Raising teachers' awareness about corrective feedback through research replication

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Abstract

This article reports on a case study that examined the evolving thoughts and beliefs about corrective feedback of graduate students in applied linguistics, who were enrolled in a semester-long second language acquisition (SLA) course. Working in groups, the graduate students (students in an MA-TESL program, and doctoral students in a related program; a combination of practicing and prospective language teachers), conducted a partial replication of Lyster and Ranta's (1997) study of corrective feedback in some of their own ESL classes. The present study was designed to discover the extent to which graduate students' participation in this classroom-based research replication would contribute to a re-examination of their ideas, thoughts, or beliefs about corrective feedback. The replication project was conceptualized by the researchers as serving as a bridge between formal research and practical inquiry (Richardson, 1994). Analysis of multiple data sources (e.g. questionnaires, journal entries, a group interview) indicated that a number of students' ideas about error correction shifted throughout the semester. In particular, after participating in the research replication project, many students' comments revealed a decreased emphasis on the affective dimension of error correction, and a more sophisticated understanding of corrective feedback, as well as an appreciation for the relationship between corrective feedback, student uptake, and error type. In addition to themes of shifts in awareness about the complex nature of corrective feedback, the analysis further identified possible changes in future teaching practice, different attitudes toward research, and the appropriation of terminology pertaining to teaching.

Keywords

corrective feedback, language teacher education, teacher beliefs, research replication, practical inquiry, reflective practice

> Formal research is what we usually think of in educational research. It is designed to contribute to a general knowledge about and understanding of educational processes, players, outcomes, and contexts and the relationship between or among them […] Practical inquiry is conducted

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> by practitioners to help them understand their contexts, practices, and, in the case of teachers, their students. The outcome of the inquiry may be a change in practice, or it may be an enhanced understanding. Practical inquiry […] is not meant to provide *the* answer to a problem. Instead, the results are suggestive of new ways of looking at the context and problem and/or possibilities for changes in practices. (Richardson, 1994, p. 7)

1 Introduction

In recent decades, the notion of 'reflective practice', based on Schön's (1983) influential model of the 'reflective practitioner', has figured prominently in the professional discourse about language teacher education. A key component of reflective practice is developing awareness. Freeman (1989) has defined awareness as 'the capacity to recognize and monitor the attention one has given or is giving something' (p. 8). Language teacher education programs are believed to contribute to teachers' learning by generating change through increasing their awareness (Freeman, 1989). A preliminary step in this process of developing awareness requires that teachers first come to 'understand their own beliefs and knowledge about teaching and learning' (Freeman & Johnson, 1998, p. 412).

Freeman (2002), for example, has argued that reflective practice is important because it helps to mediate the process of integrating past beliefs with new information that teachers receive in their education programs. This function is especially critical because it is widely recognized that teachers' past beliefs are not only powerful (Freeman & Johnson, 1998), but that they are often resistant to change (Johnson, 1994); this makes the work of teacher educators especially challenging. Many of teachers' beliefs about teaching arise out of their 'apprenticeship of observation' (a term originally from Lortie's 1975 work, *Schoolteacher*). Teacher educator Kennedy explains the lasting influence of this 'apprenticeship':

> teachers learn their practice through an extended apprenticeship of observation. Unlike practitioners in virtually all other professions, teachers observe practitioners for 13 years before they even begin their formal preparation for their work. Many of their deepest beliefs about teaching and learning derive from this apprenticeship of observation. (Kennedy, 1997, p. 9)

Kagan, another teacher educator, defines teacher beliefs as the 'tacit, often unconsciously held assumptions about students, classrooms, and the academic material to be taught' (1992, p. 65). In a widely cited article that discusses the relationship between teacher beliefs and educational research, Kagan (1992) argues that teachers' beliefs remain largely unaffected by their reading of research. In other words, reading academic texts alone is unlikely to bring about re-examination of one's beliefs, or – by extension – any profound reflection on the connections between theory and one's existing teaching practices. Instead, Kagan maintains that 'teachers appear to obtain most of their ideas from actual practice, primarily from their own and then from the practice of fellow teachers' (p. 75). Consequently, if teacher education is to be successful, argues Kagan, it must 'emphasize the questioning and restructuring of pre-existing beliefs' (p. 84). Kennedy (1997) takes this argument one step further, by incorporating the role of research in teachers'

development, and argues that teachers' own prior beliefs and values not only influence their work in the classroom, but they also influence 'how receptive teachers [are] to ideas they might encounter from research' (p. 7). Therefore, 'changing practice cannot occur simply by *informing* teachers' (p. 7); clearly, if the goal is developing teachers' awareness, other types of educative activities would seem necessary. The present study represents an investigation into the shifts in awareness that occurred amongst novice and more experienced teachers after participating in the partial replication of a research study.

Teacher education scholars have claimed that many teachers find research irrelevant (Kagan, 1992; Richardson, 1994). Similar claims (e.g. Clarke, 1994) have been made in our own field of language teacher education. For example, Freeman and Johnson (1998) have pointed out that '[b]ecause the research knowledge per se does not articulate easily and cogently into classroom practice, much current knowledge in SLA [second language acquisition] may be of limited use and applicability to practicing teachers' (p. 411). In the present study, we conceptualized 'use' and 'applicability' of research not as research providing simple prescriptions for practice, but rather as the potential for research to serve as a springboard for shifts in teachers' awareness. We focused on one specific area with great promise for research/practice connections in language education: language teachers' examinations of corrective feedback in one local and familiar language-learning context.

Furthermore, in the present study, we draw on Richardson's (1994) dichotomy of practical inquiry versus formal research. As the article's epigraph indicates, practical inquiry refers to practitioner-based research, designed to bring about increased awareness or understanding about a phenomenon in a local context, whereas formal research refers to work carried out by experienced researchers that is intended to contribute to the knowledge base of a discipline. However, the present study blurs this dichotomy to some extent because it reports on a project that used an example of formal research on corrective feedback (i.e. Lyster & Ranta's 1997 article) as a framework for practical inquiry, or as a means through which teachers could develop a first-hand understanding about the relationship between teacher feedback and student uptake. In other words, we adapted slightly the research design of one published study, and we asked a group of student teachers to examine similar types of questions in their own local teaching contexts.

