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Trainee teachers' engagement in initial synchronous virtual exchange interactions



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This study sets out to explore how trainee teachers engage with each other in an initial synchronous virtual exchange task. We adopt Gijssen's (2021) task engagement parameter of partner orientation in combination with multimodal (inter)action analysis (Norris, 2004) to investigate how different verbal and co-verbal modes contribute to establishing a connection between partners and engagement in a virtual exchange task. Our context is a virtual exchange involving trainee language teachers from French and Dutch institutions. Analysis of trainee teachers' first online synchronous interaction reveals three extensions of Gijssen's task parameter of engagement: talking about a common fact/interest, expressing empathy, and making an un/favourable comparison to their partner's culture. These new extended markers of task engagement were reinforced by our multimodal analysis which showed that during these moments, interactions displayed higher modal density. With these results, we provide concrete recommendations for enhancing learner engagement in virtual exchange. Our results contribute to a more holistic understanding of task engagement in online environments and help identify effective strategies and subsequent recommendations for teacher educators to maximise engagement, and thus learning, in virtual exchange projects.

Keywords: attitudinal, behavioural, cognitive effort, multimodal analysis, partner orientation, task engagement, virtual exchange

Introduction

For several decades, researchers have been investigating the phenomena of learner task engagement. Skinner and Pitzer (2012) reported that the task itself is critical for fostering learner engagement and that tasks should include

both practical and theoretical aspects for learning to take place. Researchers have sought to define learner engagement, and while no consensus has yet been made, many have highlighted that learner engagement is learner-specific (Fredricks et al., 2019; Skinner & Pitzer, 2012). A multitude of studies support the notion that dimensions of learner engagement should include the behavioural, attitudinal, and cognitive efforts students make during the task (Christenson et al., 2012; Pekrun & Linnenbrink-Garcia, 2012; Skinner & Pitzer, 2012). Behavioural effort relates to habits, attitudinal effort, and learners' feelings about the task, whilst cognitive effort involves their thought processes.

With the proliferation of videoconferencing technologies, measuring learner engagement in online learning environments has become an area of interest (Dooly & Vinagre, 2022). One suggestion for exploiting these new online platforms in curricula has been virtual exchange, which has been shown to increase intercultural awareness and language learning (Barbosa & Ferreira, 2023; O'Dowd, 2021; Ottoson, 2021). Learners' engagement in online tasks is the focus of Gijzen (2021) who proposed a conceptual model of task engagement with indicators to identify behavioural, cognitive, and attitudinal qualities of task engagement in an intercultural virtual context. Yet, previous studies on learner engagement have often focused on verbal communication or isolated behaviours and the relationship between modality in online environments and learner engagement remains underexplored.

The present study seeks to understand how learners (here, trainee teachers or TTs), who are meeting one another synchronously for the first time, engage their partner in the task interaction both by examining what they say (actions in the spoken language mode) and what they do (actions in co-verbal modes). With this information, we provide suggestions for future teacher trainers regarding how to engage TTs in virtual exchanges.

Related literature

Learner engagement is an area that has garnered substantial interest internationally. Given the unique characteristics that learners bring to the classroom, it is not surprising that researchers have investigated factors that impact student engagement. However, herein lies a challenge, as researchers have not come to a consensus on a clear definition of what learner engagement looks like in the classroom (Philp & Duchesne, 2016). Without a clear definition, research has emphasised the importance of learner engagement specifying that learning is not possible without engagement (Christenson et al., 2012; Philp & Duchesne, 2016), thus underscoring the need to better understand this complex concept.

Skinner and Pitzer (2012) defined learner engagement as a multifaceted concept explored within the Model of Motivational Dynamics. This model encompasses four contexts: school, community, classroom, and learning activity. They emphasise the importance of identifying the types of classroom activities that facilitate learning and advocate for a balanced approach that incorporates both hands-on and hands-off tasks. These task types focus learners towards completing a task and investing their emotions and effort. In terms of

specific characteristics that can be attributed to engaged learners, Fredricks et al. (2019) echoed the idea that engaged learners invest effort, persist in tasks, and self-regulate their learning processes. Lambert and Zhang (2019) found that the content learners generate is more engaging, as evidenced by more turns, backchanneling, and elaboration.

Dimensions of learner engagement

Researchers have developed the concept of learner engagement and effort by outlining three general dimensions of learner engagement: behavioural, attitudinal, and cognitive.

Behavioural engagement refers to effort and persistence to continue in the task despite potential challenges (Fredricks et al., 2019). The time on/off a task has been suggested to be a continuum with learners paying more or less attention depending on many interconnected factors including how much students are willing to take part and the level of focus they apply (Finn & Zimmer, 2012; Mahatmya et al., 2012; Philp & Duchesne, 2016). Attitudinal engagement includes the emotions that learners invest in a task, such as enjoyment and/or satisfaction (Skinner & Pitzer, 2012). There is an abundance of research that delves into attitudinal engagement, namely suggesting that learners who feel positive emotions about the task are more likely to be engaged by the task (Pekrun & Linnenbrink-Garcia, 2012; Philp & Duchesne, 2016; Vinagre & Corral, 2017). Similarly, students who may feel negative emotions in the task (i.e., anxiety or boredom) are more likely to be disengaged (Pekrun & Linnenbrink-Garcia, 2012; Philp & Duchesne, 2016).

Mahatmya et al. (2012) refer to learners' cognitive engagement as how focused learners are on the task and completing the task well. Others have reported additional dimensions of learner engagement, such as Pekrun and Linnenbrink-Garcia (2012), who present five dimensions: cognitive, motivational, behavioural, cognitive-behavioural, and social-behavioural (p. 260). The latter, which they define as "social on-task behaviour" represents forms of learner engagement related to peer-to-peer learning (ibid).

