Helping Teachers Help Their Students Participate in Virtual Exchange: The Importance of Teacher Training

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Abstract

This paper reports on evidence-based teaching practice carried out in teacher training within the International Virtual Exchange Project (IVEProject). The IVEProject has involved more than 30,000 students and 600 teachers from 25 countries in Virtual Exchange (VE) since 2015. In the two 2021 exchanges, we conducted research to identify issues teachers face when they participate in this VE, and to identify possible tools and practical help to solve problems teachers have. A further goal was to identify teachers' cognition and practices associated with students' successful participation in the exchange. First-time teachers were asked to complete questionnaires which produced both quantitative and qualitative data. Other data came from two participating teachers who wrote a weekly journal as they progressed through the exchange. Finally, we used logs from the website to analyse teachers' use of the site. Unsurprisingly, the study found that teachers require focused training to facilitate their participation, but the type, amount and style of training varied depending on a number of teacher traits and the environments in which they worked. Many teachers want their students to interact with others around the world but are still not confident in bringing themselves and their students into an international setting. The study identified the issues that the participating teachers had. The paper concludes with a discussion, based on participants' data, of ways in which organisers can help teachers in future VE to address these issues to improve their own and students' participation and outcomes.

Keywords

1 Background

1.1 The case for virtual exchange

Teachers of English as a Foreign Language (EFL) and other foreign language teachers around the world

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are becoming cognisant of the incredible power of Virtual Exchange (VE) as it links Foreign Language (FL) students in multiple countries and allows them to use the language they are studying in real-world settings. However, few teachers have actually been able to use VE, owing to a lack of opportunity. VE is still a relatively new FL phenomenon, yet we believe it will, over time, become an integral part of every FL communication class. It is for this reason that the project and training outlined in this paper are so crucial.

1.2 Literature review on VE

VE has been defined by many groups in recent times. The Europe-based Erasmus plus project states VE "is distinctive in its use of new media platforms to enable deep, interactive social learning. [People] have meaningful, transnational and intercultural experiences." The US-based Stevens Initiative has VE as "a method that uses technology to connect people for education and exchange." Various researchers have also tried to define it, for example Helm (2018, p. 1) and Háhn (2021), but a clear definition remains elusive. Hagley (2020a) notes the myriad terms being used for VE can cause confusion and offers ideas on how to streamline the terminology. For the purposes of this paper, we define VE as: *an action that is an integral part of everyday FL instruction where, under the tutelage of a teacher, students, either by themselves or in groups, interact via the internet with student peers in other countries as part of their foreign/second language or culture class*. We see VE as being different and separate from Collaborative Online International Learning (COIL) which incorporates online exchanges into the syllabi of various majors such as engineering, business, and other subjects.

VE is likely to become mainstream in FL classes in the coming years, particularly in English as a Foreign Language (EFL) classes, as the numerous benefits become increasingly known to FL and EFL teachers. Research has shown that different types of VE improve most aspects of students' language development: speaking (Canals, 2020), communicative competence (Godwin-Jones, 2019; Hřebačková, 2019) writing (Choi, 2008), critical literacy (Hauck, 2019) and importantly, intercultural understanding (Belz, 2007; Schenker, 2013). More than 300 papers on VE showing many more benefits can be accessed at the virtual exchange and telecollaboration Zotero library. Much of the research noted here is based on dual-language VE, but single language VE (for example when English is used as a Lingua Franca (ELF) in a multicultural setting) has similar results (Kohn & Hoffstaedter, 2017; Hagley, 2020b). It is this type of single-language VE that was investigated in this study.

Our focus in the study was on helping teachers in the VE help their students. Teacher training and development in the use of VE are most often conducted in formal settings, and frequently with pre-service teachers (Cappellini & Hsu, 2020). Experienced teachers also receive training in pedagogical and digital competences, as in Vinagre's (2017) study of in-service teachers. Providing comprehensive training for teachers before they and their students start a virtual exchange is clearly desirable, but it is not always possible. The IVEProject is a large practitioner-led VE that has been growing in a bottom-up fashion for years, and which every year attracts new teachers who are keen to harness the benefits of VE for their students. Most of these teachers, although experienced in traditional classroom teaching, have little or no experience using an online environment like Moodle, nor do they have the pedagogical and digital competences that can be imparted in formal pre- or in-service teacher training. The challenge for the IVEProject organisers is therefore to train these teachers, most of whom already have a full workload. The training must be provided remotely, in a short period of time (often less than a month), and without a formal educational framework. Students' positive experiences are key to the whole venture; as Ruther et al. (2021, p. 70) note, "positive student impact can help grow and sustain VE and other international programming", and these positive outcomes are dependent to a large extent on their teachers. The training provided to teachers in the IVEProject is therefore crucial, and its refinement and improvement are a major concern for the organisers, and the motivation for this study.

