaire were submitted to Exploratory Factor Analysis (EFA) with Maximum Likelihood as method of extraction, direct oblimin with Kaiser Normalization as method of rotation, and the number of factors determined using eigenvalues larger than 1 (Kaiser's criterion) and the scree plot. The initial analysis showed that there were four factors with an eigenvalue above 1 explaining 54% of the variance. Three items (2, 13, and 14) were deleted because of their extracted communalities (.09, .25, & .12) were below the minimum acceptable value of .40. However, the scree plot pointed to the existence of two factors from the point of deflection. Therefore, the second analysis was run with two factors predetermined to be extracted. The results showed that these two factors explain 60% of the variance (Table 1). Upon conceptual examination, these factors were labeled as L2 Speaking Anxiety and L2 Speaking Self-Confidence. The Cronbach alpha coefficient value for the former was .95 and .82 for the latter, suggesting that the scales were highly reliable. The mean score of L2 Speaking Self-Confidence was relatively higher than that of L2 Speaking Anxiety (M=4.19 & 3.06; SD= .79 & 1.18, respectively).

Language mindset items were submitted to a similar EFA with the same options checked. The initial results yielded only one factor with an eigenvalue above 1 explaining 61.23% of the variance. However, the scree plot showed two factors from the point of deflection. So, another analysis was

Table 1. Exploratory factor analysis results for L2 speaking anxiety scale.

Item (M/SD) As an international teaching assistant (ITA),	Pattern Matrix		
	F1	F2	h^2
19. I get nervous when I don't understand what the student says in English. (3.47/1.49)	.87		.74
4. I feel embarrassed when I don't understand what the student is saying in English. (3.51/1.46)	.87		.71
9. I get nervous when I don't understand what the student is asking because of the language barrier. (3.55/1.57)	.84		.64
7. I worry about the consequences of failing to speak English properly in my class. (3.61/1.57)	.82		.60
22. I get nervous when the students ask questions for which I haven't prepared in advance. (3.05/1.50)	.78		.54
20. I am afraid that my students will laugh at me when I am speaking English. (2.80/1.43)	.75		.61
3. I get anxious when I know that one of my students is going to ask a question in English in my class. (2.50/1.38)	.62		.73
12. I can feel my heart pounding when one of my students is going to ask a question in English in my class. (2.37/1.34)	.60		.62
6. I start to panic when I have to speak English without preparation in my class. (3.12/1.54)	.54		.48
10. Even if I am well prepared for my class, I feel anxious about speaking English in class. (2.85/1.50)	.51		.60
15. I get nervous when I am speaking English in my class. (2.79/1.43)	.50		.68
11. I feel confident when I speak English in my class. (4.45/1.16)		1.04	.85
1. I feel quite sure of myself when I am speaking English in my class. (4.48/1.06)		.89	.68
18. When I am on my way to class, I feel very relaxed about speaking English in my class. (4.25/1.26)		.86	.81
5. I am usually at ease during my class while I am speaking English. (4.41/1.12)		.83	.65
17. When I am on my way to class, I feel very sure about speaking English in my class. (4.62/1.05)		.78	.68
21. I feel comfortable around native speakers of English. (4.51/1.32)		.65	.66
8. I do not get nervous speaking English with my native speaking students. (4.47/1.30)		.61	.74
16. I get confused when I am speaking English in my class. (2.37/1.26)		-.44	.61

Note: h^2 represents communality, which is common variance that ranges between 0 and 1.

run with two factors predetermined to be extracted. The two factors emerged properly, representing a Growth L2 Mindset and a Fixed L2 Mindset (Table 2), which together explained 61% of the variance. The Kaiser-Meyer-Olkin value (.88) showed that sampling was adequate, and Barlett's Test of Sphericity ($\chi 2(28) = 434.84$, $p < .001$) indicated that the data set was a good fit for the solution. The scales were highly reliable: The Cronbach alpha coefficient for Growth L2 Mindset was .89 and the one for Fixed L2 Mindset was .85.

