The Role of Pedagogical Mentoring in Virtual Exchange

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Virtual exchange, or telecollaboration, is a well-known pedagogical approach in foreign language education that involves engaging classes in online intercultural collaboration projects with international partners as an integrated part of their educational programmes. This article focuses on the role of the teacher as pedagogical mentor in virtual exchange and examines the impact of the strategies and techniques that teachers use in their classes to support students' learning during their online intercultural projects. The article begins with a proposed categorization of pedagogical mentoring reported in the literature to date. It then reports on the outcomes of a virtual exchange project carried out by three classes of initial English teacher education in Israel, Spain, and Sweden that involved two types of pedagogical mentoring. Qualitative content analysis enabled the identification of the impact of mentoring that took place before the exchange and also revealed insights into what students learned when their own online interactions were integrated into class work. The article concludes by discussing the limitations and challenges of different types of pedagogical mentoring in virtual exchange and by outlining a list of recommendations for carrying out pedagogical mentoring in such projects.
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Virtual exchange, or telecollaboration, is a term used to refer to the sustained engagement of groups of learners in online intercultural interaction and collaboration projects with partners from other

cultural contexts or geographical locations as an integrated part of their educational programmes. In recent years, virtual exchange has become an important part of online approaches to international education (De Wit, 2016; Lewis & O'Dowd, 2016). In foreign language education, telecollaborative models of exchange, principally informed by sociocultural and interactionist theories of language acquisition, have focussed on structuring interaction in order to facilitate negotiation of meaning with native speakers or to provide authentic experiences of intercultural communication with speakers of other languages (Dooly, 2017).

However, simply engaging students in virtual exchange does not guarantee successful intercultural learning outcomes, and much of telecollaborative practice has been criticized for achieving only a superficial level of engagement with difference (Kramsch, 2014) and for accepting the underlying assumption that students will somehow automatically develop their intercultural and digital competences merely by being engaged in online interactions with members of other cultures (Lawrence & Spector-Cohen, 2018; Richardson, 2016). With this in mind, we propose that in order for virtual exchange to be a more effective educational tool, greater attention must be paid to how teachers can actively integrate the exchanges into their classes and mentor their students as they negotiate the linguistic, cultural, and digital hurdles of online intercultural collaboration. In the context of virtual exchange, we define pedagogical mentoring as the strategies and techniques that teachers use in their classes to support students' learning during virtual exchange projects. There have been few attempts in the literature to date to identify and categorize pedagogical mentoring in this context or to explore their impact on the learning outcomes of online intercultural collaboration.

This article reviews the literature on pedagogical mentoring in virtual exchange and explores the influence of pedagogical mentoring on virtual exchange projects by reporting on a collaborative project among three classes of initial teacher education in Israel, Sweden, and Spain. We begin by proposing a categorization of pedagogical mentoring previously reported in the literature. We then describe the context of the present virtual exchange and outline the pedagogical interventions that were enacted before presenting the analysis of both quantitative and qualitative data to explore the influence of the active intervention of the teachers (i.e., the pedagogical mentoring). The article concludes by outlining a list of recommendations for carrying out pedagogical mentoring in virtual exchange.

LITERATURE REVIEW: PEDAGOGICAL MENTORING IN VIRTUAL EXCHANGE

Virtual exchange has grown dramatically in popularity in recent years. Not only has it been used widely in foreign language education (Dooly, 2017; Lewis & O'Dowd, 2016), but it also has been employed widely across the humanities (Schultheis Moore & Simon, 2015) and in business education (Lindner, 2016). Various organisations have also emerged, offering universities the opportunity to engage their students in fully structured mentored exchange programmes around themes such as the refugee crisis (Sharing Perspectives, 2018) and Western–Arab dialogue (Soliya, 2018). The European Commission has financed several virtual exchange projects, including EVALuating and Upscaling telecollAborative Teacher Education (EVALUATE) and Evidence-Validated Online Learning through Virtual Exchange (EVOLVE), and has launched Erasmus+ virtual exchange, a programme that aims to integrate virtual exchange into the Erasmus+ programme.

However, the application of virtual exchange has not been without its critics (O'Dowd, 2016). Richardson (2016) warns that virtual learning initiatives have repeated the commonly held assumption in physical mobility that learning will emerge automatically from contact, and other observers have suggested that virtual exchange often fails to produce the intended learning outcomes because of the inherent nature of online interaction. Kramsch (2014), for example, suggests that much of the intercultural communication that takes place in telecollaborative exchange is artificial and based on phatic interaction between students who are "staying in touch by surfing diversity not engaging with difference" (p. 302). She calls for a more proactive, critical pedagogical approach to intercultural communication where educators explicitly lead learners to negotiate difference and to "grapple with differences in social, cultural, political, and religious worldviews" (p. 305).

In order to avoid such superficial engagement and to provide learners with opportunities to reflect and learn from their virtual exchanges, the role of the teacher is obviously essential. Unfortunately, much of the literature on virtual exchange has bypassed the role of the teacher, preferring to focus more on the students' online interactions and learning outcomes, perhaps in an attempt to demonstrate the value of this learning approach. However, there are significant exceptions. Chun (2015), for example, observes that "it is essential for teachers to help students to go beyond comprehending the surface meaning of words and sentences in order to understand what their intercultural partners are writing" (p. 13), and Müller-Hartmann (2012) suggests that "the role of the teacher is crucial in initiating,

developing and monitoring telecollaborative exchanges for language learning" (p. 172). Müller-Hartmann and Kurek (2016) highlight the important role teachers play in designing effective tasks for virtual exchange; they underline the importance of teachers explaining the task's purpose, establishing the steps and procedures, and specifying the final product. Nissen (2016) looked at how experienced virtual exchange practitioners combine the online collaboration with face-to-face sessions and found that the two main functions of the face-to-face sessions were to prepare students for their online interaction and to analyze students' experiences in the virtual exchanges. O'Dowd (2015) proposed a model of the skills, attitudes, and knowledge that a foreign language teacher needs to establish and successfully carry out virtual exchanges; he mentions the ability to "support students in discerning and reflecting upon culturally contingent patterns of interaction in follow-up classroom discussions" (p. 10).

