
Nurturing Teachers' Research Mindset in an Inquiry-Based Language Teacher Education Course

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This study investigates the impact of an inquiry-based teacher education course in nurturing second language (L2) teachers' research mindset, defined herein as their cognition and action toward research. One hundred and thirty pre- and in-service L2 teachers of various nationalities participated in a teacher education course on instructed second language acquisition (ISLA) at an Australian university. The course was designed following an inquiry-based approach, with course activities focused on promoting teacher learners' curiosity about ISLA issues and their engagement both with and in research. Data were collected before, during, and after course participation, using a precourse survey, written reflections, and focus group interviews. Findings revealed that the inquiry-based course activities enabled the teacher learners to adopt a stronger research mindset. They were able to articulate the importance of research for teaching practice and gained firsthand experience as well as increased confidence in conducting research. They also showed inclination toward research-informed teaching and were keen to maintain their newly established favorable relationship with research, despite acknowledging concerns about their future actual research engagement, mostly due to time constraint and lack of institutional support. These findings suggest implications for nurturing language teachers' research mindset within L2 teacher education courses.

Keywords: research mindset; research engagement; second language teacher education; inquiry-based teaching

THE SECOND LANGUAGE (L2) EDUCATION literature has frequently documented the well-known divide between research and practice,

where findings from research that is rigorously conducted and carefully reported remain either inaccessible or indigestible to language teachers. Researchers and teachers have been considered to belong to two separate communities that reside so comfortably in their own spaces that they show little interest or need to communicate with each other (Block, 2000; McKinley, 2019; Paran, 2017; Tavakoli, 2015; Tavakoli & Howard, 2012). This lack of dialogue, admittedly, is potentially detrimental, as it may result in research that is out of touch with the reality of teaching and practice, and teaching that lacks support from scientific evidence and critical evaluation (Erlam, 2008). Several scholarly attempts have thus been implemented to remedy this mismatch, most of which are concerned with

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promoting language teacher research engagement through various professional development initiatives such as action research (Edwards & Burns, 2020; McDonough, 2006), teacher–researcher collaborative projects (Dikilitaş et al., 2019; Slimani–Rolls & Kiely, 2018; Yuan & Burns, 2017), exploratory practice (Allwright, 2005; Hanks, 2015), and dissemination of practitioner research in innovative formats such as posters and research stories (Bullock & Smith, 2015).

While applaudable, these existing efforts leave room for improvement, especially considering that they have arguably not sufficiently addressed what could be deemed the deeper cause of the problem: teachers’ research mindset, defined herein as perceptions and action toward research (Taraban & Logue, 2012; Wood, 2003). Since there are reportedly several contextual and personal obstacles that may lie in the way of L2 teachers and their research engagement (Sato & Loewen, 2019), we argue that an inquiry-motivated mindset is crucial for helping teachers overcome possible challenges and maintain their research engagement. The current study turns to teacher education (TE) as a key site for promoting the research–practice dialogue in L2 education (see Sato & Loewen, 2022, this issue), and explores the impact of an inquiry-based TE course that focused on instructed second language acquisition (ISLA) and on nurturing pre- and in-service L2 teachers’ research mindset.

LITERATURE REVIEW

Conceptualizing Research and Research Engagement

In this study, we adopt Borg’s (2010) broad definition of teacher research, which refers to:

systematic inquiry, qualitative and/or quantitative, conducted by teachers in their own professional contexts, individually or collaboratively (with other teachers and/or external collaborators), which aims to enhance teachers’ understandings of some aspect of their work, has the potential to contribute to better quality teaching and learning in individual classrooms, and which may also inform institutional improvement and educational policy more broadly. (p. 395)

This definition emphasizes research that is conducted by and for L2 teachers and has direct significant relevance for classroom L2 learners. It also outlines several key features of quality teacher research, which is not only practice inspired but also systematic and well designed (see also Smith, 2015, for conceptualization of teacher research that emphasizes “the quality

of teacher and learner development involved” rather than traditional “academic quality criteria” [p. 3]). Despite variation in conceptions, what seems unanimous is that teacher research is crucial for enhancing L2 teachers’ professional knowledge and practice (Gao et al., 2011). Along this line, language teacher research engagement comprises engagement both with and in research (Borg, 2010, 2013). The former refers to teachers being consumers of research (i.e., reading and using research findings to inform teaching), while the latter concerns teachers designing and carrying out research in their classroom. What remains a challenging reality is L2 teachers’ limited engagement both with and in research, which is arguably conducive to widening the gap between research and practice.

The Research–Practice Divide

The research–practice gap has been well reported in the applied linguistics and L2 education literature at both conceptual and practical levels. Conceptually speaking, one common source of this divide is the almost uncompromisable differences in perceived characteristics between teachers and researchers (Medgyes, 2017; Tavakoli, 2015). Teachers and researchers have been considered to belong to two different communities of practice, and membership in one may limit or even exclude the other (Tavakoli, 2015). While teachers’ concerns are predominantly with their students’ learning and their teaching practice, researchers are more interested in finding empirical evidence to address their research inquiries, which may or may not be directly relevant to classroom pedagogy (Ortega, 2012). Additionally, researchers are often found to speak from above without much connection to the realities of everyday classroom teaching; many research publications are also written in technical, non-teacher-friendly language (McKinley, 2019; Nassaji, 2012). Several L2 teachers thus reported preferring to seek professional advice within their professional community of teachers rather than looking for solutions from research, citing that this alternative practice was “quicker and easier than reading research” (Tavakoli, 2015, p. 45). Medgyes (2017) asserted that while researchers need teachers and the language classroom as participants and setting for their research, teachers do not need researchers in order to do their job well. Although this claim remains contestable, it reflects a widespread belief among teachers that research is not as important to their teaching practice as practical pedagogical ideas.

On practical grounds, the lack of the research–practice connection is further exacerbated as teachers are constantly occupied with a heavy workload and numerous other school commitments, which makes dedicating time to any form of research engagement a luxury (Borg, 2013; Sato & Loewen, 2019). Added to this time-related challenge is the lack of institutional support—very few secondary institutions provide L2 teachers with support and incentives to engage with and in research (Nassaji, 2012; Tavakoli & Howard, 2012). Also, in the current landscape where much L2 education takes place in under-resourced contexts (Bailey & Christian, 2021), teachers’ lack of access to research sources such as academic books and journals is a major hindrance to their research engagement. Finally, in the absence of sufficient exposure to and practice in research conduct, many L2 teachers reportedly lack confidence and do not think they have an adequate understanding of research methodology to conduct research (Barkhuizen, 2009; Xu, 2014).