To examine the relationship between the mindsets and L2 Speaking Anxiety and L2 Speaking Self-Confidence, two multiple regression analyses[1] were run with the language mindsets as predictors and L2 Speaking Anxiety and L2 Speaking Self-Confidence as outcome variables (See Table 3 for intercorrelations). To control for the effect of gender, length of teaching experience, and the TA role (instructor of record vs. assistant to instructor of record), the three variables were entered in the regression models as covariates. As shown in Table 4, the results showed that the model with L2 Speaking Anxiety as the dependent variable was significant ($R^2 = .15, F^{(5,78)} = 2.67, p < .05$) and explained 15% of the variance. As anticipated, controlling for gender, length of teaching experience, and TA role, Fixed L2 Mindset significantly and positively predicted L2 Speaking Anxiety in the second multiple regression analysis with a beta value of .38, suggesting that with an increase of one standard deviation unit in Fixed L2 Mindset there will be an increase of .38 standard deviation unit in L2 Speaking Anxiety.

With the L2 Speaking Confidence as the outcome variable, and gender, length of teaching experience, and TA role as covariates, the model was significant, explaining 20% of the variance in the outcome variable ($R^2 = .20$, $F^{(5, 78)} = 3.90$, $p < .05$). In this model, Growth L2 Mindset emerged as a statistically significant predictor of L2 Speaking Self-Confidence with a beta coefficient of .40, suggesting that with an increase of one unit of standard deviation in Growth L2 Mindset, there will be an increase of .44 unit of standard deviation in L2 Speaking Self-Confidence. In addition, TA Role, which was entered as a covariate, was also a significant predictor, showing that being an instructor of record is a better predictor of L2 Speaking Self-Confidence.

In sum, controlling for gender, length of experience, and TA role, Fixed L2 Mindset was a positive predictor of L2 Speaking Anxiety whereas Growth L2 Mindset was a positive predictor of L2 Speaking Self-Confidence.

Discussion

According to Dweck (1999), individuals who have a growth mindset believe that they can foster their intelligence by practice and effort and see challenges as opportunities for learning. These learners typically set adaptive learning goals and are concerned with the development of their abilities. Individuals who endorse a fixed mindset, on the other hand, believe that their abilities cannot change regardless of their efforts or experiences, and see performance situations as opportunities to validate

Table 2. Exploratory factor analysis results for L2 mindsets.

	Pattern Matrix		
Item No. (M/SD)	Factor 1	Factor 2	h^2
8. My language learning intelligence is something that I can't change very much. (2.87/1.24)	.89		.72
1. I have a certain amount of intelligence for learning languages, and I can't really do much to change it. (2.84/1.19)	.82		.68
5. I can improve my language skills, but I can't really change my basic language learning intelligence. (2.59/1.27)	.75		.61
6. To be honest, I can't really change my language learning intelligence. (4.27/1.19)	.73		.69
2. I can change even my basic language learning intelligence considerably. (4.27/1.05)		.88	.63
3. I can always improve my language learning intelligence. (4.30/1.08)		.74	.71
7. No matter who I am, I can significantly change my language learning intelligence. (2.83/1.22)		.72	.66
4. No matter how much intelligence I have for learning languages, I can always change it a lot. (3.10/1.37)		.42	.39

Table 3. Intercorrelations between Predictor and Outcome Variables.