The social dimension has been explored by other researchers (see Gijzen, 2021; Philp & Duchesne, 2016). Vuorela and Nummenmaa (2004) identified a link between the attitudinal and social dimensions, concluding that group work generated higher levels of emotional response to the task than other online learning tasks. Gijzen's (2021) doctoral research provides more clarity on what is meant by effort in learner engagement. Originating from a social constructivist perspective, and in consideration of Virtual Exchanges (VEs), she assumes a holistic approach towards learner engagement. She suggests that the "special effort" that learners bring to technology-mediated tasks includes a learners' whole body, i.e., head movements and hand gestures that help in performing the task (Gijzen, 2021, p. 59). Philp and Duchesne (2016) have proposed that facial expressions and body positioning may be one manner to determine learner engagement, though they attributed this more specifically to cognitive engagement. Gijzen (2021, p. 60) recognised that a deeper level of analysis

in online learner engagement was needed as “by simply carrying out a task, they [learners] engage with it.” Rather, she called on researchers to investigate how learners engage in a task as a means of measuring learner engagement. However, before we discuss ways in which learner engagement has been measured previously, and how the current study contributes to this research area, we will first present our context.

Virtual exchange and measuring learner engagement

Virtual Exchange, or telecollaboration, has become increasingly popular within the last decade. O’Dowd (2023, p. X) defines VE as,

An umbrella term which refers to the numerous online learning initiatives and methodologies which engage learners in sustained online collaborative learning and interaction with partners from different cultural backgrounds as part of their study programmes and under the guidance of teachers and trained facilitators.

The benefits often attributed to VE include increasing intercultural communicative competence (ICC), digital literacy skills, and practising a foreign language (Emir & Yangın-Ekşi, 2024; Ottoson, 2021). However, drawbacks have also been reported such as communication breakdown (O’Dowd & Ritter, 2006) and some studies question the level of ICC if the VE is not well planned and organised (Dooly & Vinagre, 2022). Within VE, researchers have investigated the types of tasks that have been successful (O’Dowd & Ware, 2009) and the types of technology employed within these tasks (Barbosa & Ferreira, 2023). More specifically, studies have described the benefits in the use of VEs for pre-service teachers which include allowing TTs to learn in a meaningful way and overcoming the potential anxiety of using a second language (Dooly & Vinagre, 2022; O’Dowd, 2021).

While the advantages of VE have been widely reported, there is little clarity on how to measure learner engagement to verify these benefits at the learners’ level. Classroom observations are one method utilised to establish students’ frequency of being on/off task in a given lesson (Finn & Zimmer, 2012; Mahatmya et al., 2012). However, this is less effective in online learning environments. Examining the latter, Gijssen’s (2021) doctoral research identified both general and specific indicators of task engagement, which can assist teachers and researchers in identifying whether and how learning is taking place in these environments. The seven general task markers of engagement include “task management, topic and content, language, task appropriation, partner orientation, communicative participation, and technology” (p. 62).

Initial encounters in VE: Partner orientation and modality. The aim of the current study is to explore how TTs engage with each other during their first synchronous task in a VE. To understand this process more holistically, we adopt Gijssen’s (2021) framework, specifically focusing on the parameter of *partner orientation*, in combination with Multimodal (Inter)action Analysis (MIA).

This approach enables us to examine not only the verbal aspects of engagement but also the co-verbal, multimodal interactions that are crucial in establishing a connection in online learning contexts.

Gijsen (2021) offers a robust approach to studying learner engagement in technology-mediated tasks. She identifies key markers of partner orientation in interaction including paying attention to the partner, providing feedback, using comprehension checks, and expressing emotional responses. This framework is particularly relevant as it emphasises the relational aspects of engagement which are crucial for understanding how learners establish and build connections with each other whilst completing a task in an online setting. As the current study focuses on TTs engagement in initial synchronous VE interactions, Gijsen’s partner orientation parameter, outlined by specific markers (see Table 1) provides a structured lens through which to examine how participants orient themselves towards their partners during task interaction.

Table 1. Partner orientation, Gijsen (2021, p. 68)

Behavioural engagement	– Paying attention to what the partner is saying – Providing and accepting support and feedback – Giving compliments – Using comprehension checks and production prompts (e.g. ‘Am I going too fast?’ or ‘What do you think?’) – Rephrasing and simplifying – Expressing comprehension confirmation (e.g. ‘I understand’) or doing a head nod
Attitudinal engagement	– Commenting positively on working together with their partner – Saying that they feel comfortable with their partner – Asking if the partner feels comfortable as well
Cognitive engagement	– Commenting on the importance of developing a relationship with a partner – Asking questions

Gijsen (2021) primarily analysed the partner orientation task parameter of learner engagement by drawing upon learners’ interactions in the spoken language mode. In this study, given our interest in how participants displayed engagement in their first synchronous task in a VE which was accomplished using videoconferencing technology, we extend Gijsen’s method to examine participants’ abilities to orient towards their partner using both spoken language and co-verbal strategies. Specifically, we are interested in the TTs’ practical deployment of interaction skills in the VE, i.e. their multimodal interaction competence (Bysouth & Ikeda, 2019). We, thus, draw upon multimodal (inter) action analysis (MIA, Norris, 2004, 2019, 2020, and see Satar, forthcoming and Satar & Wigham, 2024 for its application to CALL). Indeed, whilst Gijsen’s partner orientation parameter offers a high-level conceptualization of engagement, MIA facilitates a detailed exploration of the verbal and co-verbal cues that work together to enhance engagement. We argue this additional analysis is needed to truly gauge online learner engagement.