The Role of Teacher Education in Connecting Research and Practice

Applied linguistics scholars have turned to TE as a promising venue for promoting the research–practice dialogue (Sato & Loewen, 2022, this issue). TE programs, in which teacher learners are immersed in in-depth evidence-based knowledge and skills training to become competent teachers, are fertile grounds to introduce teachers to research that informs and benefits teaching (Freeman & Johnson, 1998; Wright, 2010). It is most often within the context of TE that teacher learners are professionally trained to become critical consumers of research (Carter, 2015). Moreover, TE programs are the rare spaces where teacher learners are given the opportunity to experience firsthand the process of conducting and reporting research under the guidance of teacher educators (Baumann & Duffy, 2001).

A growing body of research has investigated the impact and role of TE in bridging the research–practice divide. At the level of perceptions, L2 teachers converged on the importance of TE in promoting research engagement and bringing together research findings and pedagogical practice (Nassaji, 2012; Tavakoli & Howard, 2012). Importantly, teachers who held a graduate degree in teaching English to speakers of other languages (TESOL) or language teaching reported more positive perceptions toward the teaching–research relationship and expressed support for collaboration between teachers and

researchers than those who did not (Nassaji, 2012). Nevertheless, some L2 teachers admitted that their previous teacher training (including postgraduate experiences) did not adequately prepare them to engage well with and in research (Tavakoli & Howard, 2012). Thus, some teacher learners suggested several actions to enhance teachers’ research engagement, such as engaging in action research, undertaking a research-focused master’s degree, and embedding a stronger research component in language TE curricula (Tavakoli, 2015).

To address these needs, interventional efforts have been made by L2 teacher educators to foster teacher learners’ research engagement. Some earlier attempts involved incorporating action research into undergraduate and postgraduate TESOL and English-as-an-international-language courses (Crookes & Chandler, 2001; McDonough, 2006). These attempts appeared to improve L2 teaching assistants’ understanding of research and enable them to implement new teaching practices based on results of their action research projects.

More recently, Selvi & Martín-Beltrán (2016) examined the impact of an SLA inquiry project, conducted as part of an SLA course in a graduate TESOL program in the United States, on their teacher learners’ ability to make connections between SLA theory, research, and teaching practice. In this project, teacher learners researched an SLA topic by gathering multiple sources of information (e.g., language learning autobiographies, interviews with L2 learners and teachers, and course materials). The project was found to enable the teacher learners to not only develop a critical understanding of SLA theory and research but also challenge, personalize, and reconceptualize theory according to their own learning and teaching experiences.

These existing studies demonstrate the vital role of TE in fostering research engagement among L2 teachers. They also share useful examples of good L2 teacher research engagement practices and models that could be replicated in different contexts. What remains unexamined, and what we argue to be the deeper cause of the research–practice divide, is L2 teachers’ various levels of cognition and action, or their mindset, toward research as well as the extent to which TE can help reinforce and sustain a research mindset.

Characteristics of a Research Mindset

Our theorization of a research mindset is borrowed from science education research, which

aims to promote undergraduate science students' research experiences in the U.S. context (Boyer, 1998; Taraban & Logue, 2012; Wood, 2003). Wood (2003) argued that the focus of strengthening the role of research in an undergraduate curriculum "is not on making every student into a researcher but, rather, on graduating students, in all disciplines, with the *mindset* [emphasis in original] of researchers" (p. 113). This means equipping students with research-related qualities such as making evidence-based claims, finding enjoyment in problem solving, and possessing skills to systematically collect and critically analyze data as well as making informed decisions based on gathered data (Wood, 2003). To further conceptualize this, Taraban & Logue (2012) probed science students' research experiences and identified the following characteristics of a research mindset: "students' excitement about science, confidence in their ability to think like scientists, self-confidence in conducting research, a commitment to research, and enthusiasm for science careers" (p. 502).

These findings reveal two important elements of a research mindset: cognition and action. Against these backgrounds, in the current study we conceptualize language teachers' research mindset as involving their cognition and action in relation to research. The cognitive element consists of positive perceptions toward research and its importance for language teaching practice, and a good understanding of what constitutes a scientific investigation and its procedure. The action element includes an inclination toward an evidence-based approach to making pedagogical decisions, willingness to turn to research to find solutions to pedagogical problems, and abilities and skills to utilize their own or others' research results and collect and analyze classroom data to enhance teaching practice.

The Role of Inquiry-Based Learning in Nurturing a Research Mindset

Inquiry-based learning has its root in constructivist learning theories, which value learning through experiences (Dewey, 1986) and making meaningful connections between what is learned and one's personal and societal knowledge and experiences. Students learning in this approach are guided to form their own questions about a subject matter, gather evidence, and critically engage with the collected evidence to explain their answers to these questions (Bell et al., 2010). Banchi & Bell (2008) categorized inquiry learning into four ascending levels: confirmation inquiry

(Level 1), structured inquiry (Level 2), guided inquiry (Level 3), and open/true inquiry (Level 4). The first level involves teacher guidance in setting up and addressing an inquiry, and the final level is learner centered and discovery driven, in which learners create research questions, design a study, collect and analyze data, and present findings. Since inquiry-based learning emphasizes evidence-based problem solving and discovery, it is closely related to the inquisitive nature of a research mindset.

Originally implemented in the teaching of math and science subjects, inquiry-based learning has been increasingly implemented in TE. Recently, an inquiry-based model was found to be a defining feature of several research-based TE programs in high-performing education systems such as those of Finland (Puustinen et al., 2018) and Singapore (Tatto, 2015). A noticeable benefit of inquiry-driven learning in TE is that it enables teacher learners to "embrace the theoretical parts of their education and further on their actions as future teachers" (Puustinen et al., 2018, p. 177). This evidence leads us to a standpoint that inquiry-based language TE is conducive to creating and maintaining L2 teacher learners' research mindset.

Against this backdrop, the present study sought to implement an inquiry-based learning component in an L2 TE course on ISLA. Our ultimate goal was to explore the impact of the course on nurturing L2 teacher learners' research mindset, which we argue to be instrumental in enhancing their research engagement in the face of personal, contextual, and institutional constraints. The study aimed to address the following research questions:

- RQ1. What are the characteristics of L2 teachers' research mindset prior to joining an inquiry-based TE course on ISLA?
- RQ2. What are the perceived impacts of the course on the teachers' research mindset?