Others have offered concrete examples of the actual methods used by teachers as they help their students take part in and learn from their online intercultural collaborations. Overall, three types of pedagogical mentoring can be identified in the virtual exchange literature. Each of these is outlined below.

Pedagogical Mentoring Type 1: Presenting Online Interaction Strategies Before the Exchange

The first approach to pedagogical mentoring in virtual exchange involves providing students with examples or models of effective or appropriate online interaction strategies before they engage in online interaction with their partners. Probably the best example of this approach is Ware (2013), who identified in the literature a series of linguistic and interactional features that were considered characteristic of successful online intercultural interactions.

While recognizing that online interaction norms and strategies are variable and can come with personal and cultural nuances, Ware (2013) proposed that teachers could explore with their students a collection of examples of online messages that were considered culturally and pragmatically appropriate in their local context, but that might be misunderstood by their partner class. She also suggested that teachers use extracts from previous online interactions to engage their students in discussions about how language choices can shape interaction, about how they would respond to particular comments, and about how comfortable they would feel dealing with certain topics and interactional styles in online intercultural communicative contexts.

The use of examples from previous exchanges is also recommended by Müller-Hartmann and O'Dowd (2017). As with Ware (2013), the authors do not propose a prescriptive approach of teaching one unique approach to interacting online successfully, but rather recommend using examples of successful and less successful online interactions to sensitize students to how culture, technology, and language can interact to shape meanings in online communicative contexts.

Pedagogical Mentoring Type 2: Leading Online Intercultural Interactions

This approach to pedagogical mentoring in virtual exchange is most commonly found in facilitator-led models of virtual exchange that involve trained intercultural educators taking part in synchronous online discussions between students and facilitating the intercultural learning process. One of the best-known of these models is the Soliya Connect (2018) programme, which brings students from the West into dialogue with students from the Arab and Muslim world, with the aim of promoting a deeper understanding of the perspectives of others around the world on important sociopolitical issues and also of developing critical thinking, intercultural communication, and media literacy skills (Helm, 2016).

Helm (2016) contrasts the role of teachers in traditional class-to-class virtual exchanges with the role of facilitators in synchronous dialogic models such as Soliya. In facilitator-led models, facilitators are "directly involved in the interactions by opening the sessions, setting up activities and leading the discussion" (p. 154), whereas in traditional class-to-class exchanges

> students generally interact directly with one another but with no facilitators present in the interactions. The language teachers of the partner classes do play a facilitating role, but this occurs indirectly, outside of the actual interactions, with the teachers designing the exchange, setting up tasks and topics for the interactions and engaging students in class discussions about the communication with their peers. (pp. 154–155)

Another facilitator-led model is Sharing Perspectives (2018), which also uses facilitators to lead synchronous interaction between students participating in the programme. Facilitators are trained in basic facilitation skills such as active listening, asking good questions, summarizing and reframing, as well as learning how to manage power dynamics, and how to build a sense of safety in the virtual space and trust among the participants.

Type 2 pedagogical mentoring is, of course, also possible in asynchronous, text-based exchanges. For example, teachers can participate in students' asynchronous forum discussions, highlighting interesting posts and encourage discussion and reflection when necessary. However, this has not been widely reported in the literature to date.

Pedagogical Mentoring Type 3: Integrating Students' Own Online Interactions Into Class Work

In many exchanges, teachers have worked to integrate into their classes extracts of the language and the issues that emerge in the online interaction. In contrast to Type 2, practitioners of this third type of pedagogical mentoring do not actively take part in the online interactions as they happen, but they use the students' communications as content for their subsequent classes in order to draw attention to particular examples of language use or cultural themes in the recordings or transcripts. Belz (2006) describes this approach as "the alternation of Internet mediated intercultural sessions with face-to-face intracultural sessions" (p. 214). For example, Kern (2014) reports how, after taking part in videoconferencing interaction with their French partners, his U.S. students were asked to view online recordings of the interactions (in *la salle de rétrospection*) and to respond to various questions that would help them reflect on the interactions and their outcomes. Cunningham and Vyatkina (2012; see also Belz & Vyatkina, 2008; Cunningham, 2016; Vyatkina & Belz, 2006) have taken this approach to pedagogical mentoring, employing what they refer to as *data-driven pedagogical interventions* that involve teachers transcribing and coding extracts of students' U.S.–German bilingual telecollaborative videoconferences which highlighted the sociopragmatic use of certain structures in a language (e.g., the use of modal verbs in German for establishing social distance) and then reviewing these transcripts with their students during class time to raise awareness of how their German partners use such structures. The authors then compared the use of these structures by their students before and after the intervention and observed a significant uptake in their use by the U.S. students. Cunningham (2016) concludes that giving students the opportunity to reflect on their own online discourse is key to student learning in telecollaboration.

Various authors have underlined the importance of integrating into class discussions the misunderstandings and conflicts that emerge in students' virtual exchange, given that these can raise awareness of cultural norms and genres that influence and shape what is considered

appropriate online interaction. Belz and Müller-Hartmann (2002), for example, encourage the analysis in class of intercultural and linguistic *rich points* (Agar, 1994) that emerge during the students' online interactions. Belz and Müller-Hartmann define rich points as examples of language, gesture, or communicative patterns of culture-specific ideas, beliefs, or constructs (p. 73). Similarly, Ware and Kramsch (2005) call on educators to share and discuss with their classes examples of students' online communication breakdown in order to raise awareness of culturally different approaches to genre and the differing cultural connotations of words and phrases.

