

ARTICLE



## Geosemiotics as a multiperspectivist lens: Theorizing L2 use of semiotic resources in negotiation of meaning with mobiles from outside the classroom

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### Abstract

*The theorization of how multimodal learning intersects with online teaching environments has emerged as a key research area in relationship to the creation of opportunities for L2 online interaction. However, there are few studies which have examined how cross-cultural dyads harness and orchestrate semiotic resources across mobile technologies from real-world locations. This paper reports on how the geosemiotics framework provided a multiperspectivist lens (i.e., one which allowed for multiple perspectives which included taking account of embodied communication, material place, and learners' deployment of mobile devices and cameras to convey visuals). The theory of negotiation of meaning was also introduced to comprehend how L2 meaning is negotiated multimodally in ways potentially beneficial to second language acquisition. In this qualitative study, speaking tasks were supported by tablets and smartphones from outside the classroom. The aim was to foster negotiation of meaning through dyads locating and sharing public semiotic resources situated in places included cafés and museum. Findings show that learners co-deploy different semiotic resources to clarify task information and engage in word search and negotiation of lexis—with non-understanding also triggered by embodied and visual resources. Conclusions consider implications in fostering negotiation through pedagogic task design which harnesses semiotic resources in “place.”*

**Keywords:** *Multimodality, Mobile Language Learning, Videoconferencing, Negotiation of Meaning*

**Language(s) Learned in This Study:** *English*

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### Introduction

The evolution in mobile communication technologies has extended possibilities for multimodal meaning-making across an increasing set of resources, tools, and contexts of use. In a globalized and connected world, language learning theories and their pedagogies ideally adapt and evolve to help learners more fully exploit the affordances of technological tools and platforms in terms of language development. Multimodal social semiotics (Bezemer & Kress, 2016) has permeated a diversity of online language learning and teaching contexts, suggesting that within these environments, spoken language is constructed, negotiated, and mediated in relationship to the orchestration of wider semiotic resources. Previous research studies in desktop videoconferencing (DVC) and audioconferencing show deployment of multimodal repertoires, rather than language use in isolation (Guichon & Cohen, 2016; Guichon & Wigham, 2016; Hampel, 2019; Hampel & Stickler, 2012; Knight et al., 2018; Satar, 2020). Studies have also demonstrated that learners exploit visual and embodied cues within negotiation of meaning (Canals, 2021; Hampel & Stickler, 2012; van der Zwaard & Bannink, 2014). Resources include facial expression in non-understanding (van der Zwaard & Bannink, 2014) and gesture (Canals, 2021).

Conversely, there is a paucity of research which has explored the potential of fostering negotiation of meaning via L2 use of semiotic resources across tablets and smartphones. Yet there are suggestions in the wider literature regarding opportunities for “multimodality on the move” where platforms and mobile technologies can be exploited to facilitate transformative practices (Leander & Vasudevan, 2011). To address several gaps in the literature, the present study complements and builds on previous multimodal research in DVC but also growing interest in mobile devices and pedagogic approaches to support interaction from outside the classroom (Hellermann & Thorne, 2022; Kukulska-Hulme & Lee, 2020; Pegrum, 2019). The researchers of the present study considering it especially important to examine multimodality operating in relationship to a principled theory of language learning with pedagogic implications. The use of technology in education is also changing the way we learn. For example, frequently overlooked places such as university campuses, museums, and even a learner’s local coffee shop represent a social milieu rich in semiosis. The concept of “rewilding” (Thorne et al., 2021) potentially extends the contexts of pedagogic design to a panoply of places outside the classroom. Features of second language use have thus been closely linked to learners’ “discovery of semiotic resources in the wilds” (Theodórsdóttir & Eskildsen, 2022). *Semiotic resources* are defined as actions, materials, and artifacts deployed for communicative purposes—these have meaning potential and are systematically organized and shaped within a specific social context by the sign-maker (Jewitt, 2011; van Leeuwen, 2005). Drawing on Halliday (1978) but also the work of Goffman (1983) and Kress and van Leeuwen (1996), Scollon and Scollon (2003) emphasise the requirement to index language in relationship to the meaning potential of “place” via their discourse framework of *geosemiotics*. In the present study, it was considered that *geosemiotics*, and its multiperspectivist lens, have the potential to offer a rigorous means to examine L2 use of multiple semiotic resources within speaking tasks implemented via mobile technologies from outside the classroom.