METHOD

Participants and Context

Participants were 130 teacher learners (7 males, 123 females) of various nationalities (2 Saudi Arabian, 4 Australian, 1 Austrian, 111 Chinese, 3 Indonesian, 2 Japanese, 4 South Korean, 1 Thai, and 2 Vietnamese). Their ages ranged from 23 to 40 years old. Seventy-three (56.2%) had previous L2 teaching experience, ranging from

6 months to 15 years ($M = 3.28$, $SD = 4.62$). The rest (43.8%) had no teaching experience. The majority of the 73 teachers with teaching experience (62.9%) had taught English as a foreign or second language at primary and secondary levels, while others taught at tertiary institutions and language institutes. At the time of the research, they were enrolled in a course on ISLA as part of their master of applied linguistics program at an Australian university. The program offers a range of courses on SLA, teaching methodology, testing and assessment, intercultural communication, and research methods. Although the program is research informed, which means all course content and learning and assessment activities are built upon and strongly supported by research evidence, in most other courses students were predominantly required to engage with research (e.g., reading and using) to complete learning tasks, rather than engage in doing research.

The Focal Instructed Second Language Acquisition Course

The ISLA course that was the setting of this study aimed to (a) critically engage L2 teacher learners in exploring and discussing aspects of SLA theories and research that are relevant for classroom learning and bear useful implications for teaching, and (b) empower learners to make connections between their SLA knowledge and understanding and their past, current, and future teaching practice (i.e., nurturing a research mindset). The course covered diverse SLA topics, including the role of input and interaction for L2 learning, effects of different types of instruction, corrective feedback, peer interaction, collaborative writing, motivation and engagement, and language socialization. The 130 teacher learners were divided into four classes, each consisting of 30–35 students. The classes met 3 hours each week for a 13-week semester. The three authors of the current study were the course instructors.

To create and maintain teacher learners' research mindset, we designed the course following an inquiry-based approach. The weekly learning modules were organized according to a structured inquiry model (Banchi & Bell, 2008). For each topic, we set up an initial question (e.g., What role do input and interaction play for SLA?), and provided a procedure to guide the teacher learners to find the answer to this question. This procedure included completing weekly reading assignments, engaging in peer discussion, and tackling problem-solving tasks. After gathering evidence and data from these

sources and discussing them with us during class time, the teacher learners evaluated and analyzed these data to formulate their answer to the initial inquiry. Finally, they wrote a summarized response in a weekly reflection forum shared with the instructors.

The highlight of the course was an open-inquiry assignment called the mini research project (MRP). The MRP could be considered the culmination of the inquiry spirit embedded in the course. Following the open/true inquiry model (Banchi & Bell, 2008), the MRP required the teacher learners to choose one of the ISLA topics introduced in the course that they considered relevant and significant to their teaching practice, narrow down the topic, formulate their research questions, design their study, develop a procedure to collect and analyze data, and present findings in a 2,000-word written report. Their final MRPs were conducted on a range of ISLA topics, such as oral and written corrective feedback, the use of learner's first language in L2 learning, effectiveness of peer interaction, teacher talk, use of technology, and learners' individual differences (e.g., motivation, anxiety). Regarding research design, a majority of the projects (64.6% or 84 projects) investigated learners and teachers' perceptions toward an ISLA issue using surveys and interviews; 26.2% (or 34 projects) explored the effectiveness of the implementation of a pedagogical technique (i.e., a kind of corrective feedback) and the rest (9.2% or 12 projects) involved observations of L2 classroom learning and teaching (see Appendix A for examples of MRP topics).

Furthermore, the teacher learners were also asked to present and share their research in the form of a poster with their classmates. The poster session took place in the final week of the course and was a celebration of the teacher learners' research achievements. To assist the participants in their process of completing the MRP, starting from Week 4 of the semester, we delivered a series of workshops on conducting teacher research, such as writing research questions, developing research design, preparing data collection instruments, and analyzing data. Throughout this process, the teacher learners also had the opportunity to individually consult with us on any aspect of their research that they found challenging.

Data Collection Instruments and Procedure

To capture the dynamism of participants' research mindset development, we explored L2 teachers' degree of research engagement before, during, and after their participation in

the focal ISLA course with reference to their past and future learning and teaching circumstances, and in relation to their own desire to be research-engaged versus expectations from other stakeholders such as colleagues and schools. Three instruments were specifically used for data collection, as described in the following sections.

Precourse Questionnaire. A questionnaire adapted from Borg's (2009) survey on English teachers' views of research was administered using Google forms in the first week of the course. The questionnaire probed the teacher learners' level of research engagement and explored if they had a research mindset prior to taking the focal ISLA course. The questionnaire (see Appendix B) consisted of 10 multiple-choice items, where participants chose one or any responses that match their views. Seven items were taken from Borg (2009) Section 4 ('Reading research') and Section 5 ('Doing research') to target the action elements of a research mindset (i.e., reading and doing research). The three added items explored the cognitive elements of a research mindset (i.e., importance of research in advancing the field, usefulness of research for teaching practice, and confidence in research skills). These additional items were based on Taraban & Logue's (2012) and Wood's (2003) conceptualizations of a research mindset.

Before administering the questionnaire, the researchers had a brief discussion about the conceptualization of research with the teacher participants, and we agreed on a commonly shared definition, which is Borg's (2010) definition of teacher research previously presented. Throughout our report, we use the term "research" to refer to teacher research.

Teacher Learners' Reflections. After completing the MRP, the teacher learners were asked to write a reflection of about 100–150 words on the impact of this open-inquiry research project on their attitudes toward research and level of research engagement. Their reflection focused on (a) the most important thing they learned from doing the MRP, (b) the benefits of conducting an open-inquiry research project as part of a master's-level language TE course, and (c) whether the MRP experience motivated them to do more research in the future. The reflection data set consisted of 130 reflections, totaling approximately 14,000 words.

Focus Group Interviews. To further explore the role of TE in nurturing L2 teachers' research mindset, semistructured focus group interviews were conducted 1 week after course comple-

tion. Three focus groups were organized, each consisting of 5–6 voluntary participants who were part of the 130 teacher learners participating in the course. The interview questions explored (a) the teacher learners' attitudes and actions toward research before, during, and after their course experiences, (b) the impact of the inquiry-driven feature of the focal ISLA course on creating and maintaining a research mindset both within the TE program and in their current and future work contexts, and (c) their opinions toward research engagement in comparison with other stakeholders (e.g., colleagues and employers). To allow participants to freely express their views, a trained research assistant was hired to conduct the interviews, which lasted between 60 and 75 minutes and were audio recorded.