A final example of this approach comes from the well-known Cultura model of virtual exchange (Furstenberg, Levet, English, & Maillet, 2001). In this model, the focus is on cultural themes and issues, and the teacher plays a key role in running classroom analysis sessions of the students' questionnaires and online interactions in what Furstenberg et al. (2001) call "teacher-induced mediation" (p. 75), which will help students identify and understand the different underlying cultural principles and values reflected in the online interactions. The authors underline that these teacher-led analysis sessions in the local classrooms are vital to the success of the intercultural learning process.

A summary of the different types of pedagogical mentoring in virtual exchange is presented in Table 1.

TABLE 1
Pedagogical Mentoring in Virtual Exchange

Type number	Type of pedagogical mentoring in virtual exchange	Stage of virtual exchange	Description	References
1	Awareness raising of online interaction strategies	Before the online interaction begins	Educators provide students with examples or models of effective or appropriate online interaction strategies.	Müller-Hartmann & O'Dowd (2017); Ware (2013)
2	Leading online intercultural interactions	During the online interaction; often in real time	Educators participate in and guide online intercultural communication.	Helm (2016)
3	Integrating students' own online interactions into class work	After episodes of students' own online interactions	Educators engage in guided reflection and discussion with students on extracts from their own online interactions.	Cunningham (2016); Furstenberg et al. (2001); Vyatkina & Belz (2006)

Research Questions

Although the importance of facilitation is given centre stage in facilitator-led models (Helm, 2016; the Type 2 pedagogical mentoring outlined above), to date there is still a dearth of evidence of what impact the teacher can play by actively mentoring class-to-class exchanges using Type 1 and Type 3 pedagogical mentoring strategies, particularly in lingua franca exchanges. Moreover, the literature also lacks a comprehensive typology of themes that should be attended to during the mentoring of virtual exchange. Accordingly, this study explored the following two research questions:

1. In what way does Type 1 pedagogical mentoring (i.e., presenting online interaction strategies before the exchange) influence student interaction with their online international partners?
2. What themes and issues were attended to when teachers integrated their students' own online interactions into classwork (i.e., Type 3 mentoring), and did this mentoring heighten students' awareness of these themes and issues?

METHOD

Context and Participants

The context of this study was a three-country teacher education virtual exchange between partner classes at universities in Israel, Spain, and Sweden. In all three contexts, students were enrolled in English teacher education programmes: 10 students in an international MA TESOL programme in Israel, 20 students in an MA secondary school education programme training to teach English in Spanish secondary schools, and 9 students in the final year of a BA/MA programme for upper secondary school English teachers in Sweden. Participants were mostly in their 20s or 30s, with one in their 40s. With respect to English language proficiency, students ranged from B2 to C2 on the CEFR. All 39 students were organized into six international working groups (with at least one student from each class) of six or seven students.

The exchange took place as part of the EVALUATE project (Evaluating and Upscaling Telecollaborative Teacher Education). This was a European policy experiment aimed at assessing the impact of virtual exchange on the linguistic, intercultural, and digital competences of students of initial teacher education.

Tasks and Tools of Interaction

During the virtual exchange, the six international groups each completed a series of three tasks arranged according to a task sequence laid out by the EVALUATE project (http://www.evaluateproject.eu/results/). The sequence consisted of the following: Task 1, an information exchange task in which group members introduced themselves and decided on a group name and online interaction norms; Task 2, a comparison task that asked each group to share and synthesize perspectives on the use of different innovative technology-mediated approaches to language teaching; and Task 3, a collaborative task in which each international working group developed a lesson plan aimed at a particular teaching scenario.

Groups had 2 weeks to complete each task and were provided with their own Moodle forum to carry out their discussions. However, all six groups decided to augment their discussion on the Moodle forums with other written forms of communication including Google Docs, where they could draft and interact collaboratively, and, in the case of four of the six groups, Whatsapp, which allowed for notifications and the opportunity for synchronous written interaction. Thus, for all groups, interaction in this virtual exchange was entirely textual and predominantly asynchronous.

The Mentoring

Two types of pedagogical mentoring were carried out during this virtual exchange: Type 1 (presenting online interaction strategies before the exchange) and Type 3 (integrating students' own online interactions into class work). Type 2 was not employed for two reasons. First, the nature of the tasks was such that students were encouraged to collaborate autonomously in order to simulate the tasks and processes they would likely encounter as teachers and to develop essential concomitant skills. In addition, Type 2 pedagogical mentoring tends to be more suited to sustained synchronous discussions. This particular exchange was primarily asynchronous and therefore Type 2 mentoring was deemed unnecessary, and perhaps even potentially intrusive, by the teachers involved.

Pedagogical Mentoring Type 1: Presenting Online Interaction Strategies Before the Exchange

This first type of mentoring was proactive and preplanned to anticipate issues and mitigate lack of interaction and communication that

might arise during the virtual exchange. It took the form of presenting or modeling successful online interaction strategies found in previous exchanges by Ware (2013) to raise students' awareness of techniques they could use to facilitate their own online discussions with their international partners. Although Ware's strategies were developed to specifically address the interactions of adolescent learners, they served as a clear and accessible instructional tool for this type of mentoring while also serving as a consistent coding tool to directly examine the influence of pedagogical mentoring on interaction.

The mentoring was carried out during Task 2 and administered to half the groups (Groups 1, 2, and 3) only,[1] referred to as the mentored groups. At the start of Task 2, the teachers in each of the partner classes carried out a 30-minute in-class guided discussion. This discussion involved group elicitation of solutions to two scenarios illustrating communication problems from prior exchanges as well as the introduction of seven of Ware's (2013) linguistic and interactional features, each of which was illustrated with examples from prior virtual exchanges (see Table 2 for definitions and examples from the current exchange).