MIA offers a nuanced understanding of the relationships between social

actors, objects, and their environments. The framework aims to provide a comprehensive understanding of human action by analysing the modal interplay across different scales of activity. MIA is an appropriate framework for the study of learner engagement as it serves as a bridge between macro-level discourse analysis (here Gijsen's parameters of partner orientation which we consider as *higher-level actions*) and micro-level analysis of the verbal and co-verbal mediational means by which the latter are achieved (*lower-level actions*, for example in the modes of spoken language, gesture, posture, gaze or facial expressions).

MIA views all (inter)action as inherently multimodal. Modes, conceptualized as systems of mediated action – rather than isolated semiotic systems – function in combination, with certain modes assuming greater significance in specific (inter)actions. The analysis of the *lower-level actions* that comprise *higher-level actions*, allows the identification of *modal density*, which situates the (inter)action along a *continuum of attention and awareness* for the social actor performing the action. *Modal density* is derived from either *modal intensity*, where the action relies predominantly on a single intensified mode, or *modal complexity*, where multiple modes are employed. Norris (2019) commented on the continuum of social actors' attention and awareness suggesting that actors pay more attention in moments with high modal intensity and less attention in times of low modal intensity. Actions characterized by high modal density command focused attention and, thus, potentially higher engagement from each social actor. Adopting MIA, our aim is thus to shift the conceptualisation of learner engagement to one that accounts for the interplay of verbal and co-verbal modes and that views partner orientation as inherently linked to participants' multimodal interactional competence.

Our study sets out to explore how TTs demonstrate their behavioural, cognitive, and attitudinal engagement when attempting to establish the interaction with their VE partner during their first synchronous online task. Our first research question (RQ1) is thus *What higher-level actions are associated with partner orientation in a VE task?*

Next, which lower-level actions do TTs use that are associated with strengthening this new connection, or *What modal configurations compose the higher-level actions related to partner orientation?* (RQ2).

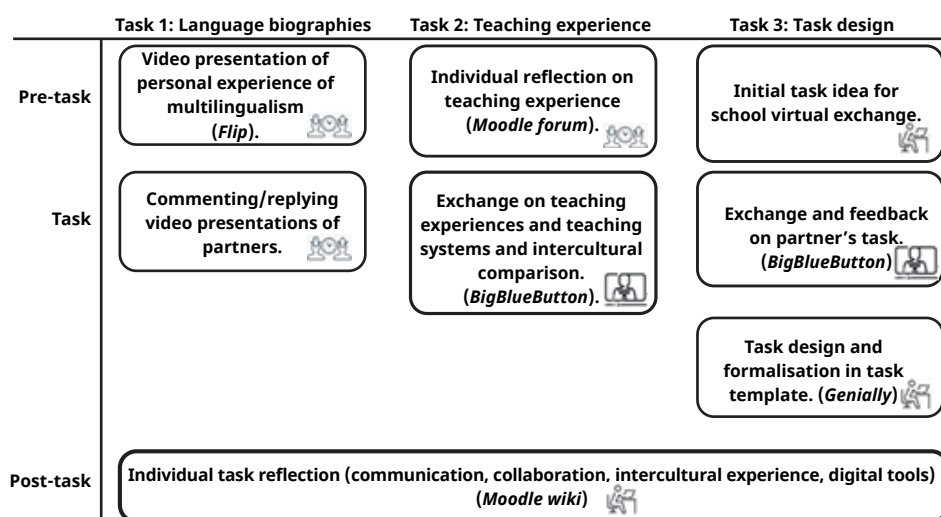
Methodology

The VE under study brought together 17 TTs studying for their Master's in Teaching, Education, and Training, specialising in English language teaching, at a French university and 16 TTs studying for their Master's in Education at a Dutch university. The VE between these universities was conducted in the Autumn semester of 2022 and included three tasks: an asynchronous language biography posted on Flip¹, a synchronous discussion about the similarities and differences of becoming language teachers in the participants' respective countries in BigBlueButton², and a synchronous feedback session on a possible VE task with future learners also in BigBlueButton. The TTs were responsible for

arranging the time to meet their partner online and for recording their online interactions.

Before meeting their VE partner in a synchronous videoconferencing environment, task one required TTs to record and post a short introduction of themselves on Flip. The TTs were given prompts to discuss the languages they had learned, when they began learning them, and their experiences with cultural diversity and otherness (see Appendix B for instructions). After uploading their video introduction, TTs were asked to watch their partner's video and then reply regarding things they had in common, found surprising, and any additional questions they might have about the information provided. Language biographies have been recommended in the literature as an ideal initial task in VEs before a synchronous exchange task (O'Dowd & Ware, 2009).

Following each VE task, the students engaged in post-task reflection focusing on five topics: the task itself, communication with their partner, overall collaboration, the intercultural experience, and the digital tools used. Each topic comprised between three and seven prompt questions (see Appendix D). Figure 1 provides an overview of the three tasks and their respective pre- and post-tasks.



Key: Activity type  asynchronous  synchronous  individual

Figure 1. Overview of tasks (From Wigham & Jauregi-Ondarra, 2023, p. 341)

The present study adheres to ecological data collection (Gadet, 2012; Tellier, 2014) wherein data was collected in a natural (classroom) environment, i.e., the online VE tasks embedded in the French and Dutch curricula. As partner orientation and modality were being investigated, data from the first synchronous task (task two) was selected for analysis. Some data was unavailable for analysis, namely, one participant (Cécile) did not complete the post-task.