In doing so, we have also responded to teacher educators Zeuli and Tiezzi's (1993) call, which encourages teachers to investigate their own practice. Zeuli and Tiezzi argue that teachers 'need to learn to do research on their own teaching because such work will improve teachers' ability to analyze classroom situations and to respond in context flexibly and thoughtfully' (p. 28). Furthermore, they point out that teachers who have participated in some kind of research themselves are more likely to view research as useful, than those who have not; and that 'graduate study [alone] was not strongly associated with changing teachers' view of research' (p. 28). Zeuli and Tiezzi advocate that 'teacher educators create educative contexts in which teachers acquire broader, more flexible views of research' (p. 2), claiming that creating such contexts can help promote change in teachers' beliefs about research, as well as their awareness of their own practice.

By asking teachers to participate in a partial replication of a published study, we not only blurred the distinctions between formal research and practical inquiry, but we have also created a context where shifts in awareness can perhaps take place; where teachers can investigate a central issue of SLA research in their own ESL classes; and where they

have an opportunity to reflect on their own ideas about corrective feedback, both in light of the research they have read and in light of their own empirical findings. Thus, the primary question that guided the present study was the following:

> After participating in a research replication in some of their own language classrooms, to what extent is there any evidence of a shift in language teachers' beliefs, ideas, or ways of thinking, about corrective feedback?

As a secondary consideration, we were also interested in determining whether there were any related shifts in participants' attitudes toward research.

It should be noted that in the context of language teacher education, the distinction between 'knowledge', 'beliefs', and 'thoughts' is a rather blurry one. Borg (2003), for example, groups the terms within the more general construct of teacher cognition, which he uses to refer to 'the unobservable cognitive dimension of teaching – what teachers know, believe and think' (p. 81). Woods (1996) is similarly reluctant to delineate distinctions between beliefs, assumptions, and knowledge in his investigation of teacher cognition, preferring to consider the three concepts as 'points on a spectrum of meaning' (Borg, 2003, p. 96). Therefore, in this article, we do not attempt to distinguish changes in teachers' beliefs from changes in their knowledge. Instead, we use the notion of shifts in awareness to refer to changes in teachers' ideas, beliefs, or thoughts about error correction in particular, and language teaching and learning in general.

For over a decade, corrective feedback has been a central topic in instructed SLA research. In spite of a few dissenting voices (e.g. Truscott, 1996, 1999), most SLA research which has actually investigated the effectiveness of corrective feedback in response to learner errors has found clear benefits (see reviews in Leeman, 2007). For example, the results of Russell and Spada's (2006) recent meta-analytic study – which analysed dozens of corrective feedback studies (the majority published in the past 10–15 years) – showed a strong trend of positive gains for corrective feedback, as well as gains that seem to endure over time. As consistent as these findings are about the efficacy of corrective feedback in general, what remains far less conclusive is the type of corrective feedback that is most beneficial to language learners. Several authors have identified this as an important question that future SLA studies will need to address.

As far as teachers are concerned, corrective feedback is an area where there is convergence between the findings of researchers and the beliefs of many practitioners. Leeman (2007) points out that most teachers believe that error correction is beneficial. Furthermore, within the context of SLA research – and instructed SLA, in particular – corrective feedback is an area that has clear and direct relevance for language teachers. In terms of SLA constructs, corrective feedback represents one area in which teachers are able to exert some degree of control (as opposed to constructs that represent more learner-internal types of phenomena – e.g. developmental readiness, attention).

Moreover, from the comments of graduate students in MA-TESL classes in previous years, we have observed that error correction is a topic that teachers typically feel eager to learn more about, and an issue that less-experienced (as well as more-experienced) teachers struggle with, as they ask themselves questions such as how often to correct learner errors, the circumstances under which it is best to provide corrective feedback,

along with the most effective ways of responding to learner errors. Perhaps one of the main reasons why providing feedback in response to learner errors may be a particularly challenging issue for novice language teachers is because correcting a learner's error is a very clear type of 'face-threatening act', or FTA (Brown & Levinson, 1987). Although, to date, this aspect of corrective feedback has not received much attention in the SLA literature – and although it may be argued that, to some extent, politeness conventions that operate elsewhere in society are partially suspended in the classroom due to participants' institutional roles and expectations resulting from such roles[1] – the face-threat associated with correcting and/or being corrected does not automatically disappear simply because participants' identities as 'teacher' and 'learner' are made relevant in these interactions.

Therefore, the broad topic of corrective feedback, or 'error correction',[2] was selected as the focus for this study – as well as for the replication project around which it centers – because it is a major area of inquiry in instructed SLA. Teachers tend to view it as an important, though complicated, practice and, although they recognize its benefits, teachers may have questions about appropriate frequency, type, and contexts. More specifically, the Lyster and Ranta (1997) study was selected as the basis for a partial replication project because it is a seminal article on corrective feedback.[3] Another reason why this particular study was selected was its largely descriptive, naturalistic design: other than placing a recording device in a language classroom, partially replicating Lyster and Ranta's study did not require any controls, treatment, or other types of teacher intervention.

II Methods

1 The educational context

The present study was conducted at a large public research university in the south east of the USA. Participants in the study were enrolled in a graduate course, a Master's level SLA course, which is usually taken by TESL students in their fourth and final semester of an MA-TESL program. Normally, the SLA course is comprised of 12–20 students, and occasionally a few of these are doctoral students in a related education program, who may be asked to take the course as a prerequisite, before taking more advanced SLA courses. The 16-week course meets once per week for three hours. This graduate-level SLA survey course provides an overview of the major theoretical perspectives in SLA (UG, cognitivist, social interactionist, and sociocultural), and covers major topics in the field, such as individual differences, fossilization, interlanguage, noticing, etc. The course's textbook is Mitchell and Myles (2004), and it is supplemented with a variety of research articles from relevant journals (e.g. *Language Learning*, *Modern Language Journal*).