Pedagogical Mentoring Type 3: Integrating Students' Own Online Interactions Into Class Work

Type 3 pedagogical mentoring was, by definition, reactive and responsive to the specific needs and situations that arose during the exchange. It occurred primarily during Task 3 in response to two critical incidents that took place in two of the transnational working groups. Similar to the approaches used by Cunningham and Vyatkina (2012) and Furstenberg et al. (2001), it took the form of active facilitation and interaction by the teachers in response to misunderstandings or critical incidents as they emerged during the exchange. Teachers dedicated class time to asking their students to report on issues and progress in their specific groups and also to show extracts of their group interactions on the class computer screen and to "talk the class through" what was happening at the time. The teacher would then highlight the issues (e.g., cultural, linguistic, digital) that they saw as salient to understanding the communication and collaboration process. Furthermore, in order to provide students with better understanding of the differing cultural perspectives and approaches to

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[1] For the purpose of supporting equal learning across all groups, these same two types of preplanned pedagogical mentoring were also carried out on the comparison groups (Groups 4, 5, and 6) during Task 3.

TABLE 2

Operationalization of Ware's (2013) Linguistic and Interactional Features of Successful Communication for Type 1 Pedagogical Mentoring

Analytic category	Examples from current study
Emotive words and phrases (total sentences containing words or phrases that reflected the emotional state of the speaker)	*"I think it's a great idea to get things done!"*
Personal forms of address (total times individual group members' names were used)	*"I don't think is usual one-to-one classrooms in Israel, Helen."*
Topic development (total sentences that responded to and elaborated on topics or questions introduced by peers)	*"Yes, the final summary should be in evaluate I guess."*
Question posing (total questions posed including declarative statements followed by a ?)	*"Would you say new technologies are used in the secondary education system in your country?"*
Emoticons (total graphic or textual emoticons)	*:-)*
Personal information (total sentences containing disclosure of information about the self that peers would not otherwise know)	*"I have already tried fanfiction with my students and it worked very well, and I will continue to teach fandom."*
Display of alignment (total sentences containing statements or emoticons signaling agreement, similarity, or praise)	*"I totally agree, let's do it ASAP then."*

online interaction of their partners, the teachers themselves also exchanged regular emails, reporting on what had emerged in class and how students had interpreted their partners' online behaviour. Teachers then used this information to shape and guide their class discussions. The timeline for the pedagogical mentoring is illustrated in Figure 1.

Data, Coding, and Analysis

To answer both research questions, two types of analyses were carried out: (1) linguistic analysis of focal interactional features used during the exchange both before and after mentoring and (2) thematic analysis of instructor emails and documentation as well as students' portfolios, critical reflections, and video-audio testimonials.

Research Question 1: Data, coding, and analysis. For the first type of analysis, the participants' written interactions were collected and analyzed for frequency of the seven linguistic and interactional features identified by Ware (2013). The data therefore consisted of the Whatsapp chatscripts, Moodle forum discussions, and Google Docs for both the mentored and comparison groups during Task 2 as well as the Whatsapp chatscripts, Moodle forum discussions, and Google Docs for the mentored group during Task 1.
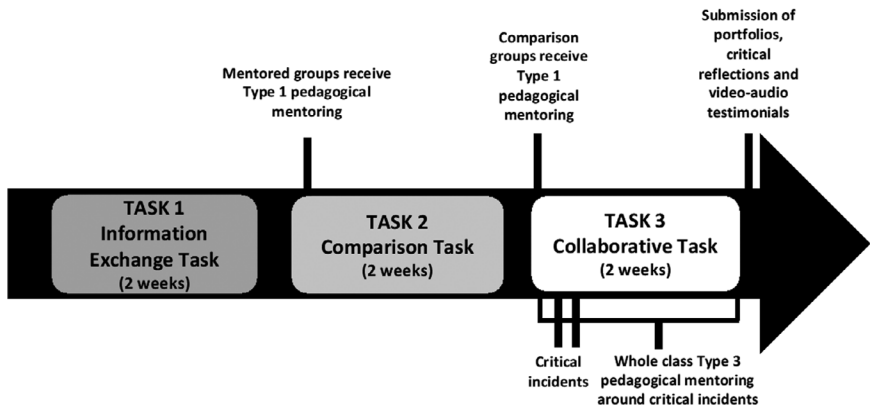
Pedagogical Mentoring Timeline

FIGURE 1. Timeline of Type 1 and Type 3 pedagogical mentoring.

Coding of the interactions was done using qualitative content analysis (Zhang & Wildemuth, 2009), a recursive process that relies on inductive reasoning, careful examination of the interaction, and constant comparison and refinement of categories and coding criteria. Prior to coding, the three raters used the categories and examples provided by Ware (2013) to begin a coding manual to guide analyses. The examples and criteria in the initial coding manual were then applied to the data generated by both the mentored and comparison groups in Task 2; for each of the seven categories, 33% of the interactions were coded by two raters with one of the two raters coding 100% of the interactions. Discrepancies and difficult cases were discussed through rater debriefings and used to revise the coding manual. Two more rounds of coding and debriefing were carried out by two raters to resolve final discrepancies and finalize the coding.

Following the work of Belz and Vyatkina (2008), once coding was completed, the raw frequencies of each of the seven categories of interaction strategies were normed per thousand words. These linguistic data were then augmented with analysis of students' final projects and end-of-project audio or video testimonials and were coded for specific reference to Type 1 pedagogical mentoring.

Research Question 2: Data, coding, and analysis. For the second type of analysis, which was used to identify the themes and issues that emerged during the mentoring and students' awareness of these themes and issues, data sources included detailed class notes taken by the teachers during their mentoring sessions, emails exchanged among the teachers immediately after the sessions, and student data

including portfolios from the students in Spain and Sweden and critical reflection papers from the students in Israel reflecting on what they had learned from the virtual exchange. In addition, students in the three partner institutions were invited by their instructors to record short video or audio testimonies about the project, on a voluntary basis.

