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RESEARCH ARTICLE

Critical digital literacy in virtual exchange for ELT teacher education: An interpretivist methodology

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Abstract

Virtual exchange (VE) is an ideal venue for digital literacy skills development (Fuchs, Hauck & Müller-Hartmann, 2012) and for critical digital literacy (CDL) (Hauck, 2019). Yet literacy is a fluid, deictic term, the meaning of which is context dependent, and digital literacies need to be defined and conceptualised within a specific context. Recent CALL literature highlights the interest in CDL from various perspectives, but how CDL is conceptualised by the VE participants themselves is not explored. Participants of this study were 37 trainee English language teachers in the UK and Turkey who joined a 6-week VE. Their ongoing reflections on CDL were captured through reflective e-portfolio entries following each VE task. Thematic analysis revealed four components of CDL in this specific VE: (1) participants' awareness of digital affordances for *self-expression*, (2) semiotic and interactional means to *build connections*, (3) ensuring *inclusiveness* of all community members, and (4) implications of *socio-political contexts* of each participant for meaning-making and interaction. We conclude that in future pedagogical implementations of VE, facilitators can foster trainee teachers' CDL development through more closely guided and informed reflection on the four themes presented in this paper. As such, this study makes a novel contribution to our understanding of CDL in VE settings for ELT teacher education by offering a social semiotic second language acquisition orientation within an interpretivist paradigm.

Keywords: digital literacy; critical digital literacy; virtual exchange; language teacher education

1. Introduction

Technology-enhanced learning environments require language teachers to effectively integrate technology into language teaching. Innovative pedagogies also place an emphasis on interculturality and internationalisation, which require language teachers to teach in diverse contexts and collaborate with people from other cultures in innovative ways. To this end, for the past two decades, online intercultural collaboration projects have been implemented in university education, including initial teacher education programs (O'Dowd, 2018), to (1) help trainee teachers develop their digital, linguistic, and communicative skills, (2) increase their social inclusion in online communities, (3) help them get prepared for the classrooms of tomorrow, and (4) develop an awareness of digital literacy in virtual exchange (VE) settings (e.g. Guichon & Hauck, 2011; Hauck, 2019).

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Definitions of digital literacies increasingly underline skills and competencies beyond technical skills, such as "an awareness of the social practices that surround the appropriate use of new technologies" (Dudeney & Hockly, 2016: 115), and the "critical, creative, and collaborative use" of technologies (Akayoğlu, Satar, Dikilitaş, Cirit & Korkmazgil, 2020: 95). According to Dudeney and Hockly (2016), digital literacies are meaning-making (semiotic) practices via digital media. It explains how people avail themselves of the affordances and constraints of digital mediational means not only to make meaning but also to take action in social contexts by exercising agency to create relationships of power, values, and ideologies (Jones & Hafner, 2012). Lim, Cope and Kalantzis (2022) propose a multiliteracies pedagogy that can offer a broad range of literacies required for multimodal meaning-making impacting learners' full participation in digital communities. Therefore, literacy is a fluid and deictic term, the meaning of which depends on its contexts of use (Leu, 1997), and thus needs to be defined within a specific context (Brown, 2017).

Current thinking regarding the conceptualisation of CDL is also diverse. Pangrazio (2016) argues that there are multiple forms of critical digital literacy (CDL) because we cannot explain varied and distributed everyday digital practices using a single concept. Darvin (2017) approaches CDL with a focus on how meaning representation maintains or (re)produces power relations. In VE contexts, Hauck (2019) perceives CDL as "the ability to exercise agency" (p. 191) and explains how this is understood differently within and outside the field of second language acquisition (SLA). She argues that SLA conceptualisations focus on individuals' capacity to interact with others using the diverse sociocultural mediational means available in digital environments while being aware of their affordances and constraints. On the other hand, understandings outside of SLA focus on people's critical consciousness of inequalities and social exclusions within and beyond educational systems, and their ability to act to change them. Hauck's (2019) position towards CDL is underpinned by both understandings.

In computer-assisted language learning (CALL) literature, CDL is an emerging area of interest. Recent studies exploring CDL in complex contemporary digital contexts have investigated language learners' strategic agency in dealing with digital distractions (Murray, Giralt & Benini, 2020) and their awareness of hidden non-human agents in digital technology use (Knight, Dooly & Barberà, 2020). In VE contexts, studies have shown learners' and teachers' critical awareness of the techno-pedagogical affordances and constraints of digital tools (Hauck, 2019) and their development of global competence and active citizenship (Nicolaou, 2021). Both Hauck (2019) and Nicolaou (2021) have stressed the need for critical readings of the world and activism for change. Yet, to our knowledge, understandings of CDL in CALL, and particularly in VE contexts, have not been established from the participants' perspectives.

Our aim is to understand our participants' – language teacher trainees – own understandings of CDL within an interpretivist paradigm through an analysis of their reflections on CDL as part of their VE experience. Our overarching question is: What is CDL in VE from the perspective of ELT teacher trainees?