It is most common that during the same semester in which MA-TESL students take the SLA course, they also complete a teaching internship in the university's Intensive English Program. (This IEP provides an English-for-Academic-Purposes curriculum for university-level international students.) The teaching internship requires that MA-TESL student-teachers videotape themselves teaching their ESL course, and that they produce a written reflection based on their viewing of this video. The replication project (described

Table 1 Participant demographics

Group	Participant	Degree program	Country of origin / L1	Prior language teaching experience**	Current language teaching experience*
A	**Mina**	MA	Turkey / Turkish	EFL (2 yrs)	ESL
A	Cleo	PhD	Senegal / Wolof	EFL (1 yr) French (1 yr)	French
B	**Alex**	PhD	China / Mandarin	EFL (5 yrs)	ESL / Chinese
B	Grace	MA	Brazil / Portuguese	EFL (40 yrs) Portuguese (8 yrs)	Portuguese
C	**Roxana**	PhD	Ukraine / Ukranian	EFL (8 yrs)	ESL
C	Cristina	MA	Venezuela / Spanish	EFL (7 yrs) Spanish (3 yrs)	Spanish
C	Rachel	MA	USA / English	None	None
D	**Amy**	MA	USA / English	EFL (1 yr)	ESL
D	Hope***	PhD	Korea / Korean	EFL (2 yrs)	None

Notes: The participants whose names are in bold were the teachers of the classes that were recorded for each group. * All participants who were teaching languages were teaching at the university where the study took place. ** Students' prior language teaching experience took place in a wide variety of contexts (university, private language school, primary and secondary school, etc.). *** This participant's responses were typically off-topic and not relevant to the prompts. She eventually withdrew from the program. Her responses are therefore not included.

in more detail in a subsequent section) was designed to articulate with this internship videotaping requirement.

2 *Participants*

In this particular iteration, the SLA class was slightly smaller than usual (i.e. 9 students), and had nearly as many PhD students as MA students (i.e. 4:5). All of the Master's students were in their second year, and most were in their final semester, of the MA program; all of the PhD students were in the second semester of their first year in the doctoral program. Participants' demographic information is summarized in Table 1. Overall, the group consisted of a majority of international students (7/9), who were between the ages of 25 and 60 (the majority in their late twenties to late thirties; mean age was 29), and who had, on average, 3–4 years of prior language teaching experience. At the extremes, one student had no prior language teaching experience, while another student had over 40 years. Seven of the students in the course were currently teaching a foreign and/or second language. (In addition to teaching in the IEP, some students also held Graduate Teaching Assistantships and taught a foreign language at the same university: Spanish, French, Portuguese, or Chinese.) All participants had some experience with learning one or more foreign language(s) themselves.

The principal researcher was the instructor of the course. She had been an assistant professor of applied linguistics for two years prior to the year of the study and had taught the

course on two previous occasions. The assistant researcher was a third-year PhD student in the same program as the PhD-level participants, shadowing the principal researcher in the course. While the assistant researcher was an experienced EFL teacher, she had had little experience of teaching at the graduate level. The principal researcher designed the framework and focus of the study before the onset of the collaboration. (These emerged from her previous experiences of teaching the SLA course as well as a desire to establish a link across two courses in the curriculum: SLA and the teaching internship.) While the bulk of the instruction in the course was conducted by the principal researcher, the assistant researcher also led some classes, including some research modules.

3 The research replication process, timeline, and data sources

Six months prior to the delivery of the SLA course, we (the teachers/researchers) began writing materials and designing the research modules to integrate into the existing SLA course syllabus. Appendix 1 illustrates the timeline of the project. On the first day of the semester, we explained to the SLA students that they would be carrying out a partial research replication, asked them to provide their consent for participating in our study, and administered a pre-course questionnaire.[4] Our study, they were told, had to do with their responses to conducting a partial replication study themselves. They were then placed into one of four groups. Each group had at least one member who was currently teaching an ESL course in the IEP; a videotape of this member's teaching was used as data for the replication project.

The actual replication project, as Appendix 1 shows, was broken down into a number of steps, which were preceded by a detailed set of instructions. These steps were completed over the course of several weeks. First, each group's classroom video was due; next, their transcripts of their videos were due; then, after extensive explanation of and practice with Lyster and Ranta's coding categories,[5] their coded transcripts were due. Although the SLA students were told from the first day of the semester that their replication study would have something to do with 'classroom interaction', they were not informed that the specific focus of the replication was on corrective feedback until after they had completed transcribing their data. Once each group completed the coding of their data, we created an opportunity for them to share their results with the rest of the class. In this way, students in each group had a chance to observe class-wide trends in feedback and uptake types.

In the final two weeks of class the SLA students wrote a research report based on their group's data and data analysis, they completed post-course questionnaires and, finally, they wrote a reflective essay about what they learned as a result of carrying out this partial research replication. Additionally, throughout the semester, students were required to keep a reflective journal.[6] As teacher-researchers ourselves, we also kept a weekly journal following each class meeting in order to create an 'audit trail' of the study (Onwuegbuzie & Leech, 2007). Finally, one week following the end of the semester, a small group of volunteers from the course participated in a focus group interview,[7] which was subsequently transcribed. All of these documents were considered data sources, and they were analysed following the procedures described below. In qualitative research, the

triangulation of multiple data sources is believed to help reduce bias (Patton, 2002) or misinterpretation (Stake, 2005), as well as to help increase credibility and interpretative validity (Onwuegbuzie & Leech, 2007).

In this study, we adopted a case study approach because we were seeking, in part, to evaluate a pedagogical intervention. As Yin (2003) states, '[c]ase studies have a distinctive place in evaluative research … to *explain* the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies' (p. 15, italics in original). Since the case itself – that is, this particular group of participants – was of secondary importance to our focus on the relationship between the research replication and the participants' ideas about error correction, we followed Stake's (2005) recommendations for an instrumental case study, which involved looking at the issue in depth, and across multiple data sources.

4 Analytic procedures

Data analysis consisted of a cyclical and iterative coding process. First, all of the data sources (reflective essays, open-ended questionnaire responses, researcher memos, reflective journals, transcribed focus group interviews) were segmented and labeled with *in vivo* codes. Next, through repeated readings, overlap and redundancy among codes was reduced (i.e. similar codes were clustered together). Ultimately, numerous codes were collapsed into a few broad themes. The main themes derived from this analysis are discussed in the following section.

III Findings

The first part of this section focuses on shifts in participants' awareness about corrective feedback and reported changes in teaching practice related to corrective feedback. This is followed by a discussion of participants' increased awareness about other aspects of classroom dynamics and related changes in teaching practice they reported as a result of this increased awareness. Finally, we discuss our findings related to participants' responses to research.