These data were then analysed, again using the qualitative content analysis approach outlined by Zhang and Wildemuth (2009). Categories and a coding scheme of the key themes and issues that emerged during the mentoring sessions were derived from an inductive analysis of a portion of the data carried out by two of the researchers. Following an assessment of inter-coder agreement, these codes were then consolidated and the rest of the data were coded by the researchers.

RESULTS

Research Question 1: Pedagogical Mentoring and Type and Quantity of Interactional Strategies

To examine the influence of pre-interaction pedagogical mentoring (specifically, pedagogical mentoring that presented and modeled online interactional strategies) on the virtual exchange, two types of analysis were carried out: analysis of the language produced during the exchange and analysis of student portfolios, critical reflections, and audio and video recordings for reference to the influence of pre-interaction pedagogical mentoring.

First, because this type of pedagogical mentoring incorporated specific interactional strategies, the interaction during the exchange was examined for use of these linguistic and interactional features both before and after mentoring. To do this, the frequency of Ware's (2013) linguistic and interactional features (as operationalized in Table 2) generated by the mentored group before the intervention (Task 1) was compared with the frequency with which they were produced by the same group after the intervention (Task 2). Second, the frequency of these features as generated by the mentored group during Task 2 was compared with the frequency with which they were produced by the comparison group during the same task. Table 3 depicts these frequencies and rate per 1,000 words.

Developing social presence. Of the seven linguistic strategies, only emoticons were used more frequently by the mentored group following the intervention. When comparing the mentored and comparison

TABLE 3

Use of Linguistic and Interactional Features

Linguistic and interactional features	Task 1 (Mentored group) 7,466 words	Task 2 (Mentored group) 17,095 words	Task 2 (Comparison group) 16,533 words
Emotive words and phrases			
Total	75	125	125
Rate per 1,000 words	10.0	7.4	7.6
Personal forms of address			
Total	57	46	17
Rate per 1,000 words	7.6	2.7	1.0
Topic development			
Total	273	298	329
Rate per 1,000 words	36.4	17.5	20.0
Question posing			
Total	41	60	59
Rate per 1,000 words	5.5	3.5	3.6
Emoticons			
Total	49	117	38
Rate per 1,000 words	6.5	6.8	2.3
Personal information			
Total	36	62	26
Rate per 1,000 words	4.8	3.6	1.6
Display of alignment			
Total	77	42	77
Rate per 1,000 words	10.3	2.5	4.7

groups on Task 2, the results also showed that the mentored group outproduced the comparison group in only three categories: personal forms of address, emoticons, and personal information. Looking solely at the change in the rate at which these strategies were used suggests that this type of pre-interaction pedagogical mentoring that focused on raising awareness of linguistic and interactional strategies did not appear to lead this group of students to use more of these strategies than they were already inclined to use during a virtual exchange, with the exception of emoticons.

However, looking beyond a simple comparison of the quantity of linguistic strategies to the contexts in which they occurred reveals a more complex picture. The three strategies that the mentored group produced more of than the comparison group during Task 2 (personal forms of address, emoticons, and personal information) might best be characterized as those most likely to foster the affective and cohesive aspects of social presence in an online written interaction, aspects that may have been otherwise minimized by the very analytical and impersonal nature of Task 2.

Social presence, defined here as "the ability of learners to project themselves socially and affectively into a community of inquiry" (Rourke, Anderson, Garrison, & Archer, 2001, p. 50), is a concept that grew out of research on communication that argued that the lack of nonverbal cues in different types of media (e.g., fax machines, voice-mail) limited interpersonal communication (Short, Williams, & Christie, 1976). In computer-mediated learning contexts, however, research on social presence has examined the relational aspects that were or were not achieved as a result of different participant and contextual factors (e.g., the ability to sense the presence of others through inter-action, the degree to which participants feel affectively connected; Kehrwald, 2008). This body of research includes Rourke et al.'s (2001) categorization and exploration of communication responses in three subcategories: affective responses, interactive responses, and cohesive responses. Affective responses include expressions of emotion, beliefs, and values as well as instances of self-disclosure and therefore encompass the use of emoticons and personal information (e.g., :-); *If I have time, I will do your part, but I really can't promise anything, since I am also feeling so sick the entire day*). Cohesive responses refer to behaviors that foster and maintain group commitment and include personal forms of address (Swan & Shih, 2005), phatics (e.g., "formal inquiries about one's health, remarks about the weather, or comments about trivial matters" [Rourke et al., 2001, p. 57]), and inclusive pronouns (e.g., *we, our*). The remaining category of communication responses, interactive responses, indicate that one is attending to the conversation and therefore include most of the remaining linguistic and interactional strategies proposed by Ware (2013; i.e., question posing, topic development, display of alignment).

The limited impact of mentoring for certain tasks types. Returning to the context of the interactions allows us to see, for example, how the content of the tasks and the degree of familiarity between participants may have mediated the decrease in most of these strategies among the mentored group when moving from Task 1 to Task 2. Specifically, the nature of Task 1, which asked groups to develop a group name and norms for interaction, inherently called on students to generate more affective and cohesive responses in order to develop group identity. In contrast, Task 2, which asked group members to compare and synthesize their differing perspectives on the use of technology-mediated approaches to language teaching, was a more academic task that relied less on affect and group cohesion and more on analysis. Type 1 pedagogical mentoring, which included strategies related to the affective and cohesive aspects of social presence, therefore may have led participants in the mentored group to use these

strategies more than the students in the comparison group on this analytical task. Evidence for this was found in several participants' audio and video recordings, in which they made specific reference to the pedagogical mentoring:

> What I noted, after we had instructions with you about tips for improving interaction. This part about actually asking questions and trying to direct the interaction to someone by mentioning their name—that helped a lot. When you just stated your opinion, nothing really happened. It helped improve the interaction. (Student from Swedish class, video recording)

However, pedagogical mentoring was not as influential in other areas. It is not clear why displays of alignment were lower for mentored students, but their high frequency among the unmentored groups and an overall tendency towards conscientiousness observed among these students suggests that, in such a task where comparison is required, diligent students are already inclined to demonstrate that they are attending to each other's responses for the purpose of successfully completing the task on time. Thus for this type of university student population, mentoring on displays of alignment may not be as fruitful in influencing interaction because it may already be a well-used strategy. Taken together, students' own reference to the influence of the Type 1 pedagogical mentoring and a closer examination of the context in which certain interaction features were employed suggest that this type of mentoring can be effective for facilitating student awareness of certain aspects of social presence in a lingua franca virtual exchange.