The emerging CDL conceptualisation we present in this paper aligns with the SLA approach described by Hauck (2019) as participants' ability to exercise agency when interacting with others via digital media. This requires (1) a critical awareness of the social semiotic (meaning-making) potentials, affordances, and limitations of digital tools and of how meaning representation can maintain or (re)produce power relations (Darvin, 2017), and (2) an ability to act with agency in establishing intercultural understandings and relationships (Jones & Hafner, 2012; Lim *et al.*, 2022).

2. Literature review

In this section, we introduce the role of VE in teacher education, introduce the semiotic perspective in SLA, and elaborate on existing CALL research into critical digital literacies.

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Twenty-first century teachers have to be digitally competent and better prepared to engage their students in online collaborative learning (ET2020 Working Group on Schools Policy, 2015). However, trainee language teachers are not always well equipped to model and foster competencies for online collaborative learning and participatory skills (Hauck & Satar, 2018). VEs have increasingly been used in language teacher education programs because they provide teachers with the opportunity to discover and use technological tools, and to experience and reflect on their own techno-pedagogical skills in authentic intercultural contexts (Hauck & Kurek, 2017). Trainee teachers who take part in VEs improve their digital communication and cooperation skills (The EVALUATE Group, 2019), and the employment of digital tools in VE lends itself well to digital literacy development.

A social semiotic approach to SLA sees language as a key means for self-expression and meaning-making. It reveals social identities, memories, and emotions, and is an essential symbolic tool for establishing interpersonal relationships (Bourdieu, 1991). The concept of symbolic power underscores the relevance of language use beyond the ability to produce grammatically correct utterances. Bourdieu (1991) argued that:

> the competence adequate to produce sentences that are likely to be understood may be quite inadequate to produce sentences that are likely to be *listened to*, likely to be recognized as *acceptable* in all the situations in which there is occasion to speak. (p. 55)

Thus, the ways in which people use language and employ symbolic forms to make meaning can determine the effectiveness, or power, of what they say and the impact it produces on the world. Kramsch (2006) extends Bourdieu's (1991) concept of symbolic power to second language learning and teaching. She proposes the need for language learners to acquire symbolic competence, which can be defined as the ability to interpret and manipulate signs and symbolic systems for powerful meaning-making so that learners can produce meanings that are *likely to be listened to*.

In digital, intercultural communication, language is not the only symbolic system for meaning-making. Language users can employ multiple digital resources to "represent their understanding of the world and to shape power relations with others" (Bezemer & Jewitt, 2009: 1). Yet not all language learners have equal symbolic and multimodal competence (Hauck & Satar, 2018; Hauck, Satar & Kurek, 2021; Satar, 2020). Although some can express their identities, emotions, and thoughts effectively achieving their intended impact, others' voices may not be *listened to*. This can eventually lead to social inequalities by privileging some people (thus empowering them) while marginalising others (Bourdieu, 1991). Darvin's (2017) approach to CDL with a focus on how meaning representation maintains or (re)produces power relations resonates well with this (social) semiotic approach to SLA.

As Leu (1997) highlights, CDL is a deictic, fluid term, with its meaning determined by its contexts. In education, Pangrazio (2016) offers a review of three approaches: (1) a critical literacy approach "based primarily around the critical consumption of digital forms", (2) a critical media literacy approach highlighting personal experiences, and (3) a design approach that stresses "the production of digital forms" (p. 163). Arguing for the difficulty to depict a complete account of CDL in learning and teaching settings, Pangrazio (2016) proposes a critical digital design framework and reconceptualises CDL by drawing on visualisation, critical self-reflection, transcendentalism, and the interpretation and rearticulation of digital concepts. Darvin (2017), on the other hand, defines CDL as "the examination of how meanings are represented in ways that maintain and reproduce relations of power" (p. 5). Digital spaces are not neutral, and learners need to be aware of power structures embedded in linguistic and non-linguistic forms of expression (Darvin, 2017).

There is an emerging body of work in relation to CDL within CALL literature focusing on language learners' or teachers' (1) strategic agency to deal with distractions, (2) awareness of the impact of hidden non-human agents, (3) awareness of techno-pedagogical affordances of

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digital tools, and (4) development of active citizenship. First, in their study exploring CDL in relation to the challenges and difficulties experienced by students in the Age of Distraction, Murray *et al.* (2020) focused on language learners' agency and self-awareness in using the internet and social media productively in their learning. Their findings highlighted the need for a new CDL that involves awareness-raising for time spent online and self-management.

Second, Knight *et al.* (2020) explored CDL as learners' awareness of the agency of non-human participants in learner interactions with language learning software interfaces. Drawing on the power and agency of the teacher in the classroom to shape the conversational exchange system, they argued that CALL software can determine learner–learner exchange structures in CALL settings. Their conclusions emphasized that CDL should explore and critique not only the ways in which digital content impacts our thinking but also how our acting is shaped by and comprises our interactions with digital tools.