	L2 Speaking Anxiety	L2 Speaking Self-Confidence	Fixed L2 Mindset	Growth L2 Mindset	Gender	Length of TA Experience
L2 Speaking Self-Confidence	−.70** (.00)					
Fixed L2 Mindset	.38** (.00)	−.21* (.05)				
Growth L2 Mindset	−.24* (.02)	.38** (.00)	−.70** (.00)			
Gender	.04	−.05	−.19	.08		
Length of TA Experience	−.05	.01	−.01	−.06	.14	
TA Role	.18	−.27* (.05)	.16	−.16	−.15	−.42** (.00)

Note: *p<.05, two-tailed; **p<.01; p-values are in parentheses.

their abilities. In the present study, it was speculated that because ITAs with a growth mindset adopt a mastery-oriented pattern in which a challenging task such as using English as one's second language to teach the native speakers of the language would be perceived as an opportunity for developing one's L2 speaking competence, L2 speaking anxiety should not be an important factor in their experience. On the other hand, because ITAs with a fixed L2 mindset are concerned with validating their English speaking abilities through speaking the language properly and perceive the failure to do so as lack of inherent ability, they should experience higher levels of L2 speaking anxiety. The results of this study, which did not depend on gender, years of experience as a TA or TA's role, confirmed these predictions: Fixed L2 Mindset strongly predicted L2 Speaking Anxiety whereas Growth L2 Mindset was a predictor of L2 Speaking Self-Confidence.

These results suggest that the ITAs holding a Fixed L2 Mindset tend to feel anxious and discomfort in speaking English while teaching native English speakers. The individuals who hold a fixed mindset are concerned with the display of competence through setting performance goals and show helpless learning patterns 'characterized by an avoidance of challenge and deterioration of performance in the face of obstacles' (Dweck and Leggett 1988, 256). These learners have been found to engage in social comparison and show poor performance (e.g. Thompson and Musket 2005). In the context of language learning, they show maladaptive and helpless response patterns (Lou and Noels 2016), set performance goals (Lou and Noels 2016; Papi, Rios et al. 2019), are highly concerned with the image cost of seeking feedback, and avoid seeking helpful feedback on their language use as a result (Papi, Rios et al. 2019, Papi, Bondarenko et al. 2020; Waller and Papi 2017). They have been found to avoid challenging situations and attribute failure to their

Table 4. Regression Results[a] for the differences in L2 Speaking Anxiety and Self-Confidence Across Gender, Length of Experience as TA, Growth L2 Mindset and Fixed L2 Mindset.

Outcome Variable	Predictor Variable	B	Std. Error	Beta	t	Sig.
L2 Speaking Anxiety	(Constant)	.41	1.49		.28	.78
R^2 = .15	Gender	.39	.26	.16	1.51	.13
	Length of TA Experience	−.00	.01	−.01	−.10	.92
	TA Role	.32	.28	.13	1.13	.26
	Growth L2 Mindset	.09	.19	.07	.44	.66
	Fixed L2 Mindset	.42	.16	.38	2.58	<.05
L2 Speaking Self-Confidence	(Constant)	3.50	.96		3.65	<.001
R^2 = .20	Gender	−.22	.17	−.14	−1.31	.20
	Length of TA Experience	−.00	.01	−.06	−.50	.62
	TA Role	−.42	.18	−.26	−2.31	<.05
	Growth L2 Mindset	.35	.13	.40	2.77	<.01
	Fixed L2 Mindset	.09	.11	.12	.81	.42

[a] Following a comment by an anonymous reviewer, we ran a moderation analysis with TA Experience as the moderator but found no significant moderation by this variable.

lack of ability (Lou and Noels 2016) and get more sensitive to rejection in their interactions with native speakers (Lou and Noels 2019). This maladaptive learning pattern among learners with a fixed mindset is probably due to the detrimental belief that their natural abilities are unchangeable and performance situations are only contexts to prove that they are more competent, or not any less competent, than others. As Dweck and Molden (2005) highlight, 'When you're oriented toward performance, mistakes signal failure and inadequacy' (125). The ITAs with fixed mindsets may thus see teaching as a test of their natural abilities and perceive making English mistakes while speaking in the classroom as a display of weakness and incompetence, a thinking pattern that seems to have resulted in high levels of anxiety among these individuals. Such cognitive and emotional characteristics are generally in line with how anxious language learners have been described in the literature, that is as individuals who experience 'fear of evaluation' and 'are highly concerned about the impressions that others form of them' (Gregersen and Horwitz 2002, 562). Perceiving the classroom context as a test of their natural abilities rather than as another learning opportunity, therefore, seems to be the major cognition underlying the emotional response of anxiety among ITAs with a fixed mindset.