In this qualitative study, ten learners operating within an English as a Second Language (ESL) context completed a series of information gap tasks based on “place” which had been designed by one of the researchers. Each dyad was connected across the *Skype* videoconferencing app, accessed on mobile tablets and smartphones from two separate geographical locations which were within walking distance of the learners’ institution in the UK. The task design involved peers directing one another to locate and share a series of artifacts such as museum items but also everyday objects via their mobile device and camera. As an attempt to more fully understand the potential of these types of available resources for learners, the researchers conceptualised menus, food, paintings, photos, statues, public notices, maps, and more, which were already situated in public buildings, as public semiotic resources. The aim of the research was to examine the role of different semiotic resources outside the classroom in order to understand how these might be used to foster negotiation of meaning from a perspective rarely considered. For the purposes of transcription and analysis, Scollon and Scollon’s (2003) framework was utilized. The theory of *negotiation of meaning* (Varonis & Gass, 1985) was also drawn on due to a perceived need to examine how learners’ use of semiotic resources could be methodologically and pedagogically linked to identifiable features of interaction considered beneficial to SLA, given the language learning context and lack of information in the literature about how interactionist accounts operate multimodally across mobiles. The data and approach to analysis presented in this paper builds on a PhD thesis in multimodal interaction across mobiles from outside the classroom (Lee, 2020; Lee et al., 2019). This current paper addresses a methodological gap in the literature by introducing *geosemiotics* to an interactionist account of SLA across mobiles. To highlight the distinction between tools, the acronym mobile videoconferencing (MVC) is used throughout this paper. Based on previous findings from studies on multimodal DVC and mobile learning outside the classroom, alongside Scollon and Scollon’s (2003) focus on use of semiotic resources in “place,” the following research questions emerged:

1. What is the role of embodied resources (speech, movement, gesture) across MVC within negotiation for meaning in the context of language learning?
2. What is the role of place-based resources across MVC within negotiation of meaning?

## Literature Review

### Language Learning with Mobiles in Place

Mobile learning has been frequently positioned in the “digital wilds,” offering opportunities for autonomous learning which is free from institutional or pedagogic input (Sauro & Zourou, 2019). However, when Lai and Zheng (2018) examined survey responses from Hong Kong undergraduates to evaluate their self-directed use of mobiles, they found that learners exploit mobiles for receptive, rather than productive, language skills; the researchers concluded that whilst mobile devices are “well-placed” to support communication from informal contexts, they are not generally used in this way: “educational mediation and interventions are needed to enhance this dimension of mobile learning” (Lai & Zheng, 2018, p. 312). A recent study on Slovakian English as a foreign language (EFL) participants found that teachers and learners were largely unaware as to how smartphones could be deployed to support speaking skills via videocalling apps (Metruk, 2021). Moreover, Viberg et al. (2021, p. 130) highlight how practitioners are faced with specific challenges when operating within a mobile paradigm. These include (a) planning for and evaluating an array of ways and places to learn, (b) developing awareness of the intersection between formal and informal, and (c) building in the possibility for learners to “customise” the mobile design. To fully comprehend the learning potential of mobiles, teachers ideally need to draw on “mobile teaching lenses” to ascertain what is possible and not possible (Pegrum, 2019).

Design approaches to mobiles include gaming (Chen et al., 2019; Hellermann & Thorne, 2022) and learner-generated content from outside the classroom (Song & Ma, 2020), with theoretical SLA cited as a route for researchers to determine learning potential (Stockwell, 2016). In an empirical investigation of a small group of learners interacting with a mobile game from outside the classroom, the usage-based process involved drawing on semiotic resources: “interbodied language practices (grammar) that are collaboratively produced using a range of semiotic resources within which language and the body are central” (Hellermann & Thorne, 2022, p. 105). Song and Ma (2020) exploited the concept of *affordance* within an ecological approach to examine how vocabulary from the classroom could be applied to real-life contexts. Rockey et al. (2020) addressed L2 pragmatic ability, with a focus on the language of ‘attention-getters,’ through exploiting mobile devices as data-gathering-instruments. Previous pedagogic frameworks have encouraged teachers to design tasks for outside the classroom with learners able to record their autonomous interactions to later reflect on these and receive feedback (Kukulka-Hulme et al., 2017).