Hauck (2019) explored (critical) digital literacy development in language teacher education within VE settings and evidenced improvement in participants' digital pedagogical competence and *emerging* CDL. The ability to exercise agency forms the basis of Hauck's (2019) view of CDL. Within SLA, CDL involves the capacity to interact in digital environments through sociocultural and technological mediation. Outside SLA, the focus is on learner awareness of global issues and agency to change the status quo. Although her findings demonstrated that participants' criticality was limited to techno-pedagogical affordances of digital tools, she underscored the importance of embedding CDL approaches outside of SLA in (language) teacher education, which could then foster such literacy of future student teachers.

Finally, in her study reporting on a VE, Nicolaou (2021) focused on fostering global competencies, active citizenship, and participation in the local community through digital innovation – that is, an understanding of CDL outside SLA. Her findings indicated that participants could actively participate in society through action-oriented engagement and exercise social agency with critical co-creation of knowledge.

Given such variety of perspectives towards CDL in CALL, we acknowledge the fluid nature of CDL and aim to conceptualise it within a specific context (Brown, 2017; Leu, 1997; Pangrazio, 2016) and an interpretivist paradigm: a VE for ELT teacher education. As evidenced in section 4, we observed a social semiotic SLA approach (Kramsch, 2006) to CDL underpinned by digital literacy perspectives (Darvin, 2017; Jones & Hafner, 2012; Lim *et al.*, 2022) that stress critical awareness of modal affordances in shaping relations of power through the use of symbolic systems in multimodal online intercultural encounters.

3. Method

This qualitative study is the first part of a larger project examining the potential of VEs in facilitating trainee English teachers' CDL development. In this article, we seek to identify participants' understanding of CDL through a qualitative inductive analysis of e-portfolio reflections. We used a qualitative methodology (Silverman, 2013) within an interpretivist paradigm in order to obtain rich and elaborate descriptions of the participants' reflections and conceptualise CDL in a VE setting from the perspective of ELT teacher trainees. We adopted an exploratory approach that enables further insights into an existing problem that has not been clearly defined, thoroughly investigated, and precisely resolved in the past (Creswell, 2013). The in-depth exploration of ELT teacher trainees' reflections on the VE experience in the current study contributes to the deictic conceptualisations of CDL.

3.1 Research context and participants

The participants were 21 third-year ELT pre-service teachers registered for the Technology-Enhanced Language Learning course at a Turkish University and 27 pre- and in-service teachers

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Table 1. Participant information and virtual exchange setting

	Participants from UK	Participants from Turkey
Course/Module title	Computer-Assisted Language Learning	Technology-Enhanced Language Learning
Level	Postgraduate (master's level)	Undergraduate (3rd year–junior)
Teacher education	Pre- and in-service	Pre-service
Focus	Pedagogy, technology, research	Pedagogy, technology
Class size	27 students	21 students
Nationality	International	Turkish
Participation	Essential: Experiential learning	Voluntary
Length	3 tasks in 6 weeks	3 tasks in 6 weeks

registered for the Computer-Assisted Language Learning module in the MA Applied Linguistics and TESOL program at a university in the UK (Table 1). In Turkey, the study was introduced as an extracurricular research activity, and 21 pre-service teachers (female: 18; male: three) volunteered to take part in the research and thus VE. In the UK, participation in the exchange was a course requirement. The participants were informed of the research activity at the onset of the VE and, once the exchange was completed, they were invited to share their data for research on a voluntary basis. Twenty-three students from the UK (female: 14; male: nine) agreed to share their data with the researchers.

3.2 Procedures, data collection, and analysis

The exchange took place between February and March in Spring 2019. The teachers in both institutions received a free VE training organised by the EU-funded Evidence-Validated Online Learning through Virtual Exchange (EVOLVE) project. EVOLVE aimed to mainstream VE as an innovative collaborative international learning practice across disciplines in higher education institutions in Europe and beyond. Further details can be found in Hauck (2019).

Table 2 summarises the VE tasks, technologies, and learner outputs. The exchange involved the completion of three focal consecutive tasks completed biweekly outside of class time within a six-week period using a variety of online tools. Task 1 involved an asynchronous session where each participant posted a self-introduction entry on the Padlet message board using text, video, and images. For Tasks 2 and 3, the participants self-organised themselves into small groups of 4 to 5 and met with their international partners using Zoom videoconferencing software. Each meeting lasted at least 60 minutes. In Task 2, they created a poster using Google Slides to represent their group identity. In Task 3, the same groups evaluated and compared the tools used in the exchange in relation to their affordances and challenges for e-literacy. After each task, the participants completed guided e-portfolio reflections on intercultural communication and CDL developed by the EVOLVE project (see Appendix in the supplementary material). This study puts forth an emic (i.e. an insider perspective that comes from within the cultures where the project is situated) conceptualisation of CDL based on the participants' reflections. Thus, e-portfolio entries are the main data source for analysis.