Research Question 2: Mediating Critical Incidents Through Pedagogical Mentoring

To examine the themes and issues that were attended to during Type 3 pedagogical mentoring and whether this mentoring heightened students' awareness of them, we focus on one of the critical incidents that occurred via Google Docs, one transnational group's primary channel of communication. Their communication on the Google Doc was through the editing function exclusively, in linear progression, and each participant color-coded their posts as a means of identification.

The critical incident. The critical incident began in one of the international groups during initial brainstorming of ideas for the collaborative lesson plan (Task 3). A student from the Israeli class

initiated the brainstorming session by posting suggestions, followed a few days later by a post with alternative suggestions by members of the Spanish group. Subsequently, several students from the Spanish class felt that their suggestions were being ignored by group members from the partner institutions. When the student in the Israeli class posted additional suggestions for the task, she was directly chastised by one of the students in the Spanish group:

> Hello . . . ! I actually think we should take everyone's point of view into account and you have not even had a look at our proposal. I am sorry but I consider you should not work on it yet until it has been "approved" by the rest of the members. This is a group activity, and this implies that unilateral decisions MUST NOT be made, and in case you do it on your own, it will not be taken into account, at least from my side. I hope you understand.

The student in the Israeli class responded that the idea proposed by her peers in the Spanish class actually built on her own earlier suggestion and that her role in initiating the brainstorming process for Task 3 had not been acknowledged or appreciated. Furthermore, she objected to what she perceived as being treated disrespectfully by her partners from the Spanish group:

> If anyone took a look at my comment from 3 days ago they would see that their (Spanish group) proposal was based off of my suggestion. Secondly, I picked that task for my partner and I because we had already started BRAINSTORMING ideas off of each other 2 days ago. . . . Lastly my partner and I will do whatever we need to do to complete this task as a team but I WILL NOT BE DISRESPECTED OR BELITTLED for stating an idea when no one had even commented on where we should go with task 3!

A second student from the Israeli class followed up with a request for understanding and good faith:

> Lastly but not least, I would prefer everyone assumes that others DO care about the project.

The Spanish students reported during the in-class mentoring session that they had interpreted this comment to mean "at least we in Israel care about the project, not like you," and this linguistic misinterpretation led to annoyance and negative reactions by the Spanish group. Observing this escalation in tension, the lone group member from the Swedish class chose to remain silent. Subsequently, an email from a student to one of the partner teachers about these growing tensions initiated a series of email exchanges among the teachers as well as phone calls and emails among the teachers and students involved.

After consulting the discussion on the group's Google Doc, the teachers framed a 45-minute whole-class discussion in each local classroom to help students understand what might have led to this communication breakdown and to strategize what they could do going forward. The section of the Google Doc with the critical incident was shown on the classroom computer screen, and the students involved walked their classmates through it, elaborating when necessary and sharing their personal perspectives. In each class, the teacher led the discussion by first relating to the value of critical incidents and reframing them as opportunities for learning. Students were then encouraged to explore what had gone wrong and why, to critically examine their own assumptions, and to suggest how the group could resolve their issues. Immediately after the in-class mentoring, the instructors continued to exchange emails in which they provided detailed documentation of the class discussions, including additional themes and issues to supplement those that had been previously identified.

Following this in-class intervention, the incident was resolved by the group (and they successfully completed the task), as seen by the following excerpts from their Google Doc:

> I am sorry you felt left out or your plan isn't responded to. I thought ... it was clear that we agreed to your three lessons template. I am sorry if that wasn't clear. And I can imagine how excited you are when you come up with a good plan.　　　(Student from the Israeli class)

> I would like to leave all this misunderstanding behind and go on, we are humans and this communication breakdowns are very proper from this type of projects.　　　(Student from the Spanish class)

Emerging themes from the critical incident. Analysis of the group's Google Doc, teachers' class notes, and emails revealed the following themes that emerged during this critical incident and that teachers drew on in their mentoring sessions: (1) the value of critical incidents for learning, (2) group identity and collaboration, (3) netiquette, (4) effective use of online tools, (5) limitations of asynchronous communication, (6) reexamining assumptions about partners' intentions and actions, (7) cultural differences in (digital) communication, and (8) preventing and/or dealing with (potential) linguistic misunderstanding. Examples of each are provided in Table 4.