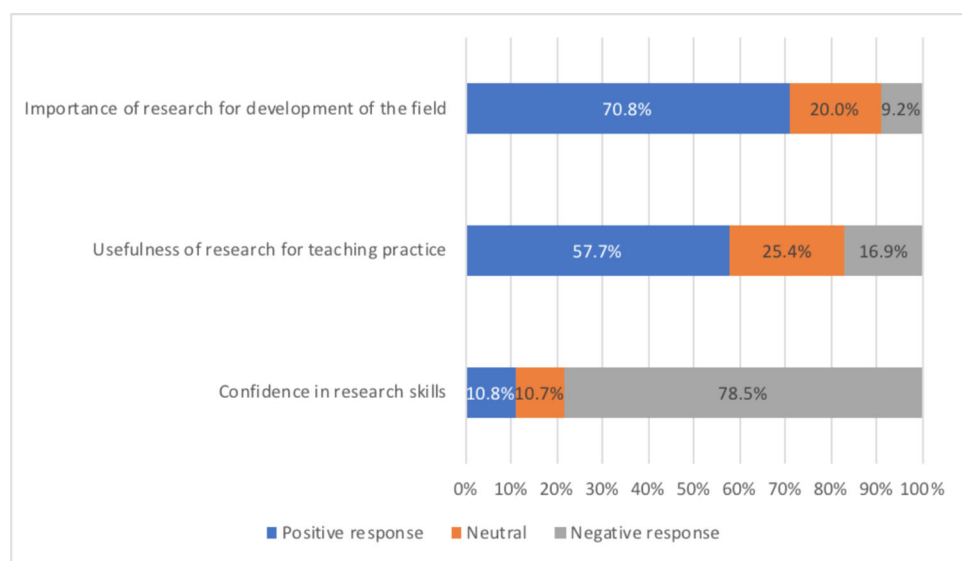
Data Analysis

Descriptive statistics (i.e., percentages) were used to analyze the precourse survey. The interviews were transcribed verbatim. We followed a thematic analysis approach to analyze the reflection and interview data (Braun & Clarke, 2006). We first read through the data set to familiarize ourselves with the data. Guided by our RQs, we identified segments relevant to a specific inquiry (e.g., impact of the ISLA course on teachers' research mindset). These segments were subsequently coded according to emerging concepts and issues. Next, the codes were grouped into potential themes, accompanied by extracts from the data. The frequencies of codes (i.e., how many times similar codes were mentioned by different participants) were also calculated to determine major themes. The themes were then refined to ensure they sufficiently represented the data set and all coded data extracts fit within each theme. Finally, clear names were given to each theme.

Role of the Researchers

In this study, the teacher educators assumed different roles in "mediating between SLA researchers and teachers" (Ellis, 2011, p. 4), all of which was essential to strengthening the teacher learners' research mindset. When designing the focal ISLA course following an inquiry-based approach, we deliberately wanted to move away from being transmitters of SLA knowledge. Rather, we desired to act as co-inquirers (Galda & Beach, 2001) who guide teacher learners toward gaining a research-informed understanding of SLA issues and a strong awareness of the importance of research for language pedagogy. Additionally, as L2 teachers ourselves, we

FIGURE 1

Teachers' Perceptions Toward Research ($N = 130$) [Color figure can be viewed at wileyonlinelibrary.com]

endeavored to be co-learners (Jacobs & Farrell, 2003) to share our teaching and research experiences with the teacher learners when opportunities arose. In fulfilling these roles, we strived to ignite and document changes in our teacher learners' research mindset in ways that "acknowledge the past and imagine the future, all the while recognising what we are doing as happening in an evolving, ever-changing and challenging system" (Johnson & Golombek, 2020, p. 119).

Ethical Considerations

An ethical clearance for the current study was approved by the Human Research Ethics Committee of the Australian university at which the research was conducted. A blanket course-level ethics approval was also obtained to cover the teacher learners' MRPs. Additionally, at the beginning of the focal ISLA course, all teacher learners participated in a 2-hour information session on human research ethics delivered by the University's Office of Research Ethics. The purpose was to ensure they became aware of and familiar with the principles and practices of ethical research conduct.

FINDINGS

Teachers' Research Mindset Prior to Taking the Inquiry-Based Teacher Education Course

Findings from the precourse survey and focus group interviews showed teacher learners'

varied levels of research engagement before participating in the focal ISLA course, thereby providing interesting insight into their research mindset. Considering the cognitive aspect, a majority of the participants (70.8%, or 92 participants) acknowledged the importance of research for the development of the field, and more than half (57.7%, or 75 participants) agreed on the usefulness of research for their teaching practice. Despite these positive attitudes toward research, an overwhelmingly large number (78.5%, or 102 participants) indicated that they were not confident in their research skills (see Figure 1). This finding was worth noting, considering that most of these teacher learners had taken a research methods course in a preceding semester as part of their master of applied linguistics program.

Focus group interview data shed further light on the teacher learners' cognition about research upon entry to the present ISLA course. In retrospect, they reported being aware that research could help them improve their pedagogical practice (Excerpt 1).

EXCERPT 1

In the past I taught in a classroom with about 50 students and I didn't know what to do to teach well. So I asked myself, 'what does research have to say about learning and teaching a second language, especially in the classroom?' So I was thinking I will just have to take a break from teaching and go for a master's degree (. . .) I had a positive mindset towards

research, because I thought that I needed it in order to be a more effective teacher. (P17, Focus Group 3)

P17 emphasized the role of research in learning “how to teach well.” Seeing this potential link between research and teaching practice enabled her to adopt a positive view of research. Noticeably, this realization led her to pursue further training (i.e., a master’s degree) to have more exposure to research.

P1 elaborated further why she attached importance to research (Excerpt 2).

EXCERPT 2

The results of classroom-based research are practical because they can solve real questions or real problems in second language classrooms. (P1, Focus Group 1)

P1’s remark is likely also shared by many L2 teachers, that the relevance of research lies in its applicability to classroom teaching (Lightbown, 2000).

Interestingly, prior to the course, several participants’ views toward research were restricted to experimental and quantitative research. The reason for this view was due to their previous study experiences (Excerpt 3).

EXCERPT 3

Before taking this course what I knew about research is only experimental research, applying a certain teaching method and then see whether it works or not. (P12, Focus Group 3)

There’s some difference about the kinds of research I encountered in China and in Australia. When I studied in China, most examples of research were about quantitative methods and using statistics to report data. (P14, Focus Group 3)

By conceptually comparing the research cultures in China and Australia, P14 interestingly gave us a glimpse into what constituted her prior research mindset. Her limited exposure to diverse kinds of L2 research admittedly narrowed her view of research to quantitative and experimental studies.

At the level of action, the precourse survey data revealed that the teacher learners’ engagement with and in research were limited. Forty percent, or 52 participants, said they rarely or never read published language teaching research, and 50.8%, or 66 participants, said they sometimes read it. Among the 52 participants who rarely or never read research, their most commonly cited reason was because they found published

research hard to understand (50%, or 26 participants), followed by a lack of interest in research (42.3%, or 22 participants), perceived absence of practical advice for the classroom (21.2%, or 11 participants), and finally, the lack of time (17.3%, or 9 participants).