1.3 The IVEProject

It is axiomatic that the linguistic ability of students involved in VE should be of prime importance when designing a program. Challenging topics and tasks, whilst perhaps academically desirable, can be demotivating if students' language level is insufficient. Students participating in the IVEProject have a wide range of English language levels and hence the core element of the VE is simple in nature: discussions take place in online forums on four basic topics. In the past two iterations of the IVEProject, group discussions have revolved around these topics: Introductions; Student Life in our Culture; The Culture Around Us; and Gifts (northern hemisphere spring course) and About Us and the Places We Live; Homes in our Culture; Modern vs Traditional Culture; and Heroes in our Culture (autumn course). In addition, there is an open forum where students can choose the topic they wish to discuss, and it is here that a number of more advanced topics are taken up by students with more developed language skills.

Since 2015, some 30,000 students and 600 teachers from 25 different countries have participated in the IVEProject. During that time, there have been two iterations of the IVEProject each year. These are provided free of charge to the participants as the Japanese government sponsors the project via the JSPS Kaken grant system. The two main participants are Japan and Colombia, with over 1,500 students from each country participating in each iteration. Some universities in Japan have made participation in the project a part of the curriculum and hence all students at those institutions participate at some point during their tertiary studies. Other countries provide the other third of the participating students.

In the iterations described in this paper, some 8,000 students participated in the two eight-week projects. Teachers sign up their students and the organiser then puts each student in a group with students from other countries. Hence if Teacher A has 20 students participating, each of those students will be in a separate group with students from Japan, Colombia and up to six other countries. In those groups the students participate in the forums outlined above, where they can use text, audio, video and other multimedia to interact asynchronously. There are also optional weekly synchronous exchanges on Zoom. Other activities include a student-generated survey, and a photo-of-the-day database, where students can post photos showing their culture and exchange comments about them.

Through these simple interactions students build their interactional confidence and understanding of the lives of students from other countries. The group setting requires the use of English for communication to take place. A student from China, for example, will have to interact in English with students from other parts of Asia, South America, the Middle East and Africa - they cannot revert to Chinese for communication. The IVEProject gives participants the opportunity to interact with a diverse group of students from Japan, Colombia, China, Brazil, Chile, the UAE, Niger and many other participating countries. Students are able to receive ideas from those cultures - ideas that can have a profound impact on their learning and lives.

Many of the teachers participating with their students are repeat participants but in every new iteration there are new teachers too. To assist these teachers to participate fully with their students, workshops and other training materials have been created. Training is carried out prior to the start of each IVEProject iteration. We have tried to gain an understanding of the problems teachers face but without specific research, it has been difficult. Hence, this paper examines the nature and quality of the training provided in an attempt to improve the value and experience for starting teachers.

2 Teacher Involvement in Virtual Exchange

The European Union (EU) has been working with teacher trainers in the Evaluate group, promoting initial teacher education that includes VE. Many future teachers are thus being exposed to the power of VE during their teacher training. This is an ideal situation. UniCollaboration has begun offering paid

training courses in VE, but for teachers in developing countries the cost is too great. Dooly & Vinagre (2021) note that teacher training is a crucial area of VE needing further development, but outside the UniCollaboration training courses, there seem to be few training opportunities for teachers wanting to begin VE. The Stevens Initiative has provided a free mentoring handbook for teachers, and other resources, but no hands-on training. Thus, for many teachers wanting to participate in VE, there are few training opportunities.

The organisers of the IVEProject understood from the outset that teachers would need training both before and during their participation in the project. However, they also understood that as teachers were participating from many different parts of the world, had varying levels of English language proficiency, and were from vastly different socio-economic backgrounds, that training could not be a "one-size-fits-all" package. In previous iterations, we did three live Skype workshops in which the organiser shared his screen and showcased how students and teachers could use the IVEProject. The workshops were done on different days and at different times throughout the day to try and ensure that at least one would be timely for new teachers anywhere in the world. One of these workshops was screen-recorded and made available to those teachers who could not participate live.

The research project reported in this paper was set up to help us improve on this training program. For the two iterations being examined here we did six live workshops, with one of them being recorded. The recorded version was put on the course page in the teachers' forum and was therefore available to all the teachers at any time. The coordinator was clear in explaining that any teacher could ask questions in the teachers' forum, but that if they were uncomfortable asking there, they could also ask the coordinator privately via email. A section of the site labelled "Help and information" was also available where both teachers and students could access a FAQ with video and text tutorials on various aspects of the IVEProject.

3 Research Questions

The main aim of this study was to facilitate improvements in the IVEProject and by extension to inform the design of other virtual exchange (VE) programs. It is important for such programs to be as well-designed as possible because once they are "live" there is very limited scope for improvement. Any major changes to a "live" VE are likely to cause more confusion than clarity, and to avoid this, organisers usually limit themselves to trouble-shooting specific problems from individual teachers. Many issues and potentially useful ideas about how to improve the VE may not be communicated to the organisers, perhaps because teachers find solutions to issues by themselves, are too busy to contact the organisers, are not confident enough to share their thoughts, or do not think to suggest improvements while they are immersed in the VE.

In creating the best possible VE program, there is thus a case to be made for an overall assessment of the issues teachers experienced, including those which were not necessarily referred to the organisers. This led us to our first research question (RQ1): What issues do teachers face before and during their participation in VE and how do they approach those?