Evidence that the Type 3 pedagogical mentoring influenced students' awareness of all eight themes emerged in the participants' portfolios/critical reflections and audio/video testimonials. In a few cases, students made direct reference to the in-class pedagogical mentoring

TABLE 4

Recurring Themes in Type 3 Pedagogical Mentoring

Theme or Issue	Example
The value of critical incidents for learning	*She [the student] walked us through the story leading up to and including the critical incident (we also discussed what a critical incident is and why it is valuable).* (Instructor from Israel, email to instructors)
Group identity and collaboration	*The Spanish students gave a different suggestion and posted it under the name "the spanish group".... [I]t is far from optimal to post as "the spanish group" if you ask me.* (Student from Swedish class, email to instructor)
Netiquette	*The discussion went into the following areas—... netiquette—discussions of caps, !'s, etc. Not everyone was even aware of this, for e.g. that there is netiquette or that caps are often seen as screaming.* (Instructor from Israel, email to instructors)
Effective use of online tools	*I showed them how to use editing and suggestion modes (again, a minority not aware), and comments. We talked about the advantages of this over a linear discussion that is color coded—what to use for work on the actual task and what to use for discussion around the task.* (Instructor from Israel, email to instructors)
Limitations of asynchronous communication	*I pointed out the limitations of communicating exclusively by Google doc ... and they agreed that skype and actually "seeing someone's face" might have defused this situation quicker.* (Instructor from Spain, email to instructors)
Reexamining assumptions about partners' intentions and actions	*I think the best discussion came out of making assumptions (e.g., you didn't read our suggestion). In my students' responses they themselves were making assumptions about participants as well, when they attributed certain motives to what they were writing on the doc.* (Instructor from Israel, email to instructors)
Cultural differences in (digital) communication	*[We discussed] cultural differences vis-à-vis confrontation/agreeing.... [A]nother Chinese student in our group definitely supported this.* (Instructor from Israel, email to instructors)
Preventing and/or dealing with (potential) linguistic misunderstanding	*The Spanish students mistakenly understood this [Lastly but not least, I would prefer everyone assumes that others DO care about the project] to mean "At least we in Israel care about the project, not like you" and this really made them feel annoyed.* *When I explained what this sentence really meant something like "You're not the only ones that care about the project, you know?" then her expression and her attitude immediately changed."* (Instructor from Spain, email to instructors)

by their instructor in raising their awareness of the theme or issue. This was seen, for example, in reference to the value of critical incidents for learning:

> If it wasn't for our own instructor who patiently taught us about some techniques and methods on how to deal with certain situations, I would say I learned nothing. But I did learn from my instructor and I am very thankful for that.   (Student from Israeli class, critical reflection)

More commonly, however, students' awareness was evidenced through reflection on explicit techniques or themes that arose in

discussions that took place during the in-class mentoring and that had left a lasting impression on them. For example, the student from the Israeli group who was actively involved in the critical incident reflected on the importance of fostering group identity and genuine collaboration. In retrospect, she realized that she had made incorrect assumptions about her partners' intentions and regretted the lapse in netiquette in her emotional post:

> The entire group including myself started to take on a we vs they mentality which left the one student from Sweden fending for himself, something that I am truly sorry for. I realize now that I became too emotional about wanting my ideas heard and forgetting the fact that I am dealing with people who are similar but also different from me.
> <div align="right">(Student from Israeli class, critical reflection)</div>

As had become clear from the analysis of the Google Doc during the critical incident, more careful reading of what their peers were posting may have helped the students see that their suggestion had not been ignored by their peers. In the excerpt below, a student in the Spanish class invoked the limitations of asynchronous communication and the potential for cultural and linguistic misunderstanding, particularly in a text-heavy virtual exchange. This specific point of discussion had been raised during the in-class mentoring:

> What I have learnt from this project is basically related to the cultural as well as the communication aspects. ... I never thought things could go out of control so much because of a little misunderstanding, so regarding communication, I learnt that the choice of the main via of communication is crucial in order to succeed in this aspect as well as the grammatical care, the very precise use of grammar to convey certain type of information is essential in order to make myself fully understood and avoid any kind of misunderstanding.
> <div align="right">(Student from Spanish class, portfolio)</div>

Of particular support regarding the role of the pedagogical mentoring in raising student awareness of these issues and themes was the fact that it was relevant not only to the students who were directly involved in the critical incidents. For example, during the analysis of the group's Google Doc during the in-class mentoring session, the teachers demonstrated how to use additional features (e.g., suggesting mode, inserting comments) and led a discussion regarding which features to use for work on the actual task and which for discussion around it. The following excerpt is from a student in the Swedish class whose group was not involved in a critical incident but who reflected on the effective use of online tools as it related to his group's not entirely successful use of Google Docs:

Another aspect that might have damaged the communication might be that the majority of my group members used Google Docs as anonymous users, making it impossible to personalize the responses, but also leading to difficulties when seeing who contributed with what.

(Student from Swedish class, portfolio)

The above examples therefore provide evidence that Type 3 pedagogical mentoring, which emerged largely in response to the two critical incidents that occurred in Task 3, heightened students' awareness of the themes and issues that were incorporated into the pedagogical mentoring.

PEDAGOGICAL IMPLICATIONS

Apart from the identification of the role of Type 1 and Type 3 pedagogical mentoring during a lingua franca virtual exchange, one other main conclusion can be drawn from this study.

First, there is currently a plethora of pedagogical models that provide educators and learners with competence sets for digital, intercultural, or global and, of course, foreign language competences. However, our analysis suggests that teachers running virtual exchanges must be prepared to help students navigate complex communicative situations that avoid classification into such individual competence sets. Instead teachers must be prepared to carry out pedagogical mentoring that reflects and integrates elements of all three competence areas. In other words, teachers of virtual exchanges must be prepared to mentor students in the development of what Sauro and Chapelle (2017) refer to as *langua-technocultural competence*, the complex intersection of linguistic and cultural competences mediated by technology and the digital spaces and platforms where contact and interaction occur. No two virtual exchanges will be the same, and it is therefore impossible to anticipate the communication breakdowns, misunderstandings, and learning opportunities that will occur, because these are largely dependent on students' preexisting langua-technocultural competence. We therefore argue that instructors cannot rely exclusively on ready-made typologies to guide their pedagogical mentoring. However, educators who wish to provide pedagogical mentoring for their class-to-class virtual exchange can consider the following principles to help them identify and integrate issues of langua-technoculture as they emerge:

First, as recommended by Ware (2013), prior to the exchange Type 1 mentoring can be used to introduce students to linguistic and interactional features and strategies (e.g., Rourke et al.'s, 2001, three

subcategories of social presence) that are common to successful virtual exchanges and can facilitate social presence across different communication media. However, our research here (in line with Dooly, 2017) has demonstrated that, by and large, online intercultural communication cannot be pretaught per se. Rather, preteaching can only sensitize students to key features and strategies and raise awareness of their impact on the success of communication.