Considering doing research, a majority (80%, or 104 participants) reported they had rarely or never done any research, and only 14.6% (or 19 participants) said they sometimes did research. Among the 104 participants who rarely or never did research, their reasons were largely related to the lack of research knowledge and skills (40.4%, or 42 participants) and guidance to do research (38.5%, or 40 participants). Figure 2 presents these reasons.

In the interviews, the participants further explained that one of their reasons for not reading research was due to the lack of focus and purpose of reading, and the difficulty associated with academic research reports, as illustrated in Excerpt 4.

EXCERPT 4

Before I took this course, it was so difficult for me to read research papers. I didn’t know what I was looking for. I didn’t know what’s the main point of a paper is. There are so many pages, sometimes there were 30 or 50 pages, and I couldn’t understand the language. (P16, Focus Group 3)

P16’s comments reveal an oft-cited reality that the inaccessibility of research to teachers was largely due to their unfamiliarity with the discourse and conventions of research writing (Marsden & Kasprovicz, 2017).

Even when some participants desired to consult research to improve their teaching, the lack of access to “good” research posed another challenge (Excerpt 5).

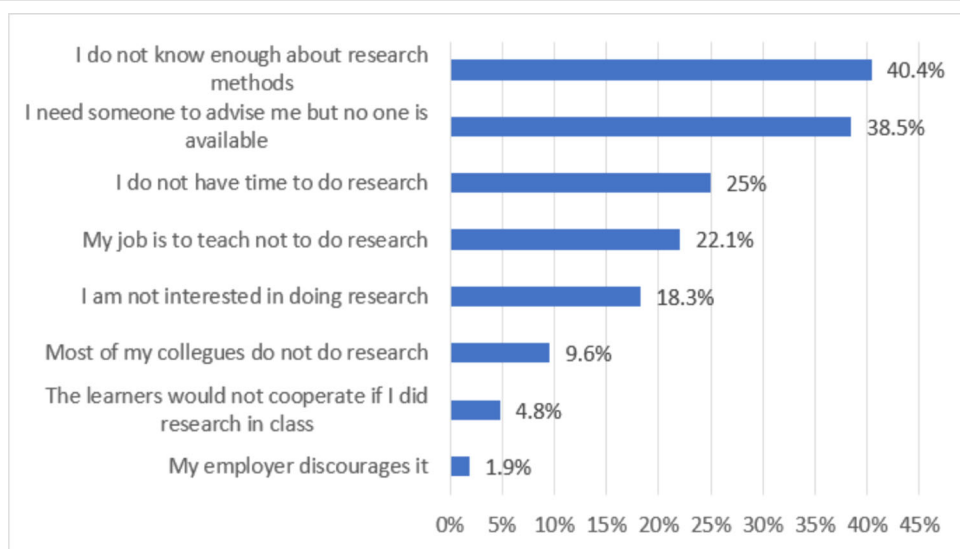
EXCERPT 5

Previously even if I had access to journal articles on the internet, I didn’t have access to the good ones, to the reliable journals because we have to subscribe to them and we can’t do that back home. (P17, Focus Group 3)

Insufficient resources were a common obstacle to the teacher learners’ exposure to research. Since most of the participants were from a non-English-speaking context, access to language teaching research, which is often published in English, was limited to them. This low level of engagement with research, not surprisingly, led

FIGURE 2

Teachers' Reported Reasons for Not Doing Research ($N = 130$) [Color figure can be viewed at wileyonlinelibrary.com]



the participants to engage minimally in doing research (Excerpt 6).

EXCERPT 6

Before taking this course, I never thought about conducting my own research. I felt it must be extremely hard because I learned about research, but I don't think I have enough research skills. (P7, Focus Group 2)

P7's remark confirms that the teacher learners' lack of confidence in their research skills was a major hindrance to their willingness to carry out research in their classroom.

The second-most common reason for not doing research was the lack of time and the fact that research was not part of their job requirements (Excerpt 7).

EXCERPT 7

I think university teachers are in a better position to do research than high school teachers. When I taught at high school level no one cared about academic theories. What we needed to do was just make sure the students had high scores in exams. (P3, Focus Group 1)

By contrasting her own work characteristics with those of university teachers and pointing out that the lack of emphasis on research in her own work was due to differences in teaching environ-

ments, P3 seemed to have found a reasonable explanation for her lack of engagement in research. An active research mindset seemed nonexistent to her in this situation.

To summarize, the precourse survey and focus group interview findings demonstrate that although the teacher learners seemed well aware of the role and benefits of research for practice, their research mindset remained unactivated, particularly in the areas of engagement with and in research. What was interesting was that unlike previous studies where language teachers reported a lack of research engagement predominantly due to the lack of time and support from their institution (Borg, 2010; Sato & Loewen, 2019; Tavakoli, 2015), teachers of the present study were more concerned about their research skills and expressed desires to have more guidance on how to design and conduct research. These issues, undoubtedly, can be assuaged within TE programs, which are arguably the optimal venue where teachers are systematically introduced to and immersed in research (Baumann & Duffy, 2001), thereby activating their research mindset.

Impact of the Inquiry-Based Teacher Education Course on Teachers' Research Mindset

The reflection and focus group interview data reveal observable impacts of participation in the focal inquiry-based ISLA course, especially the

TABLE 1
Impacts of the Focal Instructed Second Language Acquisition Course on Teacher Learners’ Research Mindset

Aspect	Emerging themes	Frequency
Cognitive	Enhanced perceptions toward research	117 (90%)
	Better understanding of importance of research for language teaching practice	86 (66.2%)
	Better understanding of research procedure	76 (58.4%)
Action oriented	Reading research with more focus	115 (88.5%)
	Greater confidence in conducting research	123 (94.5%)
	Ability to connect second language acquisition theories, research, and teaching practice	92 (70.8%)

open-inquiry MRP, on various aspects of the teacher learners’ research mindset at the levels of cognition and action. Table 1 summarizes the main themes emerging from the written reflections. The focus group interview findings subsequently provide additional insights into these themes.

Cognitive Aspects of Research Mindset. First and foremost, participants’ perceptions toward research were significantly expanded (see Excerpt 8).