A consideration of the problems encountered would lead us to potential solutions and improvements that could be implemented within future versions of the project itself. This is captured in our second research question (RQ2): What tools and practical help do teachers need to participate in VE? How can these be delivered?

We also felt that an overall assessment should elicit teachers' ideas about possible improvements, and this gave us our third research question (RQ3): What did teachers think about the VE format and topics? What other ideas do they have for improving the VE?

In general terms, these three RQs aimed to take a remedial approach to the existing VE, combined with a proactive approach whereby teachers' ideas and suggestions inform future iterations of the VE.

Finally, we wanted to consider the thinking and reported practices of teachers whose students had done particularly well in the VE. Because of the number of factors involved it is impossible to prove a causal relationship between teachers' practices and their students' success, nevertheless, we felt that it was worthwhile to look at such teachers. This gave us our fourth research question (RQ4): What teacher cognition and practices are associated with students' successful participation in the VE?

4 The Study

4.1 Participants

There were 185 active teachers in the spring IVEProject and 142 in the autumn. We asked teachers who were relatively new to the project (first- or second-time participants) to complete the questionnaires, as their reflections about the training would be clearest. Hence the number of respondents to the different surveys was small relative to how many teachers participated.

In the study conducted in the spring, there were 21 respondents, 16 of whom had six or more years teaching experience. Four respondents were in their 20s, four were 30-39 years old and 13 respondents were 40 years old or more. In the autumn study, there were nine respondents, all of whom had been teaching for six years or more. All nine of the respondents were over 30 years old, and four were 40 or older.

4.2 Methodology

The study used both quantitative and qualitative data. Questionnaires were administered to the teachers before the start of the 2021 IVEProject iterations and at their conclusion. These were not identical surveys as we were not concerned with identifying changes during the project. The questionnaires elicited quantitative data in the form of teachers' responses on a six-point Likert scale to various statements. Qualitative data were collected from responses to open-ended questions in the same questionnaires.

Data also came from teachers' diaries and the teachers' forum. The diary study followed the suggestions of Robson (2002, pp. 258-9) who argues that to be most effective diary studies should be well structured. Participants should respond to a set of questions and should be clear about what they have to do, when and why. Our diary guidelines and questions are reproduced in full in the appendix. Participants were requested to make a diary entry before each class or interaction with students in which they were to use the IVEProject, and another after each class or interaction had finished. A third catch-all question aimed to elicit any other thoughts that the participants had about the interaction. Two teachers wrote diaries during the spring IVEProject, and these furnished us with more qualitative data.

The teachers' forum is an essential part of the IVE and it provided us with a further source of data for this study. It is a place within the IVEProject Moodle site where teachers can share ideas and ask questions before, during and after the IVE. With more than 100 teachers participating in each of the IVEProjects outlined here, the forum can be an intimidating place, particularly for teachers who are less confident about their English level. Nevertheless, some of the ideas and comments that have come from the teachers' forum have gone on to become integral parts of the IVEProject.

4.3 Research questions and questionnaire items

The questionnaires were similar to ones that the IVE Project organisers have used in previous years. Here we outline the direct and oblique relationships between the RQs and questionnaire items.

RQ1 (What issues do teachers face before and during their participation in VE and how do they approach those?) was addressed using data from the diary studies in particular, as these asked teachers new to the IVEProject to report on their preparations and practice during the VE. Items from the post-questionnaires also helped to answer this question, especially Items 1 and 2 that asked about the VE format and topics, and Item 5 that asked about features and activities in the exchange.

RQ2 (What tools and practical help do teachers need to participate in VE? How can these be delivered?) was addressed by the spring and autumn pre-questionnaires: Item 4 - How much and what type of training do you think teachers and students need? How much time can teachers and students devote to learning about a project/the system? In addition, the open questions at the end of the questionnaires provided an opportunity for suggestions in this area. Data from the teachers' forum in which teachers asked questions, often technical or practical, also shed light on the tools and help that teachers required.

RQ3(What did teachers think about the VE format and topics? What other ideas do they have for improving the VE?) was addressed by the spring post-questionnaire: Item 1 asked teachers for their thoughts on the format of the VE; Item 2 asked about the VE topics; Item 4 - What you would say to other teachers thinking about incorporating the exchange into their class; Item 5 - What other features / activities would you like to have? For example, would you like to start the exchange earlier with just the open forum? Are there any other ideas you think we could incorporate to get students interacting more before/during and/or after the exchange?

In overall terms, the spring post-questionnaire also included questions about specific features of the exchange that may help to answer the RQs: Item 3 - the forum report; Item 9 - notifications and the Moodle app. In the autumn post-questionnaire, Item 1 elicited thoughts and suggestions for improving the training (changed from "format" in the spring version).

After the exchange had finished, we were able to identify two teachers new to the program whom we considered to have been successful. We focused on qualitative data from the questionnaires as well as a diary study to find out about these teachers' cognition and practices. These data sources are designed to answer RQ4 (What teacher cognition and practices are associated with students' successful participation in the VE?).