Participants

Participants in this study included three pairs of TTs, each comprising one Dutch TT and one French TT. Pairs were chosen for the current study based on class participation levels, with each pair representing a range from high (Jennifer and Ettie) to low (Cécile and Maria) levels of general class participation and engagement. Table 2 provides an overview of the participants’ biographical information. Pseudonyms have been given to each TT; discussion pairs are highlighted by shading.

Table 2. Participants’ background information

Participant	Age	L1	Location	Prior teaching experience
Jennifer	21	French	France	Just beginning first teaching placement
Ettie	22	Dutch	The Netherlands	Currently teaching in a secondary school during the VE
Manon	-	French	France	Taught for one year in the UK as an English language assistant
Cora	-	Dutch	The Netherlands	Had taught for 6 months in secondary school
Cécile	-	French & Arabic	France	Some private tutoring experience, had not started a teaching placement yet before the VE
Maria	26	Dutch	The Netherlands	Currently teaching in a secondary school during the VE

Data collection and analysis

Participants provided consent to have their information used for research purposes as outlined in ethics approval FRTC-GE: 23-090-02 granted to the Erasmus+ E-LIVE project (Engaging Languages in Intercultural Virtual Exchange) by the Dutch University.

The task two interaction data was imported into ELAN (Sloetjes & Wittenburg, 2008). Recordings were preliminarily coded according to partner orientation task engagement markers outlined in Gijssen (2021). Then, grounded theory was used to identify new higher-level actions that occurred within the dataset (Strauss & Corbin, 1998), thus employing a data-driven approach to coding. For consistency in coding, new descriptors were created for each code that occurred in the dataset (see Appendix A). In creating clear descriptors, both authors discussed and agreed on data coding. To validate our findings, we triangulated data from participants’ VEs and their post-task reflections.

Episode selection was based on highlighting the new higher-level actions from our data analysis which could be categorised into Gijssen’s (2021) three dimensions of partner orientation. From these episodes, we further narrowed our focus to shorter extracts that depicted salient lower-level actions. Finally, the episodes were annotated with regards to the lower-level actions that fundamentally contributed to partner orientation (see appendices E-G).

Results

This section is organised by research question and the corresponding data that was analysed. We present our findings within each research question by engagement type, commencing with behavioural and concluding with cognitive engagement.

We begin by presenting the data that answers our first research question *What higher-level actions are associated with partner orientation in a VE task?* This includes our grounded theory analysis of TTs’ behavioural engagement markers. Within the dataset, the most frequent higher and lower-level actions of partner orientation were tallied for all TT pairs’ initial synchronous task interactions.

Our analysis is presented by type of engagement with Tables 3–5 outlining which higher-level actions were informed by Gijzen (2021) and the results of our analysis (denoted by shading). Figures 2–7 present the multimodal configurations of the new HLAs identified.

Table 3. Analysis of partner orientation in behavioural engagement

		Counts: Task 2		
		Pair 1 Ettie, Jennifer	Pair 2 Cora, Manon	Pair 3 Maria, Cécile
Behavioural engagement	Higher-level actions			
	Paying attention to what the partner is saying	4	24	13
	Providing and accepting support and feedback	2	2	1
	Giving compliments	0	0	0
	Using comprehension checks and production prompts	10	5	10
	Rephrasing and simplifying	5	2	1
	Expressing comprehension confirmation	35	75	37
	Extension of Gijzen: Talking about a common fact/ interest	2	3	0

Behavioural engagement

Regarding RQ1, the most frequent task parameter related to partner orientation from Gijzen (2021) was the HLA: *Expressing comprehension confirmation* in the task interactions for all TTs, with the second TT pair expressing more than double this HLA compared to the other pairs. As noted in Appendix A, an example of this higher-level action is any short – one to three words – affirmation or negation of information their partner has said. Providing verbal signals of understanding occurs in daily conversations, therefore, it is perhaps not surprising to see this carry over into online discourse.

Our new behavioural engagement HLA, *Talking about a common fact/interest*, includes asking questions that were drawn from TTs’ previously completed work in the VE (pre-task Moodle forum posts). These frozen actions (Norris, 2004) were, at times, referenced by the TTs as a means of generating new interaction topics. For example, Figure 2 illustrates Ettie’s discovery that both of her and her partner’s mothers are English teachers which is something she learned

in reading her pre-task forum post. Later in the task she suggests this may have inspired their desire to become an English teacher.



Figure 2. Transcript of episode 1

In Figure 3, we present the modal configurations of our participants that answer our second research question: *What modal configurations compose the higher-level actions related to partner orientation?*



Figure 3. Modal configurations

Figure 3 illustrates that when participants engaged in the HLA of *talking about a common fact/interest*, each displayed high modal density, including gaze, speaking to, and aligning their posture towards their partner [Frame 11]. Further, Jennifer raises her eyebrows and tilts her head to the side in the facial expressions and head movement modes, indicating her surprise with both participants smiling at one another [Frame 12].

Attitudinal engagement

In terms of the HLAs of attitudinal engagement in relation to our first research question, none of Gijsen’s (2021) task parameters connected to this dimension were found in our dataset. This is perhaps because participants were less likely

to explicitly comment on being excited to work with their partner or indeed express verbally that they were comfortable talking with them in their first online interaction. However, our analysis yields one new attitudinal higher-level action, *Expressing empathy*, which we found in all interactions but more notably with Cora and Manon, the second pair of TTs (see Table 4).