EXCERPT 8

Through the weekly readings and my classmates’ article presentations, I learn that research is not only about whether you are experimenting something. You can take an ethnographic approach and observe students’ interaction for a period of time. That’s very new to me. (P12, Focus Group 3)

For my MRP, I decided to do a qualitative study by using interview to collect data, because the topic of my study is to investigate students’ perceptions of study abroad on their language learning beliefs. Before that I wasn’t very sure about interview research, but now I think this research approach is good and suitable for me. (P58, Reflection)

Frequent exposure to multiple kinds of SLA research during inquiry-based course activities, and most importantly, firsthand experience in doing the MRP, introduced the teacher learners to a wider range of research knowledge and experiences, thus broadening their views toward research.

Regarding the importance of research for language teaching practice, participants’ responses show that the inquiry-based course experiences increased their curiosity about the contribution of research to teaching (see Excerpt 9).

EXCERPT 9

Each weekly content is motivated by a question that links an SLA topic with classroom learning, so I got really interested. Not only that, I was pleased that we can find solutions to those questions by analysing relevant research. (P1, Focus Group 1)

P1’s comment highlights the effectiveness of the structured inquiry model embedded in the course design in encouraging the teacher learners to explore, and later acknowledge, the role of research for their pedagogical practice.

Notably, involvement in the course enhanced the teacher learners’ understanding of what constitutes a scientific investigation and the research procedure, an area of knowledge that they previously claimed to lack confidence in (see Excerpt 10).

EXCERPT 10

Through completing my MRP, I have gained a better understanding of ‘what’ and ‘how’ to do when carrying out research on a given topic in a scientifically systematic and methodical way. A research project is a rigorous investigation based on a disciplined process to understand certain phenomena under a contextual setting. (P45, Reflection)

P45’s comment demonstrates not only a high level of understanding of the research procedure, but also confidence in forming her own conceptualization of research.

These findings collectively indicate the varied ways in which participation in the inquiry-based ISLA course contributed to activating the teacher learners’ research mindset at the cognitive level, including enhanced perceptions toward research and its pedagogical contribution, as well as greater knowledge and understanding of the

research procedure. These changes in perceptions naturally translated into a stronger level of research engagement (i.e., action).

Action-Oriented Aspects of Research Mindset. The participants reported that within the scope of the course they read research papers with clearer focus and purpose (see Excerpt 11).

EXCERPT 11

Reading research papers was a very boring thing to me before, to be honest. But with the reading assignment, we didn't just read but had to get the main ideas and write answers. Also, each week we were given an SLA inquiry to think about. It motivated me to read and find out the answer. (P7, Focus Group 2)

Comparing between time frames (before and after course participation) allowed the teacher learners to see developments in their engagement with (i.e., reading) research. The inquiry-oriented course elements (e.g., reading assignment, initial inquiries) evidently encouraged them to read research more purposefully.

Upon adopting a renewed perspective toward reading research, the participants made advances in their research engagement journey as they realized the differences between reading and doing research when working on the MRP (see Excerpt 12).

EXCERPT 12

Although we had plenty of time and chances to encounter research through the reading assignments and self-study, now I realise it was not enough to make us think deeply about a research issue. Reading what is already done is totally different from constructing new ways to conduct research on one's own. (P18, Reflection)

This noteworthy realization led them to appreciate the research skills that they were able to learn and practice through the process of completing their MRPs (see Excerpt 13).

EXCERPT 13

The experience of conducting a real research project is precious. I had to read the literature one month earlier. After that, I adapted a survey and edited it to be compatible to my research needs. The most interesting thing was experiencing difficulties in data collection and analysis. I had to read and learn more about analysing data quantitatively and qualitatively. (P1, Reflection)

The most profound thing I have learned is when collecting and analysing data, it is important to keep the

research questions in mind and always refer to the research questions. (P58, Reflection)

The teacher learners' reflections on their MRP were infused with knowledge and confidence that come from fresh experience. They were able to not only comment knowledgeably on the different stages of the research procedure but also draw useful conclusions about what makes successful research (e.g., always referring to the research questions). The MRP experience arguably enriched their research mindset. They went from being minimally research engaged and lacking an understanding of the research procedure to adopting a researcher position and being able to speak the language of researchers.

More importantly, engagement in the MRP was vital in helping the participants make connection between SLA theories and research and their teaching practice in several ways. First, formulating research questions and planning their research helped them gain a better understanding of learnt theories (see Excerpt 14).

EXCERPT 14

Reading the relevant SLA literature on corrective feedback gives me inspiration while doing research helps me gain a deeper understanding of different types of direct and indirect corrective feedback. (P43, Reflection)

Direct experience with research evidently pushed the teacher learners to examine more closely SLA theories that were relevant to their chosen research topic, thus increasing their understanding of theory and research. This deeper level of appreciation would arguably be unattainable had it not been for their active research involvements.

Ultimately, the highlight of the course and MRP experience is when the teacher learners were able to pinpoint the impact of research on their teaching practice, including their pedagogical techniques and decisions (see Excerpt 15).

EXCERPT 15

For my study, I observed a quite experienced EFL teacher who can put teacher talk into more efficient use both in L1 and L2 to facilitate learners to improve their L2 acquisition in a communicative classroom. The teacher's tailored talk, which is brief but meaningful, has impressed me most, as I realised I sometimes talked too much in a nonfocused way when I teach. By analysing this teacher's classroom talk, I know where to improve. (P16, Reflection)

Researching the pedagogical practice of an experienced colleague motivated P16 to reflect on her own use of teacher talk and make use of her research findings to improve teaching practice. This incident made the link between research and practice clearer to her. Quite similarly, P7 emphasized the direct relevance of teachers conducting research (Excerpt 16).

EXCERPT 16

When you do research, then you know students' perceptions or ideas and that information makes you rethink your teaching philosophy or practice and the way you can improve your ways of teaching. (P7, Focus Group 2)

The teacher learners seemed to attach importance to the role of research in helping teachers solve pedagogical issues, both in terms of reflecting on their practice, and collecting information from students about the effectiveness of learning tasks.

Going Forward: Future Research Engagement. These newfound insights subsequently enthused many participants to think about engaging in further teacher research beyond the scope of the current ISLA course and TE program (see Excerpt 17).

EXCERPT 17

Experience in this course motivates me to do more research in the future because I can verify part of the theory during the research period. It can help me understand the learning needs of my students as well as for my teaching development. (P68, Reflection)

Conducting the MRP lays a root for students who want to study further or even get a Ph.D. (P80, Reflection)

While it remains to be seen whether these teacher learners would actually manage to engage in research as they returned to teaching, their enthusiasm and inclination toward research is evident. Notably, for some participants the course experiences motivated them to pursue further studies and even follow a research-intensive route (i.e., doing a PhD).

Nevertheless, about one third (47) of the participants were realistic about their future prospect of engaging in research and expressed their concerns related to contextual constraints such as the lack of time and institutional support (see Excerpt 18).