4.4 Research procedure

New and novice teachers (with previous experience of one iteration of the IVEProject) were asked to complete the pre-questionnaire after the initial training finished and before the VE itself started up. Teachers were requested to complete the post-questionnaire after the 8-week iteration was finished.

The organisers asked for volunteers among these teachers to write a journal or diary as they progressed through the VE. Three teachers volunteered, although unfortunately one had to withdraw as she was caught up in the conflict in Syria. The remaining two teachers completed their diary after discussion with the organisers about procedure, and following the guidelines provided by the organisers (see the Appendix). The diaries were submitted to the organisers after the iteration had finished.

The teachers' forum was open throughout each iteration and teachers were free to comment and to ask and answer questions there. The data were available to the researchers on the Moodle website.

4.5 Qualitative data analysis

We used qualitative data analysis software to help us code the data from the open-ended items in the questionnaires and the diary studies. Initially a "start list" of codes (Miles and Huberman, 1994, p. 58) was drawn up based on the research questions driving this study. Similar questionnaires had been

administered in previous iterations of the IVE Project, and the results of these helped us to create the start list of codes: [topics   Moodle   training   time/timing   teachers   students   motivation   modality]

Using this start list, we went through the qualitative data from the research instruments, adding codes as seemed necessary. For example, the "motivation" code soon expanded to motivation-good (for teachers' reports of students being motivated by the VE), motivation-improvement (for suggested ways of improving it), motivation-low (for examples of low motivation among students), and so on. The codes were attached (in the software) to chunks of language - words, phrases, sentences - in our qualitative data sources. The codes could then be used to retrieve and group chunks that relate to a particular research question, or aspect of the VE. The chunks of language drawn from a range of sources and respondents appeared under a single code and could be viewed together, which enabled us to begin drawing conclusions from the data.

5 Results and Discussion

5.1 Qualitative data

The qualitative results can be divided into three sections: (1) issues with the VE itself (e.g., problems with Moodle, the website, the topics) that teachers had no control over, and no immediate solution for; these provide a partial answer to RQ1. (2) Resolvable (mitigable) problems, i.e., issues that teachers were able to address and ameliorate in some way; these answer RQ1 and part of RQ2. (3) Teachers' suggestions for improvements that were not directly related to a problem; these help to answer RQ3. The research question about the cognition and practices of successful teachers (RQ4) is addressed in section 5.5 below.

5.2 Issues with the VE

There were some positive comments about the changes made to the website since the previous exchange, for example, "The platform seemed to me much friendlier than the previous exchange." (Post-Q spring; original in Spanish (OIS)), but overall teachers reported that the website was too complicated: "One of my first thoughts about the website's navigation is that I'd like it to be a bit friendlier since sometimes it might be a little bit tough to navigate." (Teacher J's diary). In fact, the salient criticism was that the website was difficult to navigate, and teachers asked for it to be simplified: "The website was easier to use than last semester, but I still feel it could be simplified even more to make it more user-friendly." The VE organisers have taken discernible steps in the right direction, but more needs to be done.

A specific issue which possibly affected student participation was that students found it hard to keep track of their posts and replies: "Many of my students reported that…it was hard for them to keep check of replies to their messages." (Post-Q spring); "Students have difficulties finding their previous posts and looking for replies." (Post-Q spring). Keeping track of posts was also an issue for teachers when it came to assessing their students: "I couldn't find information easily, for example, an individual student's posts." (Post-Q spring). While there is a mechanism for students to keep track of their posts, this was not made sufficiently clear to them or their teachers.

Another key issue over which teachers had no control was the make-up of the "focused" student groups. Teachers reported students' disappointment with monocultural (usually all Japanese) groups or groups with only one or two non-Japanese participants. This was a problem in both the spring and autumn exchanges. This relates to another intractable problem, that of timing the VE to suit all participants: matching term dates, and avoiding internships, test periods and teaching practices. These were all reported as causes for a lack of student involvement. Students can interact with students from

other countries in the open forum; ideally, however, the focused groups would work for all students. There were some 200 focused groups in the IVEs outlined here. Unfortunately, between 15 and 20 of those groups had students in them who, for various reasons, did not actively participate. This left four to five Japanese students, from different parts of Japan, interacting with each other.

When it came to the topics in the VE, there was overall approval. However, several teachers requested more specific topics, e.g. "Perhaps in a future VE a less general topic could be added" (Post-Q Spring, OIS). Other teachers requested that topics be introduced more frequently: "Maybe increase the forums to five or six, or perhaps one a week would make for fuller participation." (Post-Q Spring, OIS). Other teachers, however, asked for the topics to be extended so that students with other commitments would have more time to contribute.

5.3 Resolvable/mitigable problems

Poor student responses were reported as a problem by several teachers, typically short replies to long, effortful posts: "unfortunately some students gave very brief replies, almost being disrespectful with the student they were replying to." (Teacher J's diary). There were a variety of solutions or workarounds for this phenomenon, some of which could be implemented in future iterations of the VE. One teacher who complained about short responses ensured that his own students avoided this trait by insisting on posts and replies of 80-100 words. A forced way to overcome this would be to introduce a minimum word count such that the "Post to Forum" button is inactive until the minimum is reached. Although this is possible, a less drastic method would be to train teachers to require replies of an appropriate length from their students. Another teacher took advantage of the Open Forum and directed her students who were receiving unsatisfactory replies in their focused groups to post there instead.