Table 4. Analysis of Attitudinal engagement

		Counts: Task 2		
		Pair 1 Ettie, Jennifer	Pair 2 Cora, Manon	Pair 3 Maria, Cécile
Attitudinal engagement	Higher-level actions			
	Commenting positively on working together with their partner	0	0	0
	Saying that they feel comfortable with their partner	0	0	0
	Asking if the partner feels comfortable as well	0	0	0
	Extension of Gijsen: Expressing empathy	2	5	2

In their discussion, Manon and Cora talked about how native English speakers in their countries often did not try to learn their languages but instead relied on locals to understand them which they deemed unfair. To illustrate this point, Manon talks about a French lesson she taught in England on the topic of stereotypes and how her students gave many negative stereotypes about French women [Frame 7]. After hearing some of them, Cora replied, “Wow...no way” [Frame 12] as shown in Figure 4.

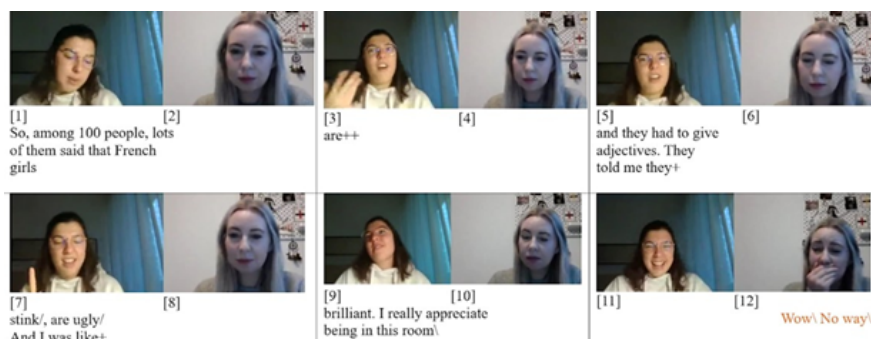


Figure 4. Transcript of episode 2

Turning to our multimodal analysis of participants’ attitudinal engagement (RQ2), we present the modes that Manon and Cora exhibited in Figure 5. Specifically, we examine more closely this pair’s display of empathy as a form of engagement by looking at the final turns of Manon and Cora.

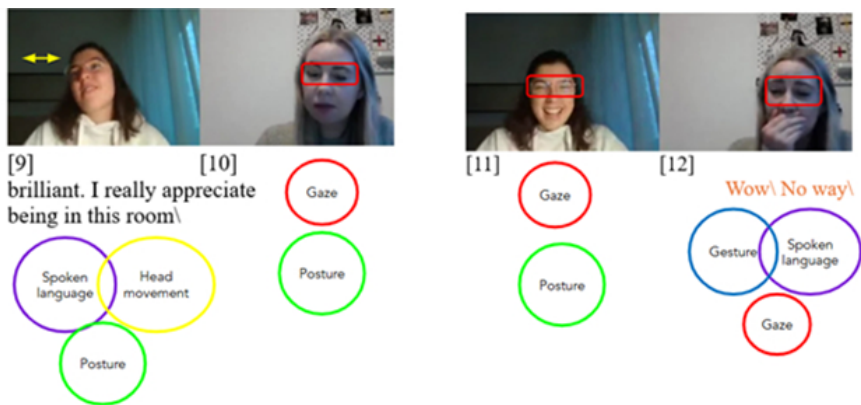


Figure 5. Modal configurations from episode 2 depicting empathy

In Figure 5 we see Manon maintain the same posture – directed towards her partner – but engage in head movement, moving her head backwards and using the spoken language mode: “I really appreciate being in this room” [Frame 9]. Here, she makes a joke to her partner who is likewise positioning her body towards her partner’s image on the screen and gazing with anticipation to hear the end of her story [Frame 10]. Once the joke has been made, Manon redirects her gaze to her partner to see if she enjoyed the joke [Frame 11] and is rewarded with Cora’s posture, gesture covering her mouth to hide part of her laughter, and gaze directed at her [Frame 12]. Even though her gesture aims to hide her laugh at Manon’s joke, she also says, “Wow. No way.” to show she empathises with the experience of hearing her students’ negative stereotypes about their culture, and, by extension, with Manon herself [Frame 12].

For triangulation purposes, we examined students’ post-task reflections. It was anticipated that participants’ behavioural engagement would be more visible in their interactions while their post-task reflections would highlight their attitudinal and cognitive engagement.

Regarding participants’ HLAs that were identified in their post-task reflections, all participants commented positively about working with their partner during the task (Table 5).

Table 5. Post-task reflections’ analysis of higher-level actions

	Higher-level action	Cora	Maria	Ettie	Jennifer	Manon
Attitudinal engagement:	Commenting positively on working together with their partner	2	4	3	2	2

Maria reflects the most in terms of attitudinal engagement with four comments while Ettie is close behind offering three comments. Examples of comments from participants regarding working positively with their partner included:

Cora: We had few mismatches. We spoke about stereotypes we encountered about our cultures which was a good way to talk about cultural differences and perspectives.

Maria: During our conversation, we didn't have any communication breakdowns. I don't think our cultural differences had a very large impact on our communication. I think we were both able to relate to each other.

Finally, we turn to our participants' cognitive engagement HLAs and the data that we analysed to answer our first research question: how do participants demonstrate their cognitive engagement when attempting to deepen a connection with their partner?

Cognitive engagement

Relating to cognitive engagement, the HLA: *Asking questions* was commonly used by participants in the task, though not *Commenting on the importance of developing a relationship with a partner* as reported by Gijzen (2021). We believe this is more likely to be found in asynchronous tasks as opposed to synchronous tasks. Table 6 shows the higher-level actions identified in our dataset.