Thirty-seven participants submitted e-portfolios, which were analysed using Braun and Clarke's (2006) six-phase inductive thematic analysis. The analytical procedures applied were as follows: (1) going through the entire data set to get familiar with the content, (2) writing down the preliminary descriptive codes, (3) putting the codes into related thematic categories, (4) checking the initial set of themes to eliminate potential contradictions and overlaps,

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Table 2. Information about the virtual exchange tasks, technologies, and outputs

Tasks	Technologies	Outputs
Task 1: Introductions (Weeks 1–2)	Padlet Board (text, video, images)	58 individual posts
Task 2: Group identity (Weeks 3–4)	Zoom Google Slides Padlet Board	10 recorded small group videoconference meetings 10 group presentations shared on Padlet
Task 3: E-literacy Evaluation of tools (Weeks 5–6)	Zoom Padlet Board	10 recorded small group videoconference meetings Summaries or links to recordings shared on class Padlet
E-portfolios	MS Office Word	37 individual e-portfolios emailed to the researchers

(5) providing names for each theme and subtheme, and (6) drawing up the final report with relevant data excerpts.

Several measures were taken to ensure trustworthiness and credibility. A collaborative analysis was carried out jointly by all three members of the research team. Following an iterative analytical process, the researchers converted descriptive codes to thematic categories and subcategories, discussed individual perspectives, and determined final themes unanimously. Two grounded theory analytical procedures (Strauss & Corbin, 1990) were utilised during Steps 2–5 of the analysis: conceptual saturation to ensure that no new codes and themes emerge from the data (Steps 2 and 3) and constant comparison (Steps 4 and 5) to investigate overlaps and contradictions among the themes and identify any relationships. Thick descriptions supported by representative verbatim quotes are presented to describe the emergent themes from various participants to depict a well-balanced picture. Each extract is presented with pseudonyms, reflects the affiliation of the participants (UK, TR), and describes whether it comes from reflections on the first, second, or the third task.

4. Findings

We present our findings under four main themes (Figure 1) related to our guiding question: What is CDL in a VE setting from the perspective of ELT teacher trainees? Four major themes were identified: *self-representation*, *inclusiveness*, *building connections*, and *socio-political landscape*. The first theme emphasises the role of self-expression, which reflected the participants' *awareness of different modal affordances* in self-introductions and *displays of affinity* towards the culture of their virtual partners. The second theme shows a concern for ensuring inclusiveness of all community members through efforts in achieving *interactional equality* and *solidarity* among different group members in their interactions, as well as through a critical awareness of *inherited symbolic power*. The third theme is related to the participants' desire to build intercultural connections with their partners by emphasising *commonalities* and *respecting* each other's cultures. Finally, the fourth theme reflects an understanding of the implications of socio-political landscape for the meanings made and not made during the exchanges, and participant gains.

4.1 Self-representation

The theme *self-representation* includes participants' *awareness of modal affordances* and their *displays of affinity* in their introductory posts and video interactions. This theme refers to how the participants represented their individual self while having a connection with others in the

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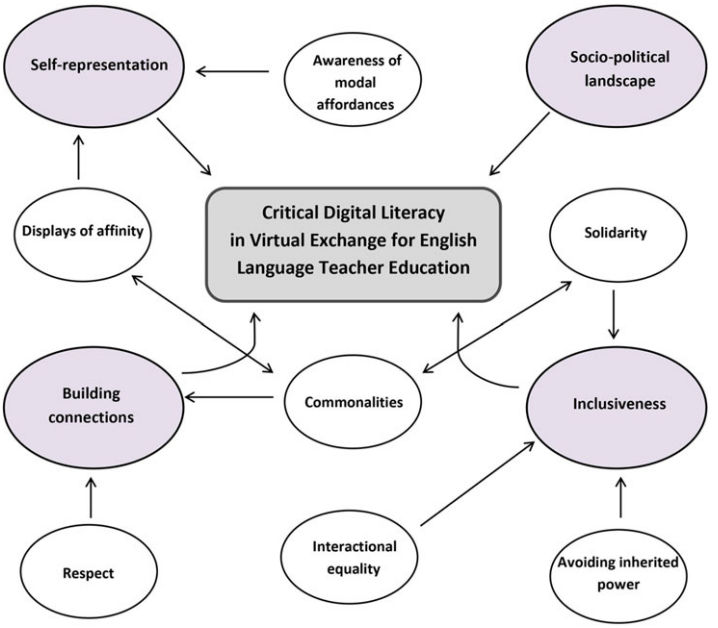


Figure 1. Participants' conceptualisation of CDL in VE

VE and how the interaction between them had been mediated by digital communication tools used in the exchange. Our analysis evidences participants' perspectives on the utilisation of different modalities (i.e. texts, images reflecting their identity) for meaning-making. For example, participants' comments about their Padlet posts showed that the style, content, and the intended purpose of the posts included references to their prior intercultural experience, knowledge, and expectations:

> I, however, wanted to be unique and let the others see that as well so I uploaded my favourite scene from SpongeBob [image reflecting identity] instead. I think it helped me to demonstrate myself. (Umut, TR, Task 1)

> I posted one of my favorite pictures under my introduction and I thought people would like it. Apparently it is not that charming enough to attract others. (Yi, UK, Task 1)

Both excerpts are representative e-portfolio entries that evidence how participants oriented to available representational and communicational modes. Umut's extract indexes his ability to draw on references from popular culture (an image from their favourite TV show) for self-representation, and Yi's e-portfolio entry demonstrates his ability for audience design and critical evaluation of the success of this design based on responses from others in the community.