An associated problem, and a principal issue for many teachers, was low motivation among the students: "Sometimes it's a little difficult to generate interest in them [the students]" (Post-Q spring, OIS); "The issue is the motivation of students. It is still the most significant factor to make participation in the exchange successful. I am trying to find better strategies" (Pre-Q spring). As the latter quotation suggests, teachers tried hard to motivate their students; some of their strategies could be introduced into the VE. For example, one teacher suggested using the Forum Report data to "let the students monitor their progress easier for those [teachers] giving grades. Maybe a progress bar for goals?" This call for an element of gamification chimed with comments by teachers who argued for a more social media-like interface. Gamification is something the organisers are looking at incorporating into future IVEProjects. Another teacher reported using the Forum Report data to create a competition among students: "I have my students aim at 2000 words in total...I give them an update of their progress every 1-2 weeks by ranking them and creating a sort of competition...And it worked very well" (Post-Q spring). The organisers do not tell teachers that they must assess their students on their participation, but we have found that the students who are not assessed participate far less frequently than those that are assessed.

Teachers also countered low motivation by rewarding more participation with a better grade; by reminding students to participate "constantly", "twice a week"; by giving students individual feedback on what they had posted; by showing examples of excellent threads; by reading out and commenting on posts by foreign students; by discussing the VE topics in class; and by sharing their own experiences of intercultural exchanges. These strategies were introduced on the initiative of individual teachers, but as some teachers suggested, it would be beneficial to add a training module which coaches teachers in how to tackle low motivation and other predictable issues: "I would say there needs to be technology training and a best practices training. Best practices training relates to facilitating effective communication asynchronously" (Pre-Q spring). The teachers' strategies outlined in this section could form a key part of such a "best practices" training module.

5.4 Other suggestions for improvements

Teachers praised the training provided before the VE started and appreciated the training workshops which were scheduled at various times. The video recordings of training workshops that were posted on the VE website were also valued, e.g. "The training was just enough for me. Besides, we can always go back to the recorded video" (Post-Q autumn).

The teachers' forum was valued for its promotion of collegial engagement and support: "The teacher's forum is perfect because it encourages teachers to constantly ask questions if they encounter an issue after the initial introduction to the program" (Pre-Q spring). The organisers' support via email throughout the exchange was praised by many teachers.

However, teachers also made some suggestions to improve the training. The importance of keeping training materials up to date was highlighted, especially as the VE format changes slightly each time: "One of the things I would do is to update the [Spanish] version of the explanatory website, since the only source I found to give my students a glimpse about the IVE Project was dated in 2019" (Teacher J's diary). One teacher who had created her own training materials for a previous version of the VE had a similar problem: "I made videos with the older interface and that helped to confuse students" (Pre-Q spring).

Another suggestion was to add subtitles to the training video: "I consider it would be very useful to subtitle (either in English or students' L1) Eric's walkthrough video, so students can fully understand how posting and replying work" (Teacher J's diary). While the teachers can understand the training materials in English, it seems likely that many students would appreciate L1 support in the form of video subtitles or L1 training materials.

A further prominent suggestion was to add a synchronous element to the VE: "It would be very good if in one of the activities there were a synchronous virtual session to allow real interaction among the students" (Post-Q spring, OIS); "many of my students would do better with a synchronous exchange…it would put them on the spot and force them to listen and speak" (Post-Q spring).

5.5 The cognition and practices of two teachers

Turning now to RQ4, we present data about the cognition and practices of two teachers whose students we considered to be successful participants in the VE. In considering ways in which teachers can best be trained for VE, it seems reasonable to look at teachers who got good results from their students, even though we cannot prove a causal relationship between the teachers' behaviour and the students' output.

Data from Teacher A's diary shows that in the first week he focused on replies, rather than original posts, "encouraging them to hang back and just respond this first week". In this way, he intended to familiarise himself and the students with the VE. Teacher A reported that he did this because of the organiser's emphasis (in the video training) on the importance of responding to other students' posts. If all the teachers followed Teacher A in this approach the first weeks of the VE would be very quiet, so perhaps a better balance needs to be struck in the training.

In the second week, Teacher A aimed to build "a strong base" for which he "set up a practice forum in my class only...I've also joined my practice forum in a fake student account and am participating with that to provide clear examples". Teacher A used this practice forum to provide good sample posts with multimedia, and to stress the importance of interaction. Once students had posted, he responded to show them what he had meant by "extending the conversation and pushing it further". Students then copied and pasted their practice posts into the VE. Speaking of a practice forum, we mention here a request from another teacher: "I would like to show the apprentices a real example, when I try to show them…in class how to do it, a sample test or trial site would be important" (Post-Q spring).

Teacher A provided time in class for his students to discuss their experience in the VE after the first

week, and at the end of the first topic/forum. He clearly felt such discussions were an important part of the process, planning to include them four times during the first two forums.