Functionalities of these social tools include global positioning (GPS), internet access, video, animation, augmented reality, gaming, vocabulary and dictionary apps, videoconferencing apps, social media, and audio-visual recording—all with different meaning potentials. To fully explore the implications of meaning-making across more portable tools, one starting point is to distinguish multimodality across the medium of a fixed computer from multimodality and mobility. As a result, the task design in the present study embedded aspects of mobility which encouraged dyads to explore a series of places together, with the aim to support negotiation of meaning from outside the classroom. It was envisaged that the online dyads would utilize the mobile device and the inbuilt cameras as a type of technology-enhanced embodied deictic prosthesis (see Jaworski & Thurlow, 2011; Lee et al., 2019). The co-deployment of semiotic resources across mobiles therefore differs from studies in computer-mediated-communication (CMC) where participants bring cultural artifacts from the world “into the visual frame of the online space” within social presence (Satar, 2020, p. 136) or “manipulate the semiotic resources available” via holding these up to the screen to express “L2 voice” (Austin et al., 2017, p. 96). In contrast, mobile devices allow learners to exploit smaller, lighter computers to index semiotic resources in a situated manner where these are already ‘emplaced’ rather than semiotically decontextualized (Scollon & Scollon, 2003). As a result, semiotic approaches to analysis help us to understand that every technology used to represent and communicate meaning has distinct material and social affordances for learning (Pachler et al., 2010, p. 187).

## Multimodal Negotiation of Meaning

The premise behind *negotiation of meaning* (Long, 1996; Varonis & Gass, 1985) is that through interaction with conversational partners, speakers gain opportunities for comprehensible input but also comprehensible output (Swain, 1985). Moreover, the premise behind negotiation allows for the ‘pedagogization’ of L2 interactionist accounts of learning through task design (Hampel, 2006; Lee, in press; Yanguas & Bergin, 2018) with recent frameworks highlighting integration of theoretical SLA and multimodality (Hampel, 2019). According to linguistic models, negotiation of meaning involves a sequence of conversational turns (episodes) where an interlocutor initially disrupts the flow of conversation due to a perceived issue with comprehension, where attempts are then made to resolve the *non-understanding*. This is defined by Varonis and Gass (1985) as “some overt indication that understanding between participants has not been complete (...) with embeddings of one or more clarifications” (p. 73). Conversely, this does not necessarily entail a complete breakdown in communication, but rather the requirement for learners to modify linguistic information to make input comprehensible through, for example, repeating or rephrasing it.

Hampel and Stickler’s (2012) findings in a multimodal videoconferencing environment provide evidence of patterns of negotiation (Long, 1983) which occurred through learners’ collaborative orchestration of modes (see Bezemer & Kress, 2016, for a comprehensive definition of mode). The researchers observed that participants adapted the available resources (language, emoticons, sound, text, and video), which resulted in patterns of communication based on the dynamic interplay between them all. This is important in that the use of dual modalities may potentially increase the perceived salience of input, which has been recognized as critical by proponents such as Long (1996). In a study involving 18 dyads of English and Spanish L2 speakers, Canals (2021) examined the role that multimodality had in scaffolding oral interaction within videoconferencing across language-related episodes. These were found to involve deployment of gesture and posture operating with language use and unfolding in relationship to learners’ interaction with digital but also non-digital resources.

## Methods

This paper investigates the role of semiotic resources within a qualitative account of negotiation of meaning across MVC from outside the classroom. The data presented in this paper comes from a wider qualitative study which was conducted as part of a PhD thesis on multimodal interaction, consisting of data and analyses based around speaking tasks which were triangulated with stimulated recall interviews to provide a further learner-centred interpretation of negotiation (see Lee et al., 2019). The approach to methodology presented in this paper represents a unique contribution to the literature. It draws on the theoretical frameworks of *geosemiotics* (Scollon & Scollon, 2003) and *negotiation of meaning* (Varonis & Gass, 1985) to support the fine-grained analysis of L2 speaking tasks to elucidate the role of different semiotic resources in a mobile-mediated environment. A geosemiotic account of negotiation is presented due to (a) a research focus on negotiation in relationship to L2 use of embodied semiotic resources and (b) a research focus on negotiation in relationship to aspects of place, including learners’ engagement with public semiotic resources situated outside the classroom, and in terms of how use of mobile technologies could potentially enable the visual representation and sharing of semiotic resources with virtual peers.

## Geosemiotics

It was considered by the researchers that Scollon and Scollon’s framework (2003) afforded sufficient methodological scope to ascertain how “semiotic resources come together when we move as social actors through physical spaces” (Scollon & Scollon, 2003, p. 47). The first category of analysis addresses the embodiment of the social actor through concepts of togetherness such as “withs” (Goffman, 1983) within the *interaction order*. In the present study, it was considered that “withs” were separated by geographical distance yet brought together through the connectivity of MVC, as online dyads completed collaborative speaking tasks. Within this system, embodied resources of interest included facial and hand gestures, shown to play a role in negotiation (Canals, 2021; van der Zwaard & Bannink, 2014). The second system we draw

on is *visual semiotics*. This system involves attention paid to the composition of images (Kress & van Leeuwen, 1996) which we extended to address learners' co-deployment of mobile devices, screens, and cameras, as they attempted to produce a coherent image of an artifact. The final category allows for the analysis of *place semiotics*, where the meaning potential of built environments, and the public resources situated in these, become the focus of research attention. It is also important to note that aspects of the three systems are seen to overlap in a manner which Scollon and Scollon (2003) consistently highlight. Our application and interpretation of Scollon and Scollon to analyse a semiotic mobile learning environment is shown in [Table 1](#).