While representing themselves in the VE, participants drew on their intercultural experiences and displayed affinity across group members. Two excerpts that follow, from Sofia and Eda, are common reflections shared by the participants. In her e-portfolio, Sofia reflected on her skills in establishing cultural affinity visually (with a happy picture of herself in Istanbul) and verbally (using a Turkish word). Sofia argued that her choices increased the credibility of her words about Turkey, making them authentic. Likewise, Eda's reflections corroborate the impact Sofia had achieved. She was pleased that her UK partners already knew about the Turkish culture and were willing to learn the language:

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> I thought it was a great advantage for me to have a positive Turkish experience to share: showing a picture of myself in Istanbul and mentioning the Turkish word for the typical bagels was a way to prove that I was not saying that Turkey is beautiful just to sound nice but I have really been there and experienced something real. (Sofia, UK, Task 1)

> We talked about our hobbies and culture. One of them was familiar with our culture and she had an idea about some of our traditional food. She also indicated that she found all tasty. It was nice. Their culture and their food were so interesting. They were also interested with our language and we taught some words to them like see you, thank you, and hi. (Eda, TR, Task 1)

Many participants reflected on their awareness of *modal affordances* in self-representation. For instance, in the following extract, Phim refers to the multimodal features of others' self-representations through employment of self-images (visuals) and self-disclosure (text). For Phim, while an abundance of written personal information was an indication of being amiable, selfies were instrumental in demonstrating a confident personality:

> I think people who posted their personal information in details seem to be friendly and want to make friends. Also, those who posted their own photos seem to be more confident about themselves. (Phim, UK, Task 1)

Other participants explicitly demonstrated an awareness of meaning-making potentials of the tools used (i.e. Padlet, Google Slides, Zoom). They particularly commented on being able to "see" each other's video images for establishing intersubjectivity, engagement, and affective relationships:

> Thanks to Zoom, I can see all of group members on the screen. It facilitates our interaction, because I can see my friends' mimics, gestures; when I was speaking. I can understand whether they agree with me or not. (Aynur, TR, Task 3)

> I think it is important to be able to see the features of the other participants quite well, as it makes it easier to engage in the conversation and to communicate more effectively. If the participants can see each other's expressions well, the conversation will resemble more a face-to-face interaction and it will be easier to perceive others' emotions and give sense to their words. (Sofia, UK, Task 3)

Aynur and Sofia both highlighted the particular benefit of videoconferencing (Zoom) in understanding and conveying messages through nonverbal cues and embodied actions, thus allowing participants to engage actively and successfully in meaningful communication. The visual mode in Zoom allowed participants to interpret messages, reduce anonymity, and alleviate the stress levels of the participants:

> . . . who were always smiling during the conferencing. Thus, my stress level was reduced by cute friends. (Gozde, TR, Task 1)

Most participants reflected on their awareness of the multimodal features of Padlet and the ability to create digital texts in diverse ways, which fostered international interactions. Yet participant reflections also evidenced their awareness of certain constraints. For example, Laila was cognisant of the "impersonal and distant" qualities of delayed interaction, which reduces immediacy:

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> It is very useful for the activities like our tasks. We can create different kinds of texts about our issues and we can edit or delete our side. In my opinion, it is [*sic*] best method for the interaction. (Emre, TR, Task 1)

> However, there are many limitations in Padlet interaction, the asynchronous nature makes it more impersonal and distant. Also, I think that after the first many people lost interest in Padlet interactions and so, some of my questions were left unanswered (when I asked for a book recommendation or about family of my classmate). (Laila, UK, Task 1)

As shown by our findings, the theme *self-representation* foregrounds the participants' self-expressive efforts that indicate their awareness of the potential use of different modalities for meaning-making and their displays of affinity towards the culture of their online partners.

4.2 Inclusiveness

The second CDL theme emerging from the data was the participants' attempts for *inclusiveness*, where they played an active role in helping others find their voice. One way to do so was striving for *interactional equality* in order to achieve equal footing.

For the participants, one element of ensuring interactional equality was awareness of turn-taking and topic development mechanisms in interaction, as illustrated by Oya's, Umut's, and Tho's comments in the following excerpts. Umut's and Tho's comments, in particular, are representative of learners who elaborated on how they managed awkward silences and maintained progressivity through topic management, either by a clarification request, asking reciprocal questions, or moving on to a new topic:

> You should know when your turn [*sic*] and how you should start the sentence. (Oya, TR, Task 1)

> We, again, had moments of complete silence due to not understanding one another but we helped each other at the end by asking for repetitions or changing subject. (Umut, TR, Task 3)

> During the conversation, there were times one of our friends did not say anything. I was not sure whether that friend did not have any comment or just wait for her turn, so after my turn of sharing, I asked her to join by asking "What about you, what do you think about it?" (Tho, UK, Task 2)