Growth L2 Mindset was found to be a strong predictor of L2 Speaking Self-Confidence, suggesting that ITAs holding a Growth L2 Mindset have a tendency to feel confident in speaking English while teaching native speakers of this language. Learners with a growth mindset are concerned with developing their abilities and show adaptive mastery-oriented learning patterns involving 'the seeking of challenging tasks and the maintenance of effective striving under failure' (Dweck and Leggett 1988, 256). Instead of being preoccupied with display of competence and perceiving mistakes as evidence for lack of natural talent, learners with a growth mindset are 'oriented toward learning, mistakes are signal of what you did wrong and what you should do differently in the future' (Dweck and Molden 2005, 125). In the context of language learning, learners with a growth language mindset have been found to show high levels of motivation (Waller and Papi 2017), set learning goals (Lou and Noels 2016; Papi, Rios et al. 2019), perceive feedback on their L2 production to be valuable (Papi, Bondarenko et al. 2020), proactively seek feedback on their language skills using different strategies and from different sources (Papi et al., 2019), and are less likely to show rejection sensitivity while speaking to native speakers of their target language (Lou and Noels 2019). ITAs with a Growth L2 Mindset, thus, perceive L2 speaking situations as opportunities to try their English-speaking skills, and make mistakes, and use the mistakes to grow their language skills and language learning capacity. Based in their growth language mindset, the belief that teaching situations are only an opportunity for making and learning from mistakes seems to be the cognition underlying their higher self-confidence and lower anxiety. In other words, these ITAs' lack of concern with validating their abilities has made them immune to the fear of negative evaluation and the resulting anxiety whereas their belief in the malleability of their natural abilities has led to their higher levels of L2 self-confidence.

From a cost-value analysis perspective (Papi, Rios et al. 2019, Papi, Bondarenko et al. 2020), learners calculate the cost and value of different behaviors, which in turn leads to a decision whether performing the behavior is cost-effective or not; this cost-value analysis may affect the emotional experience of the individuals while performing the action as well as their decision. Within the meaning system that individuals with a growth language mindset endorse, there is not much to lose in speaking English to teach the native speakers of this language. If they perform well in speaking English, they would use it for the purpose of effective teaching; and if they make mistakes while speaking the language, they would use those mistakes for learning and growth. In other words, ITAs with a growth mindset associate high learning and performance value and low or no image cost in facing the challenging task of using the second language to teach the native speakers of that language. The emotional experience of these individuals during the use of English, therefore, seems to be that of confidence. Individuals with a fixed language mindset, on the other hand, see making mistake while speaking English to teach the native speakers of this language to be a costly behavior. They may be afraid of embarrassment and looking incompetent to their students.

They also do not believe that with changing the quantity of their efforts or the quality of the strategies to use to improve and speak their English they can change their abilities. The low value and high costs learners associate with speaking English to teach their native-English-speaking students, therefore, makes their experience one of low self-confidence and high anxiety.