In addition to these strategies, Teacher A set clear goals for his students: the number of posts and words, as might be expected, but he also required students to use "interesting internet media" in their posts, and to use their smartphones to post original videos and audio recordings. Focusing on this type of media seems to have paid off in the amount of interaction Teacher A's students and their partners engaged in.

Overall, then, it seems that Teacher A prepared his students slowly and carefully, providing clear examples of good posts and replies to individual students via his "fake" student account in a practice forum. Once a solid base had been established, students posted in the VE and were given time to discuss their experiences. They were set clear goals, which included using photos and videos, as well as post and word targets.

In addition to setting clear goals, the second teacher, Teacher S, made the VE worth 50% of her students' final grade so that they would "take it seriously". Teacher S's students "had weekly sessions on topics related to intercultural communication theory and had to relate these topics to their experience in the IVE as a final paper". The VE was thus firmly integrated into the course and there was therefore strong extrinsic motivation on students to participate. This differs from the intrinsic motivation which other teachers had developed strategies to encourage (see the "Resolvable/Mitigable Problems" section above). As Teacher S reported, "Many students were able to relate communication theory learned in class with this experience...The student motivation remained high throughout the IVE".

Teacher S also had her students take a somewhat experimental approach to the VE, with half of them participating in the group sessions and half going into the open forums. Students in the open forums reported having a better experience, although "some commented that there were too many topics in the open forums and were disappointed that their posts were not answered". While far from conclusive, this adds weight to the earlier suggestion that the number of topics in the Open Forum should perhaps be limited or controlled in some way.

5.6 Quantitative data

Quantitative results were very similar in both the spring and autumn pre-surveys. As noted in Section 4.1 above, in the spring iteration 16 of the 21 respondents had been teaching for six or more years when they started the IVEProject. Seventeen respondents were 30 years old or older (13 were over 40). All nine of the respondents in the autumn iteration had six or more years of teaching experience, all being over 30 years old, with four being 40 or older. This is reassuring for proponents of VE as it is evident that experienced teachers are incorporating it into their classes in order to harness the benefits of VE for their students.

The need for VE training increases if teachers have little or no understanding of how to use technology in their teaching. To check this, we asked teachers how experienced they were. Only five of the 21 teachers in the spring iteration had zero or less than a year of using technology in their classes. Four of those five were from developing countries and two of those were teaching in war zones. Other teachers all had two or more years of experience with technology in their teaching environments with all nine of the autumn iteration teachers having had at least two years of experience, six with more than five years. It is reassuring to see that the students of the five teachers with less than a year's experience were still able to actively participate in the project. This can be seen by their activity logs. Their teachers were all active in the training sessions and, except for one, active in following their students' participation. This also can be seen from their logs.

To understand teachers' situations better we asked, in a pre-IVE survey, questions regarding their understanding of technology and aspects of technology that relate to VE. Table 1 shows the results.

Table 1

Data from the Likert Scale Questions

Definition - please read this carefully. Technology is a broad concept that can mean a lot of different things. For the pur¬pose of the following questions, technology refers to the use of Internet enabled tools - specifically, learning management systems such as Moodle, Canvas, Manaba, Blackboard etc, online communication tools such as Zoom, Skype etc. and social networking tools such as WeChat, Line, Facebook. We are NOT including the basic use of computers, tablet computers (iPads, etc.) or smartphones nor software programs such as word processing tools or presentation tools, etc. Now please answer these questions using a scale of 1. Strongly disagree <-===-> 6. Strongly agree	Spring mean/6 n=21	SD	Autumn mean/6 n=9	SD
1. I am able to use the defined technology in most of my teaching activities with students	5.1	1.044	5.3	0.707
2. I am confident using the defined technology in my teaching	5.0	1.048	5.2	1.092
3. I can adapt the use of the defined technology to different teaching activities	4.8	1.123	5.2	0.833
4. I am able to use the defined technology in a variety of settings	4.7	1.189	5.2	0.833
5. I know how to use a virtual learning system such as Moodle, Canvas, Blackboard etc.	4.7	1.270	4.8	1.563
6. I design lessons that appropriately combine English as a foreign/second language with technology	4.9	1.152	5.3	1
7. I use general technology a lot in my day-to-day life.	5.6	0.589	5.6	0.726
8. I think synchronous (real-time) communication is the best form of communication for language teaching	4.9	1.236	4.2	1.481
9. Students learn more in a traditional classroom than by using technology	3.1	1.578	2.4	1.424
10. I think my students know a lot about how to use the internet to study English	3.8	1.504	3.4	1.424
11. I think every student who studies English should communicate with people in other countries as part of their study	5.5	0.981	5.3	0.866

It seems clear teachers are quite confident regarding the use of technology even if they did not have the experience of using it in class. This may come from the ubiquitous use of technology in everyday life which accounts for the highest mean in both groups. The questions that offer the most interesting answers and that need further research are questions 8, 9 and 10. From questions 8 and 9, we see that although most teachers here believe synchronous learning is the best, they are not so sure that traditional classes are ideal. It would be useful to ask the same questions at the end of the IVE to discover if they feel the same way. For question 10 we would need to find out more information on students' backgrounds and teachers' understanding of the question. That question is open to interpretation and needs more detail.