Participants reported that they prioritised interactional equity over maintaining progressivity through deliberate extension of pauses between turns of talk (extended wait time) as well as actively soliciting contributions from those who were silent or needed additional time:

> I sometimes had difficulty to make a sentence, but my group friends waited for me to complete my sentences. (Bahar, TR, Task 3)

> We took turns to state our opinions, so everybody had an equal chance to talk. Before we go on with the next questions, I made sure that everyone said what they wanted to say. I asked if there is anything they wanted to add before moving on. (Oya, TR, Task 3)

> Sometimes I was asking questions to one of the partners of mine that prefers to stay silent most of the time. A few times, I could not get a reply from the person that I addressed the question. After that, I said "Why you guys are not talking" by smiling and wanted them to participate in the conversation. (Suzan, TR, Task 3)

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The extracts above indicate the participants' various attempts at being inclusive and a shared concern not to exclude anyone in their synchronous video interactions. Examples of such reported attempts included addressing specific questions to silent participants, extending wait time, taking turns when expressing opinions, and ensuring all opinions were expressed before moving on to the next topic. Participant reflections also indicated awareness of interactional inequalities, which may be imposed by *inherited semiotic power* by virtue of being a first-language speaker. As exemplified in the following excerpt, Yvonne preferred not to contribute to the ongoing talk around her group members' expressed desire to achieve "native-like" proficiency. Being a first-language speaker herself, she reported staying silent "for fear of feeling rude and a bit of an outsider":

> There was one part of the conversation which I felt a bit uncomfortable. The other four members of my group were talking about how becoming "native-like" was one of the reasons why most of them were working hard at their English proficiency. As a native speaking, I felt like it would be somewhat inappropriate for me to put forth my opinion on this matter for fear of feeling rude and a bit of an outsider. (Yvonne, UK, Task 2)

A final element of inclusiveness that emerged in our data set was the efforts to ensure *solidarity*. This related to instances of fellowship on two occasions in particular: acknowledging common vulnerabilities and sharing group responsibility. For example, Yi's comment shows how he reciprocated Ece's self-disclosure of her linguistic and digital weaknesses by making Ece not feel alone and providing encouragement:

> I commented under Ece's (pseudonym) post who said that she has difficulty in speaking English fluently and is not good at using technological items. I told her that I have the same trouble as her and I believe we can both fight it. (Yi, UK, Task 1)

On the other hand, the following excerpt from Mubarek illustrates how he shared the responsibilities and interests of his group to ensure task completion by helping others. Mubarek reported helping others when they had technical trouble (in this case, not being able to insert an image on a collaborative online document), voluntarily supported a group member whom he perceived to be "shy", and completed their task when they failed:

> Here, one Chinese participant was shy and didn't talk a lot so I tried to ask her about her opinion. Besides, she wasn't able to run Google slides and I put the Chinese flag instead of her. (Mubarek, UK, Task 2)

In sum, the second theme, *inclusiveness*, highlights participants' commitment to building inclusive practices among all community members through ensuring interactional equality and solidarity among virtual partners, as well as through developing a critical awareness of inherited symbolic power.

4.3 Building connections

Participants emphasized the role of *building connections* between cultures and group members while interacting and collaborating with their virtual partners. Participants indicated an awareness of digital tools in facilitating synchronous communication, joint participation among peers, and successful accomplishment of teamwork:

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> Google Slides is a very practical tool because we were able to connect with our group friends at the same time and we created our slide at the same time. It is completely about collaborative work. (Onay, TR, Task 2)

Participants intended to achieve connections by finding common interests, discovering new cultures, appreciating the interests of others in their own cultures, and respecting others and other cultures. The following excerpts are indicators of the *commonalities* the participants put emphasis on and were pleased to discover:

> I was very happy because one of our friends, Muhammed (pseudonym), really interested in Turkish culture. (Ruya, TR, Task 2)

> We talked about our famous foods. It made me happy because I found a piece of myself. (Onay, TR, Task 1)

> Xiang commented on my post about travelling. I feel happy about her comment. It is good to know we have a lot of common things although we come from different cultures. (Emel, TR, Task 1)

Participants' attempts in finding commonalities were an important element in building connections, which related to their attempts in demonstrating *solidarity* and *displays of affinity*.

Participants also reported their efforts to retain an atmosphere of *empathy and respect* for others. They stated that they avoided making judgements and remained sensitive to each other's feelings as they "met the first time" and thus "did not want to embarrass each other" (Yi, UK, Task 2). The majority of the participants suggested that their VEs encouraged "respectful engagement" and that they accepted each other's personalities and mental states, as illustrated by Gonca's and Baha's excerpts below. It appears that an essential component of CDL for the participants in this VE was respect, which underlined sensitivity and empathy:

> I did not have problem about technology, but Elif (pseudonym) did not open her camera but everyone said that it was not a problem for them. So, we just continued with her voice. We heard each of us clearly and it was not a problem. Nobody said that there is a problem. Thanks to this project, it *encourages respectful engagement* between individuals and groups with diverse cultures. (Gonca, TR, Task 3)

> I did not want to push her any further and appreciated the fact that she might not be just the talkative type or she might not be in the mood, which is completely okay. (Baha, TR, Task 2)

Overall, the third theme, *building connections*, emphasizes participants' concern for searching for commonalities and respecting cultural diversity to establish and maintain intercultural connections with their partners.