EXCERPT 18

I don't think I will be conducting any kind of classroom-based research in the future for the reason that it's time-consuming and exhausting both mentally and physically for the teacher. I would rather focus my attention on classroom planning or curriculum designing which I believe would be more beneficial to my learners directly. (P65, Reflection)

In the high school context where I teach, a teacher is evaluated by not how many research publications they have, but how many scores their students achieve in exams. So I think until the school makes research an important part of our work, and rewards us for doing research, it remains difficult to conduct research. (P3, Focus Group 1)

Contemplating their relationship with their workplaces and colleagues helped the participants verbalize their apprehensions toward conducting research. Despite the insights and practice with research that they had gained and experienced in the focal ISLA course, they were held back by the realities of their teaching contexts where research does not play a prominent part.

What is worth noting is that, although recognizing these obstacles, the teacher learners were still keen to maintain the favorable relationship with research that they developed in the focal ISLA course (Excerpt 19).

EXCERPT 19

Even if I may not be able to try out research in my future classroom, I can at least wear 'research glasses' to see things happening in my teaching context. (P45, Reflection, our emphasis)

P45's interesting remark of looking at her students' learning and her own teaching through the lens of research indicates her willingness and ability to incorporate research into her pedagogical practices. This promising view is also echoed by other participants (Excerpt 20).

EXCERPT 20

I might not have time to do research by myself, but as long as I still read research papers and find ideas and solutions for my teaching from there, I am quite satisfied already. (P17, Focus Group 3)

P17's comment reflects an important component of a research mindset, in which teachers embrace the value of research for their teaching practice.

While acknowledging several benefits of the inquiry-based ISLA course on activating and nurturing their research mindset, the teacher learners also reported challenges arising from learning in the course, mainly concerning the process of conducting the MRP. These included working in tight time frames and lack of access to research sites (see Excerpt 21).

EXCERPT 21

It was challenging to learn about ISLA research and then carry out my own study within a few weeks. A 13-week semester wasn't short, but I still wish I had more time to absorb more research knowledge and skills. (P115, Reflection)

I wanted to do a classroom observation study, but it was really difficult for me to find a language class and get permission to observe. (P2, Focus Group 1)

On the one hand, the course experiences seemed to have given the teacher learners a taste of challenges commonly faced by L2 researchers when conducting research. On the other hand, these difficulties reflect the limitations of teachers conducting research within the context of TE courses, where teachers are under pressure to produce a research product within a limited time, and few have access to their own classroom.

DISCUSSION

A Strong Research Mindset Facilitates the Research–Practice Dialogue

The present study provides insight into different aspects of the teacher learners' research mindset, as well as documenting changes in their mindset as a result of engagement in various learning experiences. The findings led us to argue that all L2 teachers possess a mindset for research, which encompasses both their cognition, or thinking about research, and their action, or how they conduct their teaching taking into consideration knowledge from research. However, this mindset may exist on different levels, depending on teachers' own beliefs as well as learning and teaching needs and experiences. Specifically, prior to the focal ISLA course, the teacher learners presumably did not possess an active research mindset; they were generally aware of the benefits of research for practice, but could not pinpoint specifically what those benefits could be, as reported in previous research (Nassaji, 2012; Tavakoli, 2015). Also, they limitedly engaged with reading research (Marsden & Kasprowitz, 2017), had little experience in conducting

research (Borg, 2009), and lacked confidence in their research skills (Lyster, 2019). Postcourse, their research mindset was substantially strengthened. They were able to articulate specific contributions of research for language pedagogy (e.g., connecting with learners and colleagues, finding answers and/or solutions to teaching inquiries), could read research with more focus and purpose, and had gained significant confidence in their abilities to conduct a teacher research project. They were in many ways invigorated by knowledge of, and engagement with and in, research (Ortega, 2012).

The participants' apparently enhanced research mindset, in turn, enabled them to recognize and embrace the connection between research and practice. As teaching practitioners, they were observably able to gradually build an effective relationship with research throughout course participation. Specifically, they expressed desire to continue to engage with and in research beyond the scope of their TE program. More importantly, while acknowledging various contextual challenges that may prevent them from active research engagement such as lack of time and institutional support, they showed willingness to view teaching and learning issues from the perspective of research (i.e., putting on "research glasses"), which is explorative and evidence based. This attitude reflects an ideal image of language teachers who stand somewhere between being a "standpat traditionalist" and an "impressible adventurer," as described by Carroll (1966, cited in Lightbown, 2000): "teachers who have convictions about the soundness of their teaching techniques, but are open-minded and interested in new ideas, materials, and techniques that stem from research and development, with a readiness to try out these techniques in their classroom" (p. 454). Arguably, a stronger research mindset enabled many teacher learners of the present study to become well-informed and open-minded practitioners who are keen to maintain constant dialogues with research in their pedagogy.

Impact of Inquiry-Based Teacher Education on Research Mindset

Apart from establishing the importance of teachers possessing a strong research mindset, the findings reveal several positive impacts of the focal inquiry-based ISLA course on nurturing this mindset, further reinforcing the vital role of TE in linking research and practice (Johnson & Golombek, 2020; Sato & Loewen, 2022). The discovery and experiential principles

of inquiry-based learning (Jenkins et, al., 2007) were conducive to creating and maintaining a strong research mindset among the teacher learners. In particular, the fact that the course was designed following a structured inquiry approach was instrumental in arousing participants' interest in meaningfully exploring SLA research through reading and critiquing existing research (Selvi & Martín-Beltrán, 2016). Especially, their research mindset was at its strongest as the teacher learners engaged in conducting an SLA research project (i.e., the MRP), designed following an open-inquiry approach. They were able to experience firsthand both the joy and hardship of researching an SLA topic that was relevant to them, test and enhance their research competence, and eventually develop a strong connection with research. The success of the MRP in strengthening participants' research mindset confirms that an open-inquiry approach is most likely suited to foster strong links between research and disciplinary teaching (Spronken-Smith & Walker, 2010). This approach is also strongly supported by SLA scholars: Ellis (2011), in suggesting key principles for embedding SLA research into a TE course, highlighted the importance of involving teachers in carrying out research, arguing that "teachers need opportunities to *become researchers* [emphasis added] in their own classroom" (p. 7). Even when not all teachers of the current study were able to conduct their MRP in their own classes, the opportunity to work with language learners and teachers on an SLA topic of their choice was still crucial to the experience of becoming researchers. This dual-identity adoption (Taylor, 2017) is significant, allowing teachers to walk in the shoes of researchers, thus viewing teaching and learning from both theoretical and practical standpoints (Freeman, 2018).