1 Existing ideas about corrective feedback

In their journal entries, several participants revealed that they had entered the SLA class with minimal knowledge about corrective feedback. Cleo, a doctoral student, who was currently teaching French and had previously taught French at the primary and secondary levels, indicated that before taking the SLA course, she 'knew very little about error correction', in particular about its 'nature and frequency' in the L2 classroom. Amy, an MA student, who had taught EFL in Italy for 1 year, indicated that at the beginning of the semester, she 'did not know there were so many forms of error correction'. And Rachel, an MA student with no prior language teaching experience at all, commented in her journal on the third week of class that although she found research on this subject to be

'particularly intriguing and practical', she 'was surprised to read about the necessity of error correction.' In Rachel's final reflective essay, she admitted that before taking the course she 'had never thought about error correction'.

A second theme that emerged from participants' journals was a concern with the affective dimension – and the face-threatening nature – of corrective feedback. For example, in one of her earliest journal entries, Roxana, a PhD student who had taught EFL for a number of years in her native Ukraine, wrote that she hoped to come away from the SLA course with answers to some practical questions, such as 'How to make error correction in speaking in the most polite way?' In reflecting on the pros and cons of error correction, Cleo wrote in her journal that 'Some (shy) students could feel embarrassed to be corrected publicly and be discouraged/demotivated to speak.' In response to their first exposure to the notion of 'recasts' as discussed by Doughty and Varela (1998) – in the context of a session that introduced students to communicative focus on form – MA students Rachel and Mina both worried about the effects of corrective feedback on students' self-esteem and motivation. Rachel wrote, 'I think there is potential to cause embarrassment to students if recasting is not done appropriately and within reason.' Similarly, Mina (an MA student, with 1 year of EFL teaching experience in Turkey) indicated that she was thinking about the relationship between corrective feedback, and students' affect and motivation: 'I'm still concerned about the effect of recasts on students' motivation. I agree that they might be more appropriate in some cases, but not in all cases. Some students may not feel comfortable about getting corrective feedback frequently.'

2 *Shifts in awareness about corrective feedback*

Evidence for shifts in awareness, or ways of thinking about corrective feedback – which we defined as an emphasis given to different aspects of error correction over the course of the semester – was found in participants' responses to some open-ended questions in the pre- and post-questionnaires. On the pre-course questionnaire, participants were asked to reflect on their thoughts about error correction, from (1) their perspective as learners and (2) their perspective as teachers; on the post-course questionnaire, participants were asked to reflect on their ideas about error correction, from only (3) their perspective as teachers. Table 2 presents some of our participants' responses.[8] As illustrated, there were interesting shifts in participants' ways of thinking from pre- to post-questionnaire from their perspective as teachers. At the beginning of the semester, Rachel and Mina expressed their beliefs that corrective feedback could lead to feelings of 'awkwardness' or 'frustration' in language learners. Similarly, Alex – who had 5 years of experience teaching EFL in China prior to teaching ESL in the USA in the year of the study – also indicated that corrective feedback could be damaging to a learner's 'face', or public self-image. However, none of these three participants (Alex, Rachel and Mina) addressed the affective dimension of error correction in their post-questionnaire responses, choosing instead to focus on other aspects of corrective feedback, such as students' awareness of their errors, and different types of feedback moves. In her course-final reflective essay, Mina highlights this shift in her thinking: 'I used to believe that error correction can be

discouraging, useless, and even detrimental during the communicative activities. However, I now think that I should consider developing systematic error correction strategies for the common student errors.'

A second – and related – finding is that participants tended to become more aware of the interaction between corrective feedback and uptake, and the important contributions of both teachers and students in this process. Three of the MA-level participants represented here (Amy, Rachel and Mina), in various ways, indicated on their post-questionnaire responses that it may be more effective for teachers to elicit corrections from students, rather than to simply provide them with a correct form. Notably, this perspective was not present in any of the students' pre-questionnaire responses. Alex's responses indicate a related shift in assumptions. On his pre-questionnaire, he stated that error correction 'makes learners realize their mistakes'; however, the more precise wording on his post-questionnaire response suggests that this may not necessarily be the case, that is, that it is the teacher's role to 'make sure that students are aware of the errors'. Similarly, Rachel's post-questionnaire comments indicate a move away from an exclusive focus on the feedback move provided by the teacher to a consideration of the complex relationship between teacher feedback and student uptake: 'I used to think about the role of the teacher in error correction, now I am more interested in student uptake.'

In one student's final reflection, that student pointed out yet another dimension of error correction: the nature of the error itself. Discussing the impact of the project, Mina wrote that she 'also found out that there were certain patterns in the students' errors. Their errors were mainly morpho-syntactic, and particularly related to tense and number inflections.'[9]

In sum, several participants' responses demonstrate a shift away from the primary emphasis on the affective dimension of corrective feedback, to a more nuanced and sophisticated understanding of its role and function, and its interaction with student uptake. We would like to emphasize here that by 'shifting awareness' we do not mean that participants' initial ideas about corrective feedback were replaced with a totally new set of ideas. Rather, we draw attention to the fact that participants' responses to the same items following the research replication suggest that they had expanded their vision and that they had begun to consider other dimensions of corrective feedback that either they were unaware of, or that were not their primary considerations when they began the course.

Participation in this project also appeared to interact with some participants' ideas about frequency of error correction. For Cristina, an MA student and an experienced teacher of EFL and Spanish, this meant re-examining her beliefs about her own practices. In her final reflection, she commented that:

> One of the most striking outcomes of the project was the amount of teacher feedback with which most of my colleagues provided students, which was around half the mistakes the students made. I have always thought that I correct a lower percentage of student mistakes, between 20 and 30 percent, but now I think I might also be around the 50 percent trend.