4.4 Socio-political landscape

Another essential theme for CDL identified in the data set was *socio-political landscape* – that is, the impact of the wider socio-political and sociocultural context on interactions. While this theme aligns with the social praxis orientations to CDL, our participants' perspectives underscore the implicit impact of the socio-political context on the meaning-making skills and symbolic power of individuals in VE. For instance, in their e-portfolios, all members of one of the groups reflected on the same incident in relation to inaccessibility of Google services for language teaching in China. Gozde, a participant from Turkey, reported the conversation as follows:

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> Moreover, I was so surprised that people didn't use Google Slides in China. There was no specific reason not to use the application. However, Xiang thinks that Chinese people don't use it in view of news because of political reasons. Therefore, some technological devices can be differentiated based on environmental conditions, objectives and the type of activities. (Gozde, TR, Task 3)

Gozde's reflection signals an increased awareness of the potential limitations imposed by national regulations on the digital tools and activities for language teaching. In this group, mentioning internet censorship also acted as a catalyst for further exchange of cultural practices and similar experiences, as reported by Phim:

> For example, when we talked about Google, Xiang mentioned that Google is blocked in China. The other Turkish students asked her about the situation and then shared their experiences as well. It seems to me that we can learn about other culture when we explicitly brought the topic up. (Phim, UK, Task 3)

However, in some groups, the participants reported that they avoided raising sensitive socio-political issues on purpose. This meant that at times there were missed opportunities for deeper critical engagement with global issues that are of immediate relevance. This is illustrated in the following reflection from Sofia. Still, even though Sofia regretted missing an opportune moment to learn more about gender equality in Turkey, her reflection indicates her ability to develop and decide to act differently in the future:

> Nobody touched topics such as religion or politics as they can be very delicate subjects. A student mentioned that she enjoys taking part in gender equality projects and I thought that was very interesting and I would have liked to know more. However, I did not know if it was appropriate to ask because I do not know if people are free to talk about these issues openly in Turkey. Consequently, the only comment I could have dropped would have been something quite banal like "I think these projects are important and it's great that you promote them", so I have only liked the post. Now I regret not writing anything because a banal comment is better than nothing and at least I would have shown support more explicitly. Next time I will not overthink and I will comment. (Sofia, UK, Task 1)

Therefore, for the final theme, *socio-political landscape*, we observe how the specific sociopolitical context of each participant had an implicit impact on what meanings were made and what opportunities for dialogue were missed. Regardless of the depth of critical, social, and political discussions, participant reflections evidenced critical self-reflection, awareness, and agency in deciding which topics to explore and which topics to avoid, paying special attention to appropriateness and individual gains for all parties involved.

5. Discussion

We identified four themes emerging from our participants' reflections on CDL in their post-task e-portfolios. The first theme was a concern for self-representation, which constituted two related subthemes: (1) a critical awareness of various semiotic resources and modal affordances in self-introductions, and (2) displays of cultural affinity. As part of the first subcategory, our participants expressed not only the ways in which they employed certain modes in their own introductory posts but also how they extracted certain meanings from their intercultural partners' introductions. An interest in the cultures of exchange partners, albeit largely described within national cultures, was also reported as an essential element of criticality when portraying the self and

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constructing a group identity. *Particular constructions of self and language use* (Darvin, 2017) were indeed perceived as essential elements of CDL in this VE for language teacher education. Displays of affinity was the other subcategory perceived to be of general concern as a means to identify common ground, thus a concerted effort to build connections. As our analysis shows, the mediating effect of technologies and the affordances they offer cannot be ignored in online interactions (Hampel & Hauck, 2006), especially for critical engagement in VE settings. Trainee teachers are in need of negotiating the linguistic, technological, social semiotic, and intercultural aspects of interaction (Kern, 2015) to be able to produce, comprehend, and exchange information effectively and productively through different multimodal channels. This is because different modes offer different potentials for meaning-making and facilitate or favour different kinds of identity work (Jewitt, Bezemer & O'Halloran, 2016). A critical awareness of the affordances and constraints of modes and how they can be employed to display cultural affinity as part of self-representation thus constitutes the first element of our participants' conceptualisation of CDL in VE.

Inclusiveness was the second theme wherein three subthemes were observed. First, participants reported critical awareness of interactional dynamics and equal allocation of floor in interaction to ensure that all voices are heard. Second, an avoidance of claiming inherited symbolic power (Bourdieu, 1991), which is automatically attributed by virtue of being a first-language user, appeared to be a vital element of ensuring inclusiveness. In their reflections, participants signalled their critical awareness of symbolic power and how it can be employed and manipulated in (online) communication (Kramsch, 2006). Finally, demonstrating solidarity, especially in the face of expressed linguistic weaknesses (i.e. explicit disclaimers for a lack of symbolic power), appeared to be an element of achieving camaraderie and a way of confirming membership to the group, thereby contributing to the next theme we observed in our data: building connections.