Table 6. Analysis of cognitive engagement

		Counts: Task 2		
		Pair 1 Ettie, Jennifer	Pair 2 Cora, Manon	Pair 3 Maria, Cécile
Higher-level actions				
Cognitive engagement	Commenting on the importance of developing a relationship with a partner	0	0	0
	Asking questions	39	20	16
	Extension of Gijzen: Making an un/favourable comparison	1	6	1

It is important to note that the HLA: *Asking questions* in our analysis is asking a *new* question and not one that follows the same topic which would fall into the HLA: *Using comprehension checks and production prompts*. Specifically, Ettie and Jennifer posed the highest number of new questions among all three pairs, totalling 39 questions. Our dataset reflects that TTs asked a higher number of simple questions involving yes or no responses than intercultural raising questions as advocated by Belz (2005) and presented in Table 7.

Table 7. Types of questions in VEs

Type of question	Task 2					
	Ettie	Jennifer	Cora	Manon	Maria	Cécile
What	3	3	2			3
Why				1		
How	1	1	4	1	2	1
When	1	1	1			
Where	1	1			1	
Is/are/was/were/ do/have	19	8	7	4	13	8

Furthermore, our analysis shows one new HLA: *Making a favourable/unfavourable comparison* (Table 6). We define this as participants listening to and evaluating what they have learned about their partner’s culture in relation to their own, and determining whether they perceive this aspect as better or worse from their perspective. Within the three pairs, the second TT pair made the most comparisons between their and their partner’s culture with six references being made.

The third pair, Cécile and Maria, discuss the English proficiency levels of young learners in their respective countries, with Cécile suggesting that young learners in the Netherlands may have a higher level of English due to the greater similarity between Dutch and English. In contrast, Maria suggests that it is more likely due to children being exposed to cartoons and movies in English from a young age [Frames 3,5,7,9,11]. In Figure 6 we see her partner’s response [Frame 12], as Cécile acknowledges, “I think it does help of course because ... the ones who watch foreign movies in the original version have a better level.”

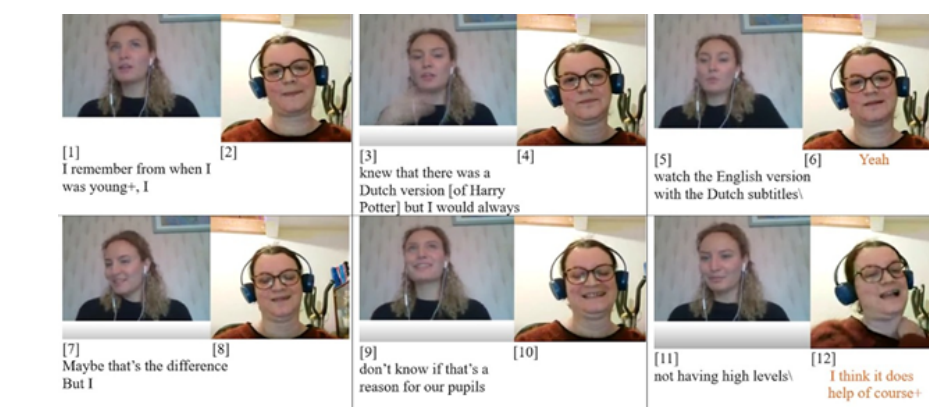


Figure 6. Multimodal analysis of episode 3

Figure 7 presents the multimodal analysis of the final turns of Maria and Cécile in this episode which answers our second research question concerning participants’ co-verbal interactions.

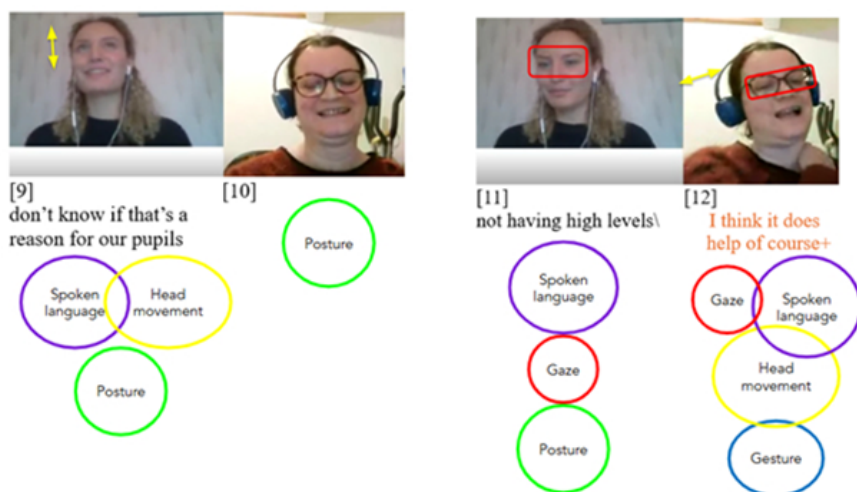


Figure 7. Modal configuration for excerpt of episode 3 depicting favourable comparisons

Maria expresses her uncertainty about whether the dubbing of media in France could be an explanation for their students' differing levels of ability when speaking in English, by tilting her head up [Frame 9] and then redirecting her gaze at her partner when she finishes [Frame 11]. To assert her view, Cécile displays the most modes in her comment where she considers – and decides that it is a better learning environment for French students to be exposed to the original language of the media [Frame 12]. She makes this favourable comparison mainly in spoken language, gaze, and head movement modes, though it is possible her hand gesture was also prompted to reinforce the comment being made.