Cleo, on the other hand, was at the opposite pole from Cristina, reporting that she believed that she corrected 85–90% of student errors. Cleo's comments reveal a shift

Table 2 Participants' ideas about error correction: Pre- and post-questionnaire responses

Name	As a learner (pre)	As a teacher (pre)	As a teacher (post)
Alex	Error correction makes learners realize their mistakes in using the target language, which helps learners learn the target language better.	When error correction happens in student's speaking, it may interrupt student's thinking and hurt their face.	Make sure that students are aware of the errors.
Amy	I want my errors to be corrected but only after I'm finished with a full response. I don't want to be overwhelmed with too much error correction, especially in writing.	Do not overwhelm students with too much at one time. Keep error correction focused on forms they are learning at the time.	Focus on specific errors. See if student can figure out on their own or if other students can help.
Rachel	I always wanted to be corrected in language classes because I was afraid I would sound unusual or on both in writing and speaking [sic].	Depending on the age of the students it might be awkward to correct errors particularly in speaking.	Error correction is expected by students, but often does not succeed in its purpose. There are many views on the place and form of error correction. It seems that it is more useful to provide questions that allow students to notice their own errors rather than explicitly correcting even in a recast.
Mina	I would like my teachers to correct my errors most of the time, especially in writing.	Students might expect the teacher to correct all their errors but at the same time they might get frustrated. Error correction should be facilitating learning rather than blocking it. Any error does not necessarily mean that the student does not get the rules. Therefore the teacher should know the students well and tune up the ways [sic].	It has to be done at the right time, consistently, and explicitly. It's better if the teacher helps the student elicit the correct form rather than providing it right away.

from her earlier preoccupation with the frequency of correction, to a more complex understanding of the relationship between type of feedback, type of error, and language-learning context. She wrote in her final reflection that:

> My own perception and approach to error correction literally changed gear. As a second language teacher, I realize that over-correction is not crucial to student's language development. What is at stake is the very nature of the feedback move, given the type of error made and the learning context.

3 Research/practice connections related to corrective feedback

As might be expected, the teachers[10] in each group of participants were the ones who became the most aware of their own patterns of corrective feedback. Keywords such as 'noticed', 'realized', and 'aware' occurring in conjunction with comments made about error correction allowed us to identify examples in this category. For example, both Mina and Roxana noticed that, just like the teachers in Lyster and Ranta's study, they used recasts more frequently than other types of corrective feedback. Roxana wrote that 'while transcribing the data I noticed many things … recasts were most frequent … this was a complete surprise.' Commenting on the impact of the replication project specifically, Mina indicated that it 'raised my awareness about the general patterns and tendencies in my class. I realized that I was using recasts more than I would expect.' Amy described a number of classroom dynamics that she became aware of after watching the videotape of her teaching, including her own predominant corrective feedback move (i.e. clarification request).

> In addition, the research project made me aware of how valuable videotaping is. I was reluctant to videotape, but now I realize how effective it is as a tool to improve teaching. For example, I had no idea how often I used clarification requests with my students.

Amy went on to explain that viewing her video also brought to her attention the relationship between corrective feedback and student uptake … or lack thereof:

> By watching the video of my class, I was able to see first hand how error correction works or does not work. At times I realized that the students may not have even noticed I was correcting their errors when using recasts.

Amy went on to identify a change in practice: 'This has impacted my teaching … When appropriate I would also encourage student questions before I would even use a method of error correction.'

Interestingly, although neither Cristina nor Rachel were the teachers in their group, the project nevertheless seemed to prompt them to make some research/practice connections in their own teaching contexts. Cristina reported that a shift in awareness about various corrective feedback moves not only inspired her to experiment with them in her own FL classroom, but also encouraged her to pay closer attention to student uptake that follows teacher feedback. As she explained:

> In fact, as we talked about feedback in the SLA class, I experimented with the use of different forms of error correction in my Spanish class, more consciously than I used to do it. Likewise,

> I gained knowledge of uptake and the different forms it may take, which I also observed in my Spanish class.

Rachel – who, though she had no previous or concurrent language teaching experience did have contact with a few ESL children in the Montessori school where she was working at the time – explained how her new strategy of prompting an ESL student to self-correct replaced her earlier feedback strategy of providing the student with the correct form or explanation:

> Previously, I would correct her with either recasts or metalinguistic explanation, but now I try to get her to correct herself by asking her questions to see if she is aware of the gap.

These participants described actual changes they made to their classroom feedback practices during the same semester.[11] Other participants indicated that their shifts in awareness related to corrective feedback might possibly lead them to change their teaching practices in the future. For example, Alex reported that he planned to use 'other (non-recast) types of feedback more' in his future teaching. Cleo also spoke of considering a change in her approach to corrective feedback in the future. Cleo, a self-described behaviorist – who had commented a number of times that she tries to correct nearly all of the errors that students make in her first-year French class – made the following comment during the focus group interview: 'I realized that it might be too much … Overcorrecting may not be the most effective way of learning or teaching, so I'm thinking of probably changing that methodology.' Although this comment includes some tentative language – which may indicate that Cleo is not yet 100% ready to make this change – her response suggests that she has at least begun to consider other possibilities. Comments such as these suggest teachers' orientation towards future changes in their classroom practice.

4 Increased awareness of other aspects of classroom teaching and related changes in practice

In addition to increased awareness about patterns of corrective feedback (and, in some cases, student uptake) in their own classrooms, the course project led several of the participants to 'notice', 'realize', or 'become aware of' other dimensions of classroom interaction. These included phenomena such as proportion of teacher talk to student talk, the tendency to call on certain students more than others, consistent error types made by students in the class, as well as more idiosyncratic features of a teacher's speech.[12]

Given that it was their actions that were under scrutiny for the class replication project, there was a tendency for the teacher participants in each group to be self-critical of some of their own classroom behaviors. One feature of their classroom practice some participants became more aware of was their use of language. In a class break discussion (documented in our researcher memos) Alex indicated that as a result of transcribing his class, he had become aware of the frequency with which he repeated himself verbatim when addressing his students, adding that prior to transcribing the video of his teaching,

he had been unaware of this tendency in his speech. Also, during the focus group interview at the end of the semester, he indicated that the project had prompted him to notice 'a lot of pauses … speaking chunks' in his speech, adding that he would 'try to avoid this in the future'. Similarly, Rachel observed: 'The course project also made me very aware of the way that I speak, and the impact of my words in the classroom.'