Darvin's (2017) definition of CDL involves maintaining and (re)producing relations of power. Likewise, our participants reported their concerted efforts not to dominate or submit to others as they built connections with others by carefully positioning themselves and managing their relational levels of power with their group members. The techniques they employed included an interest in emphasising commonalities, finding common ground, and appreciating and respecting each other's cultures. Critical and respectful engagement was perceived as key to building online intercultural connections.

Participants' reflections on their discovery of each other's similar socio-political landscape was the final element of CDL. This was the case particularly for one of the groups where all four members reported their off-task talk on internet censorship in their countries. While most groups in our exchange avoided sensitive topics, when members of this group discovered that certain tools and websites were not accessible in certain countries, they became more aware of the need to diversify and differentiate tool selection in their future teaching. Thus, a critical awareness of tool accessibility and its level of normalisation (Bax, 2003) within a socio-political context emerged as an important component of CDL in this specific VE context.

Here, we reiterate the hypotheses we put forth in a presentation at EUROCALL 2019 (Bilki, Satar & Hauck, 2019). First, in digital/online environments, people who can represent meanings and their identities more effectively by capitalising on the affordances of the available media will have more symbolic power. The ones who cannot are at risk of being marginalised. We explored this under the first theme, *self-representation*, by reporting reflections in which some participants achieved cultural affinity and could represent themselves fully. However, not all participants were the same, as we saw in Yi's disappointment after Task 1 that the picture he chose for his introduction did not receive the expected response. Second, we proposed that VE can be a sandpit for learners to make meaning outside of their own filter bubbles and become aware of power structures implicated in digital social practices. This was explored under the themes *inclusiveness*, *building connections*, and *socio-political landscape* as participants reflected on their awareness of interactional and inherited power mechanisms in VE interactions. Finally, we suggested that

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to overcome inequalities created by varying levels of symbolic power or capital, VE participants can experience, experiment with, and reflect on ways of establishing and maintaining their own presence and voice, being inclusive by scaffolding others in having a presence and voice, and availing themselves of full affordances of digital media in *doing and being* online with a critical approach to digital meaning-making. This final proposition is explored across all themes, but specifically indicated in the subthemes of *respect*, *solidarity*, and *interactional equality*.

6. Conclusion

VE has been described as an ideal model for future language teachers to practise their critical digital skills (Hauck, 2019). However, as we described in this study, there is a lack of conceptualisation of CDL in specific sociocultural contexts, in our case within VE, for language teacher education. Our study addressed this gap and presented an understanding of CDL specifically in VE settings used in language teacher education programs in higher education. The emic approach exploring participants' own appraisals of CDL is novel, which conceptualised CDL in its intercultural and semiotic essence through a thematic analysis of trainee teachers' reflections on their VE experiences.

Findings of our study underscored the role of *self-expression*, the semiotic and interactional means to *build connections*, ensuring *inclusiveness* of all community members, and the implications of *socio-political landscapes* for the skills and competencies of the participants. As such, this study attests to the importance of critical engagement in VE settings with an awareness of how participants can manipulate relational power by demonstrating due care and sensitivity towards other participants' cultural perspectives and technological, intercultural, and social semiotic abilities.

Although our study contributes to the growing literature on CDL, it also has some limitations. First, our findings are based on a small data set in line with our emphasis on a socioculturally specific conceptualisation of the term. Yet it would be useful to replicate this study in other VE contexts. Second, VEs tend to be short and intensive class-to-class interactions typically lasting 6–8 weeks (O'Dowd, 2021), which pose a challenge for CDL development. Another promising area of future research would therefore be to address whether participant conceptualisation of CDL would differ in a similar VE but with a higher number of contact points and activities. Likewise, as CDL is a fluid, deictic term, future research can also investigate change in participants' conceptualisation of CDL over time. In future pedagogical implementations of VE for ELT, future studies can explore the role of the facilitators when they foster their participants' CDL development through more closely guided and informed reflection on the four specific themes presented in this paper.

Finally, our participants' own understanding of CDL aligned with the social semiotic SLA perspective (Kramsch, 2011) as regards their awareness of the impact of digital meaning-making in establishing, maintaining, and (re)producing intercultural understandings and relationships of power (Darvin, 2017; Jones & Hafner, 2012). However, Hauck (2019) suggests that approaches both within and outside SLA – as awareness of inequalities in the society at large and agency to act for change – are relevant to CDL. One reason why our participants' conceptualisation of CDL indicated only a social semiotic SLA orientation could be their specialism as ELT teacher trainees. Another reason could be task design. Tasks in this study did not guide participants to engage in critical discussions of social justice. We only observed the impact of the socio-political context and the sharing of ideas on sensitive topics as and when participants introduced them in their exchanges. Future VE studies can implement task design to prompt critical discussions on local and global issues and/or include public engagement (e.g. Nicolaou, 2021). Within such a VE design, participant understandings of CDL might also take a different direction.

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