The second pair have several examples of favourable comparisons between the Dutch and French cultures. For instance, Cora gained insight into the differences in teacher qualifications, tuition costs, the confidence of young learners, and the way English is becoming a dominant language at the expense of native languages in their countries. One example that particularly resonated with her was the age at which students in the Netherlands are separated into different school tracks, a decision that can significantly influence their chances of attending university. She states:

... depending on how you score on that one test when you're 12, you get put into a level [depending on] how intelligent you are.... It's possible to go up, it's possible to go down but it does take a lot of work, a lot of effort, a lot of motivation....The fact that 12 is pretty young, I'd say given another couple of years maybe.

Concerning students' cognitive engagement and HLAs that were identified in participants' post-reflective tasks, we see only two (Dutch) students displayed higher-level actions as illustrated in Table 8.

Table 8. Cognitive analysis of post-reflective tasks

	Higher-level actions	Cora	Maria	Ettie	Jennifer	Manon
Cognitive engagement	Commenting on the importance of developing a relationship with a partner	1	0	0	0	0
	Extension of Gijzen: Making an un/favourable comparison	0	3	0	0	0

In our analysis, Maria compared her culture with her French counterpart three times. It may be worth noting that none of these comparisons were favourable. For example, Maria felt that teacher training in the Netherlands focused on practical aspects of teaching, while teacher training in France focused more on theory and had few teaching placement opportunities for learning how to apply theory to practice. For example, she wrote in her reflection:

Compared to us, they are educated in a very theoretical way. They only have to do a 3 to 6-week internship and they aren’t even expected to teach full lessons. This seems very weird to me, to be honest. How do you improve your teaching skills if you aren’t even able to bring them to practice? So their system is a bit confusing to me and it has made me much happier with the Dutch system.

Maria did not express this opinion during her interactions with Cécile; however, it is likely that she formed it after Cécile remarked that her teaching placement tutor focused too heavily on grammar, combined with her belief that teaching grammar to young learners is not particularly effective. Additionally, Maria expressed concern that Cécile may lack sufficient teaching experience, given that placements in France are relatively short, lasting approximately 2-3 weeks. This was a point that Cécile also discussed during the task, noting that many teachers leave the profession because they are not fully aware of the realities of teaching, particularly when placements are short.

Discussion

We now turn to the discussion of our findings organised by research question.

RQ 1: What higher-level actions are associated with partner orientation in a VE task? In other words, in what ways do TTs show their engagement according to the three dimensions of learner engagement?

Regarding behavioural engagement, the most frequent HLAs were *Expressing comprehension confirmation* and *Paying attention to what the partner is saying*. It is natural that when meeting their VE partner for the first time, each partner frequently used short words to demonstrate active listening. It should be noted that prior research has reported gender differences in online participation

with female students talking more than their male classmates (Herring, 2000). While our dataset does not include male participants, in Table 3 we can see that TT pair 2 voiced almost double the amount of confirmation expressions compared to the other two pairs, demonstrating there is a range amongst female participants as well. The second highest HLA directly related to partner orientation, included remarks from TTs to maintain the same topic of conversation using comments, not questions. For example, Cora commented on the fact that Dutch teachers were striking to fight for better work conditions to which Manon responded by talking about issues for which French teachers strike, and the conversation continued with each TT commenting on difficult work conditions that teachers experience, such as pay and planning for the new school year during summer holidays. This topic continued for several minutes with each TT building on it, though interestingly not by asking questions as Jennifer and Ettie do in their interaction. Although Cora and Manon extended their conversation without asking questions, we recommend teacher trainers include a space for students to create their own questions for their VE partner based on what they already know about their partner.

Given that our analysis found that TTs were more engaged when talking about a common fact/interest, we recommend that TTs create questions for their VE partner based on pre-tasks or that TTs should write follow-up questions based on teacher-created questions. Indeed, learner-generated questions have been suggested in earlier studies on learner engagement (Lambert & Zhang, 2019).

In terms of attitudinal engagement, as empathy relates to sharing feelings, we added it to the attitudinal effort dimension: HLA: *Expressing empathy*. Emotions, and the use of positive language, can be a powerful force “to establish friendly, close, and supportive working relationships that can facilitate the creation of a relaxed and safe learning environment, which in turn fosters collaboration” (Vinagre & Corral, 2017, p. 11). Expressing agreement and empathy has been noted within previous studies to be a trait more often found in female learners (Schiller et al., 2011; Ching & Hsu, 2015) in an effort to maintain social harmony. For example, when Jennifer talks about the qualifications that are required to become a teacher in France, and personally about the challenges she faced in studying during the pandemic, she states, “In the Master’s degree, we have a lot of lessons and we have the internship and many projects, so yeah...” laughing slightly when she says this to make light of this information and Ettie replied with, “So that’s a lot.” and Jennifer repeated it. While it can be difficult to plan empathy into a task, we recommend that topics should encourage TTs to discuss challenges and successes. For example, prompts that include a challenging aspect of studying to become an English teacher.

Concerning cognitive engagement, we argue that asking questions is a clear indication of partner orientation as the TT listens and asks for more information, thus, continuing to engage with the task. Belz (2005, 2001) has also suggested that asking questions is an indicator of task engagement, finding that students who asked more questions were categorised as more successful intercultural exchanges, and demonstrated an ability to discuss the same

topic at length with each student taking turns to progress the conversation. However, our TTs primarily asked simple questions, with the Dutch students posing nearly twice as many questions as their French counterparts. While we argue that asking questions is critical in VE, we recommend prompting students to ask more complex questions to increase the potential of learning new information about their partner. Specifically, Belz (2005) recommends that questions that begin with ‘what’ or ‘how’ yield more opportunities for developing intercultural awareness (aka engagement) amongst students.