Perhaps one of the most profound impacts of the project was creating conditions under which teachers could reflect deeply on their practice. In the following excerpt, Amy articulates the unique possibilities that reflecting on-action (as opposed to reflecting in-action) afforded her and the consequent change in practice:

> At the time of teaching, I did not realize just how much one student was dominating the talk time, and how little negotiation of meaning was taking place. This has impacted my teaching; I started using more group work and student–student interaction in the classroom … This helped encourage more students to speak and negotiate for meaning, and it made the class a little more interesting for the students.

5 *Responses to the project as type of practitioner research*

So far, we have focused on the influence of the research project on the participants' awareness and reported practices related to corrective feedback as well as a few other classroom-related issues. However, we also found that several participants expressed surprise at the results of their own data analysis. Furthermore, some participants made personal discoveries about the benefits of research, and reflected on their identities as researchers.

First, several participants found the actual results of the research to be surprising. As mentioned earlier, once all groups had completed their coding, we asked them to compare their results in class. For all but one group, recasts were the most common type of corrective feedback move; and, in all cases, recasts generally led to no student uptake.[13] This consistency across their own findings made a very strong impression on a number of the participants. For example, several of the MA-level participants expressed surprise at their own group's findings, and how consistent these findings were across groups in our class. Rachel commented that 'Our course project really surprised me when I saw that the majority of teacher feedback to errors was met with no response by the students.' Similarly, Amy noted that:

> One of the most surprising things for me is that recasts do not work in producing learner uptake. Most teachers use recasts because this form of error correction comes so naturally to most of us.

Cristina made a similar remark: 'It was amazing to see how the pattern of recasts use was repeated among groups, and the fact that they did not lead to student uptake.'[14]

Also, the similarity in the results of the partial replication with those of the original Lyster and Ranta study made a strong impression on participants. By the end of the semester, all of the participants expressed the idea that 'recasts are most frequent, though least effective for uptake.'[15] In her reflective essay, Mina wrote that 'The findings in our mini project were in line with the research studies regarding the types of student errors, teacher feedback, and student uptake.' And Alex pointed out, both in class discussion and in his

reflective essay, that, in general, our class's findings were consistent with the literature, and that, more specifically, the four groups' findings were remarkably similar to those of Lyster and Ranta: 'recasts were not an effective way to deal with students' errors and other options were more preferable as existing research results showed.' In other words, participants demonstrated the ability to situate and compare their own findings with those of research they had either read or read about. This clearly links with Kagan's (1992) claim that simply reading research may not have a great impact on teacher beliefs. Perhaps, however, the personalization of the findings from published research – that occurred as a result of participation in a partial research replication – led to a greater internalization of the findings for participants, as their remarks suggest.

Second, participants also identified other benefits they felt that they could gain from research. Initial responses to a series of closed-item questions about research on the pre-course questionnaire indicated a generally positive disposition toward language-learning research among all participants. Nevertheless, in their reflective essays, participants had the opportunity to elaborate in more detail about what they considered to be the value of SLA research. One of the most frequent themes was that research gives teachers a vocabulary and a framework for what they do. As Grace explained 'Research papers help us, teachers, give names to our acts or things we did intuitively, but actually did not know how to name or explain.' Alex elaborated on this perspective, linking it specifically to the research replication. He expressed the notion that having a clear set of labels for various phenomena can help one better understand them:

> Lyster and Ranta provided me a very good guideline for categorizing teachers' feedback and students' uptake. Once an abstract concept or construct is specified and operationalized, an intake of this concept or construct will happen and the knowledge about it will be acquired and internalized.

Another perceived benefit from research was the chance to investigate the classroom in depth. In her reflections at the end of the semester, Rachel commented that:

> It was very interesting to see what really goes on in the classroom … I can especially see the benefit of teachers conducting research within their own classrooms. I think research is important because I think teachers should have a reason for the way things are done in the classroom and research can help provide that framework.

Grace's comments echoed this perspective and added that reading research can help keep teachers intellectually stimulated: 'Research papers […] help others in the field of education better understand our trade […] tease our minds and foster discussion and thinking.'

Somewhat predictably, when it came to their reaction to conducting research themselves, there was a difference among most MA-level participants and the doctoral-level participants. For a number of MA students, their participation in the project presented them with an opportunity to affirm their primary professional identity: i.e. that of language teacher. For instance, Grace (a teaching practitioner with 40 years' experience, who had, on other occasions, commented on being intrigued by research) stated that: 'Although I value research and researchers, I do not think I am cut [out] for that … I do feel comfortable inside the classroom and that is where I like to be.' Similarly, Amy

commented that she felt an appreciation for research and considered it relevant for language teachers, yet she expressed her belief that she most likely would not be conducting research again in the future:

> I believe that pedagogical research is essential to language teaching. I will continue to keep up to date with the latest research … Will I do my own full blown research project? Probably not, but after this I know that I will videotape my class again and, among other things, I will watch for errors and how I will handle them.

It is interesting to note that, in terms of Richardson's (1994) dichotomy, although Amy's comments indicate a reluctance to engage in formal research, her anticipated future activities (i.e. videotaping a class and examining it for insights into the teaching and learning process) as a result of having participated in the research replication, clearly represent a type of practical inquiry.

In contrast, the identity claims made by the doctoral-level participants at the end of the semester indicated that their participation in this project affirmed their sense of self as emerging researcher. For example, in his final reflective essay, Alex expressed how this project contributed to his conception of himself as researcher: 'this project … it helps me to develop as a real researcher.' Similarly, during the group interview, Cleo indicated that conducting the replication study gave her a sense of legitimate membership in the discourse community of SLA researchers. She said that she found the opportunity to compare her group's findings with those of a seminal research article to be one of the most rewarding aspects of the project: 'I liked the discussion part where we had to compare our results with Lyster and Ranta. I thought [of] myself as a big researcher.' Additionally, the project gave some students a glimpse at the 'behind the scenes' process of conducting research. For example, Roxana commented that 'a lot is hidden behind the final product [i.e. the published research article].' Similarly, Alex indicated that the project helped him see how much 'implicit work' (time, energy, logistics, planning, coordination, etc.) is involved in actually carrying out research.

Finally, echoing the literature about teachers' attitudes toward research discussed earlier, after completing the replication project, several students commented that 'one hands-on project is much more beneficial than reading a lot of research articles.' A number of participants claimed that carrying out the replication study made a strong impact on them, and that it was something they would always remember. In the semester-final group interview, Alex described the replication as 'a very good project-based teaching method … integration of knowledge and practice'. Thus, we can say that the participants were generally positive about the experience, both in terms of the insights they gained about corrective feedback and other aspects of classroom practice, as well as in terms of their perceptions of the value of research.