Second, raise awareness regarding which tools are effective for different types of communicative tasks and the specific features of each tool. Provide tutorials for effective use of tools and their features. Discuss netiquette and make students aware of culturally situated digital practices (e.g., cultural approaches to communication and conflict, acceptable response times and levels of participation). Although such an approach was already highlighted by Thorne (2003) and by Müller-Hartmann and Kurek (2016), we argue that, in our contemporary world where online communication tools such as WhatsApp have become an integral part of students' personal communication practices, it is more important than ever to raise awareness of differences between socially appropriate online practices in particular countries and professional or academic practices in international contexts.

Third, check online interactions as much as possible and identify possible *rich points* (Agar, 1994; Belz & Müller-Hartmann, 2002) that may involve not only the themes identified in Table 4, but also additional themes for analysis, class discussion, and reflection. As students involved in virtual exchange increasingly move away from email and discussion fora in virtual learning environments and use a complex mixture of personal communication tools such as WhatsApp and Skype (Sykes, 2018), it will no doubt be a challenge for teachers to get access to and follow their students' online interactions as they take place. For this reason, educators will need to establish a system with their students where recordings or copies of online interactions related to the exchange are shared with their teachers. This may be achieved by establishing a routine where students report on a regular basis in their classes about their online interactions. Various common practices are outlined by Nissen (2016).

Fourth, maintain regular contact with the partner teacher(s) and exchange insights and reports about how the different classes are experiencing their exchange and what concerns and issues they may have. Use the information gleaned to jointly plan subsequent pedagogical mentoring. The fact that successful virtual exchange is essentially a team teaching exercise has been generally neglected in the literature to date (although the importance of teacher–teacher relationships in virtual exchange has been recently demonstrated by the EVALUATE 2019 group). Training programmes for teachers need to develop

teachers' team-teaching skills and develop their ability to collaborate and communicate regularly with their partner teacher.

Finally, Belz (2006), as well as Müller-Hartmann and O'Dowd (2017), highlighted that it is vital to underline to students that communication breakdowns and misunderstandings in online intercultural exchange should be considered as opportunities for reflection and learning and not as failure of the learning process. However, educators should be aware that this approach can often clash with students' personal investment in exchanges. Very often students will struggle to step back and reflect critically on experiences where they feel they have been misunderstood, misinterpreted, or even insulted.

LIMITATIONS

A number of limitations in our study should be acknowledged. First, implementing Type 1 pedagogical mentoring that focuses on linguistic and interactional strategies may not be effective or even necessary for promoting more frequent use of certain interactional strategies among advanced English language learners. However, the influence of preteaching interactional strategies on lower proficiency language learners in, for instance, tandem exchange, may result in a more noticeable difference in students' subsequent use of these strategies.

Second, it is difficult to attribute students' discussions of the themes identified in Research Question 2 exclusively to Type 3 pedagogical mentoring as opposed to their participation in the exchange itself. Nevertheless, we hypothesize that by referring explicitly to these themes, participants are demonstrating that their attention had been drawn to them by their teachers' interventions.

CONCLUSION

It was noted at the outset of this article that limited attention has been paid in the literature to date as to how teachers can guide or mentor their students as they navigate the cultural, linguistic, and digital challenges involved in virtual exchange projects. With this in mind, this study set out to examine the role of two types of pedagogical mentoring employed in a virtual exchange project among three classes of initial English teacher education in Israel, Spain, and Sweden: pedagogical mentoring that presented and modeled online interaction strategies before the virtual exchange (Type 1) and pedagogical mentoring that integrated students' own online interactions into class work (Type 3).

Findings reveal that Type 1 pedagogical mentoring did not appear to lead students to increase their use of most of the targeted strategies, with the exception of emoticons. However, the three strategies that the mentored group produced more of than the comparison group (personal forms of address, emoticons, and personal information) were those most likely to foster the affective and cohesive aspects of social presence in an online written interaction.

Regarding Type 3 mentoring, analysis revealed the emergence of eight themes that required mentoring by the teachers during the exchange. These involved issues related to digital, intercultural, and linguistic competences, and very often the themes overlapped with all three of these competence sets. The data also show that students did indeed report further learning and reflection due to this type of pedagogical mentoring.

We would conclude that this study is only one of the first in a number of studies required in order to explore in detail the complexities involved in teacher interventions at the different stages of virtual exchange. Further research into the effectiveness of the three types of pedagogical mentoring in virtual exchange, particularly Type 2 (which was not attended to in this study), is recommended. Investigation of Type 2 mentoring may be of particular relevance for distance or hybrid courses where other modes of mentoring may not be feasible. Examination of various types of teacher interventions in non–lingua franca exchanges is also warranted. In addition, validating the themes found in Table 4 and identifying additional ones is recommended. Because our study investigated teacher candidates, who may be uniquely attentive to pedagogical mentoring, future studies on teacher interventions in virtual exchange should include additional populations in diverse contexts. Greater attention must also be paid to how teachers can promote not only their students' langua-technocultural competence but their own as well while developing awareness of differing online practices across diverse international contexts. To this end, investigating the role of team teaching in virtual exchange is of particular relevance. What skills and competences are necessary for effective team teaching? How can teacher training and professional development programmes facilitate teachers in developing the ability to effectively collaborate and communicate with partner teachers?

Finally, as online personal communication tools and applications becoming increasingly available and varied, researchers should continue to examine their affordances and constraints as well as the procedures and strategies available to access students' interactions for analysis.

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