It is important to note that all references made during the synchronous task were positive; however, Maria expressed an unfavourable comparison between her own training and that of her partner in her post-task reflection. For instance, Jennifer discussed the inclusion of special education learners in the school where she was currently completing her placement, and Ettie remarked that she wished this practice were also implemented in the Netherlands. TTs have not only compared their cultures but also seen how things are different in other countries. Increasing intercultural awareness and intercultural competencies has been reported as the main benefit for students to participate in VEs (Emir & Yangin-Ekşi, 2024; O’Dowd, 2021; Ottoson, 2021). Therefore, our findings align with prior research. While it is natural that TTs would compare their cultures and experiences of studying and teaching, future VEs should take into account that discussing cultures can lead to re-affirming stereotypes. Therefore, we recommend that future teacher trainers include prompts for TTs to discover cultural differences, while also providing language for discussing these with an open mind. Prior research has advised supporting students linguistically with discussion phrases (Gutiérrez et al., 2021). We believe that this recommendation could result in more engaged TT partnerships which is critical for learning to take place.

RQ 2: What modal configurations compose the higher-level actions related to partner orientation?

Our new HLA, *Talking about a common fact/interest*, was seen in episodes one and two in which Manon and Cora discovered they had both lived in England for a period to study English and both agreed that the Scouse accent was challenging to understand as a second language learner. O’Dowd and Ware (2009) call this ‘tuning in’ to their partner during the exchange and suggests this occurs in successful VEs (p.184). Other studies have also recommended task personalisation as a means of boosting task engagement (Bennett & Wigham, 2024; Wiesenbergs & Hutton, 2000). This HLA did not come up in the third TT pair’s discussion, potentially as there were a number of differences between these TTs such as age and level of teaching experience (see Table 2). From a multimodal perspective, we saw that when TTs demonstrated this HLA, they used more modes in the final turns of the interaction, as shown in Frame 12 of each episode. We argue that this higher modal density, in which spoken language, gestures, gaze and head movement modes were common amongst our TTs, is another means of depicting task engagement. TTs in our first and

third episodes had the highest modal density when *Talking about a common fact/interest* and *Making an un/favourable comparison* to their partner's culture which could imply these could be priorities for future trainers in VE task design.

Several studies have investigated how emotions can impact VEs (Dooly & Vinagre, 2022; Pekrun & Linnenbrink-Garcia, 2012; Vinagre, Giralte & Wigham, 2021), with Philp & Duchesne (2016, p. 8) acknowledging that positive and negative emotions affect students' dedication to learning and that students may choose to "connect or disconnect" within a task depending on the questions they are being asked by their peers. In the third episode, Maria comments on how tired she feels teaching middle school students, but it is something that she expected when she chose to become a teacher. As she talks about learning how to manage this over time, Cécile empathises with her saying, "I'm sure you're a good teacher because you're aware of these things – that they are teenagers, they are young, and you try to understand this specific part of their behaviours...". Her empathy is apparent in this comment as she implies that some (new) teachers may not be as aware of the energy required of teaching students, in this case, middle schoolers. These comments align with prior research that VEs are a valuable and positive intercultural experience for students (Emir & Yangin-Ekşi, 2024; Oskoz & Gimeno-Sanz, 2019; Ottoson, 2021). Multimodality was also linked to our new HLA *Expressing empathy* with TTs using modes such as hand gestures and gaze to express this emotion to their partner. As shown in Figure 5, although Cora is initially laughing at the joke her partner makes in her story about teaching French in the United Kingdom, she also empathises with how that must have felt for her to hear her students express such negative stereotypes about French girls. Expressing this empathy through the gesture mode is another way of orienting the interaction towards her partner, and undoubtedly, it was a welcome sight for Manon in their first online interaction.

Conclusion

Our analysis has highlighted recommendations for teacher trainers desiring to increase learner engagement in VEs. While we provided questions for students to use in their first synchronous task, our analysis suggests that TTs could benefit from questions that they create based on what they know about their partner from previous tasks. A possible question could centre around TTs finding a fact or interest they have in common with their VE partner. Additionally, we suggest two types of prompts be given to TTs: one about a difficulty they have as pre-service teachers, either in a teaching placement or as a part of their studies as a means of engendering empathy which relates to the attitudinal dimension of learner engagement. The second type of prompt should be about a possible cultural difference along with prepared sentences to help TTs navigate the discussion of discovering a new aspect of their partner's culture with an open mind.

As meeting their VE partner for the first time can be an anxiety-raising experience, we analysed three VEs between TTs to understand how they oriented themselves when discussing a topic with their partner. Our investigation was

prompted by previous research in partner orientation and learner engagement in online environments by Gijzen (2021), and here we sought to investigate this phenomenon further by examining the higher-level and lower-level actions of TTs. Our multimodal (inter)action analysis supported our grounded theory analysis which identified aspects of heightened displays of engagement. Specifically, we found that the TTs showed higher modal density, utilising a minimum of three modes, when they discovered a common interest and/or fact, expressed empathy towards something their partner had said, and made a favourable comparison between their partner's culture and their own.

Given the wealth of interest in understanding how learners are engaged in online tasks, our findings add to this literature by recommending specific prompts and questions in VE task design for teacher trainers. We call for more studies in VE learner engagement and modality.

Notes

1. Flip. <https://auth.flipgrid.com/>
2. BigBlueButton. <https://bigbluebutton.org/>

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Ethics statement

Participants gave their consent to participate in the study. No data was collected by participants who chose not to participate. Participants' names have been anonymised and replaced with names representative of the country they are from.

Competing interests statement

Ciara R. Wigham received funding for the research and was the participants' VE teacher. She is employed at the University where the research was conducted.

Cathryn Bennett was employed at the university where the research was conducted.

The authors declare no use of generative AI.

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