IV Discussion and Conclusions

Among the goals of the project was for participants to gain an in-depth and personalized understanding of the phenomenon of corrective feedback, as well as to have an opportunity

to forge connections between the content of the SLA course and their teaching internship experience. While we are very much aware that other factors (e.g. readings and class discussion) may have also played an important role in these processes, our participants' reports – across multiple data sources – suggest that their engagement with the replication project did seem to have some impact on their thoughts and ideas about corrective feedback. Our case study approach allowed us to 'illuminate understanding of the phenomenon under study' (Stake, 1998, p. 308), which, in this case, refers to relationships between participation in a research replication and participants' ideas about error correction that have emerged from our research. Clearly, our research design precludes us from making any direct causal statements. Instead we would like to highlight here those findings that we feel are suggestive, and that may warrant further investigation.

Many of our participants, especially those with little prior language teaching experience, had begun the course by focusing exclusively on the affective dimensions of error correction. In contrast, by the end of the semester, after having completed the replication project, 'affect' responses were notably absent, and these same participants had begun considering other dimensions of corrective feedback. Practical inquiry offered participants new ways of looking at the issue of corrective feedback, and alerted them to possibilities for changes in practices. By the end of the course, as our participants became aware of other variables associated with corrective feedback (e.g. the relationship between feedback and uptake, the interaction between error type and feedback, understanding the differences between various feedback moves that supply learners with correct responses versus those feedback moves that do not) their preoccupation with learner affect appeared to decrease. Instead, they had begun to consider the same phenomenon (i.e. corrective feedback) from different perspectives. This evidence of growth and learning, we feel, is an important outcome of the course – and one that we have not observed to such an extent in previous iterations (when SLA students did not participate in such a replication).

Another important outcome was that, following the replication, all participants were able to relate their own findings to those in the original study. They made personal and meaningful connections between the concepts and phenomena they read about in class, and what they had observed – and actually investigated systematically – in some of their own language classrooms. We were encouraged to see this 'internalization' of findings, and were impressed by our students' ability to observe and think more deeply about what happens in their own classes through the lens of their first-hand experience with this form of practical inquiry.

The findings also suggest that shifts in participants' awareness were not just limited to corrective feedback. Returning once again to Freeman's (1989) definition of awareness as 'the capacity to recognize and monitor the attention one has given or is giving something' (p. 8), some participants' self-reports indicated that the project enabled them to become aware of certain interactive dynamics, which may have always existed in their classrooms, but about which they became more conscious. Finally, for a subset of participants, changes in awareness were linked to reports of changes in practice (either immediate, or projected). Importantly, these were not changes that were prescribed, but rather were personal, individual responses to each participant's particular classroom situation. As a result of the research replication, several participants noticed what 'was not working' and began to do things differently. For others, noticing certain dynamics they were

previously unaware of prompted them to consider changes they could make to their practice in the future. We would also like to point out that, as mentioned earlier, one of the existing requirements of the teaching internship asks students to videotape their teaching and to write a brief reflection after viewing their teaching video. We were struck by the difference in the depth of observations and reflections made about classroom dynamics that students produced following the replication in this course, as compared to the typical teaching video reflection papers students usually submit following their viewing of their teaching videos (which normally tend to focus on more superficial aspects of their teaching, such as their appearance, their rate of speech, etc.).[16]

In terms of participants' relationship with research, three main findings emerged. First, participants expressed surprise both at the results of all groups in the class – that is, that recasts were the most frequent type of feedback given, and the least successful in eliciting student uptake – and at the similarity with the findings of the Lyster and Ranta study they were replicating. Unfortunately, we cannot account for the reasons why our participants were so surprised. However, it is our belief that this element of surprise was related to the strong impression made on the students by the consistency of findings. The element of surprise may also have helped to destabilize their existing ways of thinking and perhaps, in turn, may have paved the way for shifts in their awareness about the complex nature of corrective feedback. Second, participants talked about the benefits of research as a means of gaining access to the terminology and discourse of teaching, and hence a greater understanding of the phenomenon, and also as a chance to investigate the classroom in depth. Finally, in their reactions to conducting research themselves, the MA-level participants tended not to see themselves as researchers, whereas the PhD-level participants discussed how participating in the replication helped them develop as researchers. However, all participants commented on some benefit(s) of their involvement in this specific research project in terms of their professional development. These findings add weight to Zeuli and Tiezzi's (1993) call for teachers to investigate their own classrooms in order to become more flexible and thoughtful in their practice.

These findings also have implications concerning the value of asking a group of graduate students to replicate a piece of published research. If, as Kagan (1992) suggests, teachers' beliefs are not greatly influenced by reading research, our findings suggest that participating in practical inquiry/research may contribute to shifts in awareness, which may serve as a necessary first step prior to changes in practice. As Borg (2003) notes in his summary of research into teacher cognition and teacher education, changes in cognition do not guarantee changes in teachers' behavior, and the references to changes in practice we noted above referred only to participants' self-reports. This points to an area for future research: an inquiry into changes in actual teaching practice after participation in research of this type. Another potentially fruitful area of research is the extent to which amount of previous teaching experience plays a role in how participants are influenced by participating in research. Such studies would certainly begin addressing the paucity of research into the practices of language teacher educators, specifically with regard to preparing teachers-in-training to conduct research into their own classrooms (McDonough, 2006). Returning to the formal research/practical inquiry dichotomy (Richardson, 1994) that we began with, we believe that teachers can be encouraged to move beyond this binary distinction, and to think about ways in which they can critically

examine what they read about within their own teaching contexts. Echoing Richardson, our findings suggest that the outcomes of such examination can be both an enhanced understanding, as well as potential or actual changes in practice. Another area of interest that emerged from our findings was the impact of the research replication on the teachers' acquisition of more specific language associated with corrective feedback. Although our study was not designed to explore this particular issue, it appeared to us that, after using labels and categories from the Lyster and Ranta (1997) study in their own replication projects, our participants seemed to appropriate the technical terminology associated with error correction quite freely into their own writing and oral discussions, as the presence of such terms in many of their responses indicates. This is very much in line with Freeman's (2002, p. 11) comments:

> The role of external input – of theory, prescriptions, and the experiences of others – lies in how these can help the individual articulate her experience and thus make sense of her work. Teacher education must then serve two functions. It must teach the skills of reflectivity and it must provide the discourse and vocabulary that can serve participants in renaming their experience. We need to understand that articulation and reflection are reciprocal processes. One needs the words to talk about what one does and in using those words one can see it more clearly.