Alongside inquiry-based learning activities, the abundance of reflective elements embedded in different stages of the focal ISLA course (i.e., throughout the course in weekly reflection posts, and at the conclusion of the MRP and of the course) was an important contributing factor to the participants' enhanced research mindset. Reflection is an important component of both inquiry-based learning (Lotter & Miller, 2017) and language TE practices (Farrell, 2018), as it allows teachers to process gathered information and map it against their existing knowledge, beliefs, and experiences. Reflecting on their perceptions and engagement with and in research at different points in time (i.e., before, during, and after the course) encouraged the teacher learners

to think deeply about their own research perceptions and engagement, thus making explicit their research mindset as it evolved.

Finally, although the focal ISLA course generally appeared to nurture and promote teacher learners' research mindset, challenges at the attitudinal and logistic levels still remain and are thus worth noting. First, one of the aspects at the attitudinal level where the focal ISLA course was admittedly short of and unable to address was that teacher learners were still concerned with the oft-cited lack of institutional support. Pragmatically, this may prevent them from future engagement in research even though they had become more skilled, confident, and critical practitioners after the focal ISLA course. Thus, apart from attempts initiated in TE such as those reported in the present study, we argue that thorough, collaborative, orchestral, and continued efforts from all stakeholders—especially from institutions and employers—is needed to more effectively and comprehensively address the research–practice gap. Second, at the logistic level, the teacher learners reported pressure caused by the focal ISLA course' tight time frame and lack of access to research sites. Amendments regarding preparation for accessing research sites and spacing out the activities in course design are therefore necessary, if similar TE courses following the focal ISLA course reported in the present study are attempted.

CONCLUSION AND IMPLICATIONS FOR TEACHER EDUCATION

The present study explored the impact of an inquiry-based TE course on ISLA on teacher learners' research mindset. Findings show that the inquiry-based learning activities conducted in the course were vital to strengthening participants' research mindset, encouraging them to think past the oft-cited obstacles toward teachers' research engagement and embrace a positive relationship with research. The findings also demonstrate that a research mindset is crucial to motivate teachers to engage in and maintain their dialogue with researchers within and beyond TE programs, thus adopting a research-informed approach toward teaching.

These results bear some useful implications for language TE. First, we suggest incorporating the concept of research mindset into existing language TE courses, in which teacher educators purposefully set nurturing a research mindset as one of their course objectives. The cognitive and action aspects of research mindset

outlined in this research could then be used as parameters to determine teacher learners' level of attainment. Given that the research-practice divide is prevalent in many areas of L2 teaching (Crandall, 2000; Kramsch, 1995), this component could be embedded in not just SLA courses but also teaching and research methods modules. Second, within the scope of TE courses, teacher learners should be given ample opportunities to formulate their practice-inspired inquiries about teaching and learning, and guided by teacher educators to reflectively and dialectically find answers from various sources, of which research is central. Where possible, an open-inquiry component could be implemented to provide teacher learners with opportunities for firsthand experience in conducting research. To overcome time constraints, we suggest staging this research assignment into small, manageable tasks across a semester according to the stages of a research procedure. Support may also be given regarding access to research sites, such as forming collaborations with language classes or schools and pairing teacher learners with L2 learners or practicing teachers. Despite epistemological and practical challenges faced by teachers, researchers, and teacher educators in strengthening the research-practice nexus, we are hopeful that TE remains a fertile ground to nurture a strong research mindset among teacher learners, thus contributing to a synergy between research and language pedagogy.

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 11. Why students keep silence in classroom interaction: Perspectives of teachers and Chinese EFL learners
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APPENDIX B

Teachers' Research Mindset Questionnaire

Part A. PERCEPTIONS ABOUT RESEARCH

1. To what extent is research important for the development of the language teaching field? Choose ONE.
 - ☐ not at all important
 - ☐ not very important
 - ☐ neutral
 - ☐ important
 - ☐ very important
2. To what extent is research useful for your teaching practice? Choose ONE.
 - ☐ not at all useful
 - ☐ not very useful
 - ☐ neutral
 - ☐ useful
 - ☐ very useful
3. How confident are you in your research skills?
 - ☐ not at all confident
 - ☐ not very confident
 - ☐ neutral
 - ☐ confident
 - ☐ very confident

APPENDIX A

Samples of Mini-Research Project Topics

1. Korean ESL learners' perceptions and preferences of oral corrective feedback
2. Chinese students' perceptions of using the first language (L1) in the second language (L2) corrective feedback
3. EFL teachers' perceptions and attitudes toward different types of written corrective feedback
4. Perspectives of Chinese university ESL learners toward peer oral corrective feedback

Part B: READING AND DOING RESEARCH

1. How frequently do you read published language teaching research? (If you choose 'never' or 'rarely', go straight to question 4.)

☐ Never ☐ Really ☐ Sometimes ☐ Often

2. If you said that you read published language teaching research often or sometimes, Which of the following do you read? (Tick all that apply)

- ☐ Books
☐ Academic journals (e.g., *TESOL Quarterly*)
☐ Professional magazines (e.g., *English Teaching Professional*—<https://www.etprofessional.com/home>)
☐ Web-based sources of research
☐ Other

3. To what extent does the research you read influence your learning and teaching? Choose ONE.

- ☐ no influence
☐ a slight influence
☐ a moderate influence
☐ a fairly strong influence
☐ a strong influence

4. In Question 1 of this section if you said that you read published research rarely or never, here are some possible reasons for this. Tick those that are true for you.

- ☐ I'm not interested in research.
☐ I do not have time.
☐ I find published research hard to understand.
☐ Published research does not give me practical advice for my teaching.
☐ Other

5. How frequently do you do classroom-based research yourself? (If your answer is 'never' or 'rarely', please go to Question 7.)

- ☐ Never
☐ Rarely
☐ Sometimes
☐ Often

6. If, you said you do research often or sometimes, below are a number of possible reasons for doing research. Tick those which are true for you.

'I do research...

- ☐ as part of a course I'm studying
☐ because I enjoy it
☐ because it is good for my professional development
☐ because other teachers can learn about the findings of my work
☐ to find better ways of teaching
☐ to solve problems in my teaching
☐ Other

7. If you said that you do research rarely or never, below are a number of possible reasons for not doing research. Tick those which are true for you.

'I don't do research because ...

- ☐ I do not know enough about research methods.
☐ My job is to teach not do research.
☐ I do not have time to do research.
☐ My employer discourages it.
☐ I am not interested in doing research.
☐ I need someone to advise me but no one is available.
☐ Most of my colleagues do not do research.
☐ I do not have access to the books and journals I read.
☐ The learners would not cooperate if I did research in class.
☐ Other teachers would not cooperate if I asked for their help.
☐ Other