The final question reaffirms the fact that these teachers see VE as a powerful and important part of their EFL class.

Table 2 presents answers to the Likert-type questions in the post-surveys that pertained to training.

Table 2
Post-survey Questions

	Spring mean/6 n=29	SD	Autumn mean/6 n=13	SD
1. There was enough training for me to help my students participate in the exchange.	5.0	1.21	5.3	1.032
2. My students actively participated in the exchange.	4.2	1.185	4.3	1.032
3. This online exchange website was easy to use.	5.0	1.523	5.0	0.913
4. I often checked my students' activity in the forums.	4.7	1.173	4.2	1.345
5. I always took note of the teachers' forum and followed the discussions there.	Not asked in this version		3.5	1.506
6. I interacted with other teachers during the IVE to try and improve my understanding of it.	Not asked in this version		2.2	1.363

The numbers in Table 2 suggest almost all teachers believed that they had enough training, and that the website was relatively easy to use (Items 1 and 3) though one teacher disagreed and explained in the comments section. Her points regarding the terminology used were valid and will be incorporated into the next IVE. In response to item 2, six of the 29 teachers in the spring exchange chose number 3 on the six-point Likert scale, suggesting they were not positive about this statement, while other teachers were all positive (choosing 4 or above). In the autumn iteration three of 13 were negative and the others positive. Of the nine who believed their students were not active, four did not include VE participation in their students' assessment. This is a major cause of student non-participation, so it is not particularly surprising that those students were not active. Of the other five there were no comments that give us an understanding as to why they were not active. This is an area that requires further investigation.

Regarding teachers checking their students' activity (Item 4), we had hoped for higher numbers in this section. The teachers who did not check their students' work in the forums are also responsible to a degree for students' non-participation. The number one complaint we have from students is that they did not get enough interaction from their international peers. If students' work is not checked and they are not being assessed, they will not be as active, and this in turn spoils the experience for others. Teachers should assess and check on their students' work.

Looking at some quantitative data from the teachers' forum we can see some benefits and ideas to assist with training and the IVEProject in general for the future. From the logs of participation in the spring IVE, we see that 142 of 185 active teachers viewed the teachers' forum. Yet only 32 teachers

joined a discussion (meaning that they either asked or answered a question or wrote a comment) and only 17 asked a question or started a discussion. In the autumn iteration, 75 of the 142 active teachers viewed the forum. Thirty-one teachers joined in a discussion in the forum and just 18 actually started a discussion or asked a question. The results from Items 5 and 6 in the autumn survey shown in Table 2 above also show that teachers did not use the teachers' forum often. We would like to believe that this is due to the effectiveness of the training and the ease of use of the site. However, it could also show that teachers were too busy to post. Another possibility is that teachers found the forum difficult to use, but we have no evidence for this in the comments or other data. Looking at the forum itself, we can see that it was very useful for those that did use it and the timeliness of feedback was good. In the spring IVE the fastest a question was answered was just 18 minutes after being posted. The average length of time was 90 minutes between a question being asked and it being answered. In the autumn IVE the fastest a question was answered was 20 minutes with an average answer-time of 70 minutes. Comments on how individual teachers were using it and suggestions made by teachers on ways to incorporate mobile learning and rubric assessment into their classes helped participating teachers improve their understanding of the IVE and their general teaching too. Discussion on the use of rubrics in the teachers' forum led to a paper being published by a teacher who recently began using the IVE. This shows the forum can be a place where teacher development occurs and it is thus important for teachers to be active therein, however it seems that more could be done to encourage fuller use of the teachers' forum.

5.7 Discussion relating to the research questions

In addition to the results above, we would like to discuss the research questions in more general terms. In response to RQ1 (What issues do teachers face before and during their participation in VE and how do they approach those?), it is found that every teacher brings a unique situation and challenges to a VE. This is what makes the IVEProject so interesting for all involved. This mixture of people and their cultures is truly fascinating to be a part of. However, this means the organisers need to be flexible in how they approach all teachers. Some are teaching in war zones with no or intermittent electricity and a lack of the basic tools necessary for participation. Others are in developing countries where the socio-economic situation is such that students can rarely have access to the internet. Some have huge class sizes whilst others have students with varying levels of language proficiency. The list of challenges goes on but what is important here is that organisers attempt to take on board all these issues and attempt to assist teachers in overcoming as many of the hurdles they face as is possible.

For RQ2 (What tools and practical help do teachers need to participate in VE? How can these be delivered?), we note that the IVEProject has attempted to offer practical help via workshops and online tutorials and continues to develop tools that assist teachers to participate fully. This has taken the form of in-depth real-time training and tools to help teachers help each other via open channels of communication. As has been noted, these need to continue to be improved, and the results of this study will contribute to this ongoing process.