All of this argues in favor of teacher education activities that encourage active construction of knowledge rather than merely passive consumption of knowledge, that is, asking teachers to conduct examinations of their own classrooms within the framework, and using the terminology of, published research. In this way, teachers will have opportunities to engage in active reflection on their own practice, expand their awareness of teaching and learning issues, as well as acquire the specialized language of both teaching and research. While we accept that, like any small-scale qualitative study, our findings cannot simply be projected onto other contexts, we do believe that the type of teacher education activity promoted in this study may offer potentially powerful experiences, which can bring about opportunities for reflection, as well as related shifts in awareness, in similar types of language teacher education programs.

Notes

1 For example, the expectation that it is the language teacher's job to correct errors that learners make in the target language is widely held by many language learners and language teachers.

2 Although we agree with Leeman's (2007) explanation of why 'corrective feedback' is a more accurate cover term than 'error correction', some of our participants tended to use the more historical term 'error correction', which is why both terms appear in this article.

3 In the study, Lyster and Ranta investigated corrective feedback and learner uptake in primary-level immersion classrooms. They identified six types of corrective given by teachers and the different types of student uptake following each feedback type. They found that recasts were the most frequent feedback type used by teachers, but they noted the general ineffectiveness of recasts in eliciting student-generated repair. They identified elicitation, metalinguistic feedback, clarification requests, and repetition as the types of feedback most likely to promote student-generated repair.

4 Our pre-/post-questionnaire consisted of several open-ended questions, which asked participants to consider, from the perspectives of both language teacher and learner, such issues as error correction, group work, explicit grammar instruction in the classroom. (The last two of these were included as 'distracters', so that students would not be aware that our focus on the replication project would be on error correction and consequently change their natural corrective practices.) The instrument also included a number of short statements (rated on a Likert scale) about error correction, group work, explicit grammar instruction, as well as attitudes toward research. In our analysis we focus only on the open-ended responses, because they generated richer types of data.

5 The Lyster and Ranta article was one of the assigned readings for Week 13. During our class discussion of the article, we pointed out that uptake is not necessarily an indicator of acquisition, and that the exact relationship between uptake and longer-term learning is still unknown (compare Lyster & Ranta, 1997, p. 57).

6 In the remainder of this article, in order to be clear about who we are referring to, our SLA students will be referred to as 'participants' to designate their status as participants in the present study. We will use the term 'teacher(s)' to refer to the participant in each group whose ESL lesson was video recorded and analysed for the replication project. 'Students' will refer to the language learners in the ESL class recorded.

7 The semi-structured focus group interview centered on participants' attitudes toward the course, the project, the research process (e.g. *What were the biggest challenges associated with this project? Was it worth it? Should we do it again? Would you have preferred to work with your own vs. someone else's data or vice versa? How did you feel about doing a replication study*, *rather than designing your own study?*), with more detailed probes based on specific participant responses.

8 We discuss here the participants' responses that showed the greatest shift from the beginning of the semester to the end of the semester. The other participants' responses, which remained more consistent, tended to be from participants who had more teaching experience. We consider this to be an interesting trend, and one that is worthy of future investigation.

9 Interestingly, this observation was not linked to our instructions for the students' SLA project. In other words, we did not ask our participants to account for, or to analyse, ESL student error types. We were impressed that Mina and Cleo's group undertook this separate analytic step on their own.

10 Once again, 'teachers' refers to those MA students whose videotaped ESL class served as the data for the research replication.

11 It should be noted that the 'changes in practice' discussed here were determined on the basis of participants' self-reports, and not verified through any external observation of the teacher's practice. Of course, the degree to which changes in awareness transferred to actual changes in practice is difficult to document with certainty, and may also (as Mackey et al., 2004, have pointed out) vary for novices vs. more experienced teachers.

12 Most of these observations represented phenomena that were not in the range of topics covered by the SLA course.

13 The exception was Amy, who used more clarification requests. However, these too were also generally followed by no student uptake.

14 This feeling of surprise was also documented in one of our weekly researcher memos: 'After I wrote the table on the board with the summary of all the groups' results … Although they

did not seem surprised by the overall amounts of errors and error correction … Most students seemed surprised to see that "recast" was the most frequent category.'

15 However, as one reviewer reminded us, several studies (e.g. Sheen, 2004, 2006; Lyster & Mori, 2006; Egi, 2007) have found that, in some types of settings, recasts do lead to uptake. Time constraints of the semester did not permit us to discuss these studies.

16 Our impressions were confirmed by one of our participant's comments to us in class, documented in our researcher memos from the final weeks of the semester: 'Mina added that the experience of transcribing […] should be part of the internship because she felt she learned a lot more about her teaching by transcribing the video than by merely watching it.'

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Appendix 1 Project timeline

Time	Topic	Research project	Assignments due
Summer 2007		Authors develop materials for SLA research replication	
Spring semester 2008 begins			
Week 1	Intro to Course		Students complete pre-course questionnaire
Week 2	Intro to Issues in SLA		
Week 3	History of SLA		
Week 4	Communicative Focus on Form		
Week 5	Universal Grammar	Review of research methods	
Week 6	Developmental Sequences		
Week 7	Critical Period Hypothesis		
Week 8	Midterm Exam		
Week 9	Cognitivism	Intro to transcribing	Teaching video due
Week 10	Spring Break		
Week 11	Individual Differences		Transcript due
Week 12	Social Interactionism		
Week 13	Corrective Feedback	Intro to coding	
Week 14	Workshop Day	In-class coding of student data	
Week 15	Sociocultural Approaches	Comparison of group findings	
Week 16	Social Context in SLA		Students complete post-course questionnaire
Week 17	Final exam week		Students submit final research report and complete reflective essay
Spring semester 2008 ends			
Week 18		Focus group interview with volunteers	