Conclusions

L2 anxiety is the most-researched emotion in the field of SLA. The emotion, defined as 'the feeling of tension and apprehension specifically associated with second language contexts' (MacIntyre and Gardner 1994, 284), has been found to negatively affect second language learning process and outcomes (Daubney, Dewaele, and Gkonou 2017; Teimouri, Goetze, and Plonsky 2019). Whereas many studies have investigated the effects of L2 anxiety on different aspects of L2 learning, use, and performance, the sources of L2 anxiety have remained underexplored. In this study, we investigated language mindsets as the sources of L2 speaking anxiety and its opposite emotion, L2 speaking self-confidence, among ITAs speaking English as a second language to teach classes to native English-speaking students in the U.S. universities. The results of this study showed that whereas a fixed language mindset strongly predicted L2 speaking anxiety, a growth language mindset was a strong predictor of L2 speaking self-confidence, confirming the original hypotheses of this study. The findings of this study provide evidence that the L2 speaking anxiety and self-confidence are not merely byproducts of the challenging nature of the teaching or learning situation and learners' L2 proficiency level. Rather, learners' belief and motive systems also seem to play an important role in these emotional experiences. Learners with different mindsets seem to reside in two distinct semantic worlds in which challenge, mistakes, failure, success, competence, and talent mean very different things. Only by deeply understanding these distinct meaning systems can we learn how to deal with learners' emotional experiences and devise psychological interventions to positively change these systems and their ensuing emotional and behavioral consequences.

Educational implications

Changing ITAs' fixed L2 mindsets and enhancing their growth L2 mindsets can be the most essential step towards diminishing their L2 speaking anxiety and improving their L2 self-confidence in using English as a medium of instruction. To complete such a transformation, the curricula of ITA training programs can be revised and adjusted to integrate tasks aiming to promote a growth L2 mindset. Enhancing students' growth mindset has been shown to result in significant improvements in motivation and achievement in educational psychology (e.g. Paunesku et al. 2015; Yeager et al. 2016). For instance, Yeager et al. (2016) asked participants to read a scientific article about the flexibility of the brain and how it can grow once it is challenged. Upon reading the article, researchers asked participants to create an example of a learning experience in which they became better and smarter after practicing. In the end, researchers had the participants write a letter to a future student who was experiencing some difficulties in school and believed that he was not smart enough, and encourage him or her to work hard and grow his or her abilities.

In the context of second language learning, similar interventions have been employed. Lou and Noels (2016) used a reading and writing activity to promote a growth mindset among language learners at a Canadian university. Upon reading two articles that outlined research evidence in support of the malleability of brain, participants were asked to rate the difficulty level of the articles and write a summary of the articles. The results of the study showed that the growth mindset intervention led to the adoption of learning goals and mastery-oriented responses in the face of failures, and persistence in L2 learning; on the other hand, those who underwent a fixed mindset intervention adopted performance-approach goals, and showed helpless-oriented responses and fear of failure. In another L2 study, Lou and Noels (2019) used the same intervention and found that enhancing a growth mindset was effective in diminishing anxiety about failures in intercultural communication. The

authors emphasized the significance of helping immigrants develop awareness of their mindsets and promoting a growth mindset that can lead them to re-examine their past L2 use experiences and embrace intercultural interactions as opportunities to improve their L2 use and decrease their anxiety.

By integrating tasks and activities related to mindsets into the L2 lesson plans, language educators can kill two birds with one stone, a) they can teach the target language using interesting activities, and b) promote a growth mindset that would positively influence their emotional experiences among other things.

Limitations and Directions for future studies

One of the limitations of the current study is the use of quantitative self-report measures as the only source of data. Triangulating the data through a qualitative approach such as interviews or observations could strengthen the findings. Such triangulation could depict a more valid picture of the role of mindsets in the L2 speaking anxiety and self-confidence of ITAs in using English as a medium of instruction. Factors such as age, , native language, were not examined in this study; future research can benefit from exploring such factors. This study examined only mindsets as the antecedents of L2 speaking anxiety. Exploring other potential antecedents of these emotional responses could further our understanding of the phenomena. The role of learning and performance goals, for example, can also be examined. In addition, the scope of this study was limited to the study of ITAs' emotional experiences; it would be interesting to examine how ITAs' mindsets and the resulting emotions affect their teaching style and treatment of their students. Using larger samples in other socio-educational contexts could lead to more powerful statistical analyses.

Note

1. Power analysis showed that with the current sample size, regression analysis would be sufficiently powered for uncovering a large effect size.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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