For RQ3 (What did teachers think about the VE format and topics? What other ideas do they have for improving the VE?), it is found that teachers have been overwhelmingly positive about the IVEProject itself. The present format and topics are generally well-received but, as noted, there are further options to explore, and the organisers are looking at these. Some include more topics whilst others include incorporating tasks and further streamlining the delivery method to make it even easier to use. This is also an ongoing process that the organisers take seriously, as can be seen by the continuous development of the IVEProject.

For RQ4 (What teacher cognition and practices are associated with students' successful participation in the VE?), the importance of teachers has been documented: receiving sufficient training; having access to online resources related to VE; giving students a place to practice; giving students consistent feedback;

incorporating VE into syllabi; assessing students on their work; and actively participating in teacher-to-teacher communication before and during VE. These all assist in ensuring students successfully participate in VE. For further ideas on how teachers can assist their students Roarty and Hagley (2021) noted several practices teachers can use to improve theirs and their students' successful participation in the IVEProject.

6 Concluding Remarks

Foreign language learning has been important from as early as the Roman empire when Latin was required for business and politics throughout that empire. It was studied in similar ways to the way foreign languages are studied today (Dickey, 2017) and though Skinner's (1957) behaviourist model gave the field a brief shock, the methods used by language teachers throughout most of the first 2000 years of the common era have been remarkably similar. In the 1960s and 70s corpus linguistics was the first thing to bring about a fundamental change in language learning giving rise to graded reading and a better understanding of the most commonly used, and hence, needed, words and collocations. VE is the most recent essential addition to the EFL teacher's toolbox. Yet it is still a relatively unused tool as teachers are not aware of how easy it is to incorporate into their classes and, in many cases, are not confident enough to make VE a part of their syllabus. Institutions are partly to blame here as they are not encouraging the implementation of VE into curricula. Governments need to share the blame here too; more needs to be done to enable FL students to join a VE. The IVEProject is one such project that makes it easy for teachers to ensure their students can participate in a truly international VE. Teachers need proper training to develop their confidence to participate fully in the VE with their students.

This study aimed to facilitate improvements in the existing IVEProject and help organisers of other VE programs design their own projects. The results we have presented above can be usefully divided into three areas: technical improvements; organisational changes; and best practices training.

Technical improvements include simplifying any system used to ensure it is easy for participants to navigate. A key part of this is streamlining the method for keeping track of communication between participants. This is important as students who struggle to keep track of their communication become demotivated, leading to less participation. Further specific technical improvements were suggested for the training videos, which would benefit from subtitles in the participants' various L1s; while teachers can follow English explanations, it may be asking too much of students. A more difficult technical improvement would be to provide a trial website where teachers could coach their students before they embark on the VE proper. "Gamification" of the VE was also suggested, and the organisers of the IVEProject have begun considering ways in which elements from gaming - progress bars, rewards, badges, etc. - might be introduced.

The second area is the organisation of any VE. Included in this area is the make-up of the international "focused" groups. In recent iterations, the non-participation of students from some countries has meant that students from different parts of the same country (typically Japan) are, on some occasions, left to communicate with each other. Clearly, this situation needs to be avoided where possible. A more flexible approach to grouping on the part of the organisers may help mitigate the problem, for example, by moving students in de facto monocultural groups into active international groups. Another organisational issue relates to the topics chosen, the number and the frequency of the topics. While the topics have not been widely criticised, there were enough comments to suggest that some experimentation in this area might be worthwhile, perhaps making one or two of the topics more specific or increasing the number of available topics, perhaps even offering students the ability to choose topics or create their own groups. The final organisational change possibly required is to the teachers' forum which, while useful and productive for the teachers who use it, is somewhat underutilized. It may be that the required changes are actually in training rather than organisation.

The third and final area for review is the training. It has been suggested (in Section 5.2) that a training module of "best practices" could be created, mainly to offer teachers ideas on how to further develop student motivation and participation. The module would include the teachers' strategies reported in this study: for example, the importance of checking and assessing students' work, the value of class discussions related to the forum topics, and the integration of VE into a course.

While this study was designed to improve the IVEProject (which, we would like to stress, is open to all EFL teachers who want their students to participate in a VE), we hope the teachers' voices presented here and results of the study will be of use to organisers of other VE.

We would like to suggest that while future research into VE should of course continue within formal teacher-training programs, it should also be developed as a kind of practitioner-research. We recognise the value of VE for our students and the size and popularity of the IVEProject attest to the enthusiasm of teachers for such programs. Most teachers do not receive formal training in the digital competences advocated by many researchers, but this should not bar them (and their students) from participating. More research of the type outlined in this study, with its cycle of training innovations, investigation and improvement, can only help improve the VE experiences of teachers and students.

Acknowledgement

Appendix

Guidelines for the diary study.

1. (Before each class/interaction/lesson) How are you planning to use the IVEProject in your next class? Why are you going to do that? What resources will you use to carry out your plan? Is there anything that you don't have that would help you with your planning?

2. (After each class/interaction/lesson) Please describe briefly what happened during this interaction. Were there any problems during the interaction? What do you think went well? Is there anything that could have helped you?

3. If you have any other reflections on the interaction, please add them here.

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