### Context and Participants


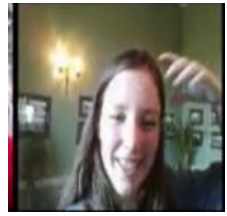




In this study, ten adult language learners (aged 22–27) took part in a series of dyadic speaking tasks which were supported by the *Skype* videoconferencing app (accessed on tablets and smartphone) (2018) from which the data in this paper is derived (Skype Technologies, 2018). Participants were volunteers studying English in several intact, ongoing classes at an adult education college located in the South of the UK. Motivation to take part included: extra-curricular speaking practice, learning over a coffee, exploring places in the city to practise English, and “trying out” language from the classroom. The participants had been previously categorised as having a proficiency level which ranged from B1 to B2 according to the Common European Framework of Reference for Languages. They came from a wide variety of nationalities and linguistic backgrounds which were reflective of the institution's demographic at the time. None of the learners knew one another personally before the study and the names used here are pseudonyms. The learners were placed into mixed-nationality pairs to take part in information gap speaking tasks (see [Table 2](#)).

The learners were asked to download the *Skype* videoconferencing app for mobile technologies in advance of the task. For the purposes of mobile design around place, one of the researchers had previously visited the locations. The rationale for a traditional information gap task is that the information is split in that an information exchange is required (Ellis, 2003, p. 86). In the present study, this task type was reconsidered as a means to foster negotiation through L2 use of semiotic resources. The dyads taking part each held unknown information about public semiotic resources which included menus, food, paintings, photos, public notices, statues, pottery, and more, as well as a map of the other learner's building. They had to connect to one another and complete the tasks from the places shown in [Table 2](#) (see [Appendix A](#) for an example from the tasks).

**Table 1**

*Scollon and Scollon's (2003) Framework of Geosemiotics Applied to MVC*

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	<p style="text-align: center;"><b><u>Interaction order in MVC</u></b></p> <p>The learner foregrounds “self” which appears on the mobile screen as they interact in virtual “withs,” facing the mobile screen and camera and using embodied resources such as gesture to negotiate for meaning.</p>
	<p>Learners are afforded meaning-based choices as to where to position the technology (on a table to free up the hands or to walk and talk with the device held in one hand), reflective of the task demands.</p>
	<p style="text-align: center;"><b><u>Visual semiotics in MVC</u></b></p> <p>The learner foregrounds semiotic resources in relationship to image.</p>
	<p>The learner exploits the affordances of the device and camera to produce a representation of the artifact in place.</p>
	<p style="text-align: center;"><b><u>Place semiotics in MVC</u></b></p> <p>The learner foregrounds use of the material building itself which appears online in a more contextualized manner.</p>
	<p>Use of semiotic resources is always indexicalized within <i>place</i>.</p>

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**Table 2***Participants and Places from the Study*

<b>Dyad 1</b>	<b>Dyad 2</b>	<b>Dyad 3</b>	<b>Dyad 4</b>	<b>Dyad 5</b>
Fay (F) (Kazakh, 27) paired with Andrea (F) (Swiss, 23)	Nadia (F) (Italian, 26) paired with Simone (F) (Spanish, 22)	Paul (M) (Brazilian, 22) paired with Lily (F) (Swiss, 26)	Angela (F) (Turkish, 27) paired with Bobbi (F) (Thai, 23)	Jane (F) (Hungarian, 24) paired with Sara (F) (Polish, 27)
<b>Place:</b>	<b>Place:</b>	<b>Place:</b>	<b>Place:</b>	<b>Place:</b>
Fay: Public gardens Andrea: English stately home	Nadia: museum & a garden Simone: café	Paul: café Lily: café	Angela: Turkish restaurant Bobbi: Museum and gallery	Jane: café Sara: Art gallery

**Data Collection and Analysis Procedures**

At the time of the research, the videoconferencing tasks were captured through the third-party software, but subsequent developments in the mobile *Skype* app now include in-built videorecording capabilities. As mentioned previously, videorecordings of the MVC interactions and semi-structured stimulated recall interviews were collected as part of a larger PhD study, although this paper principally draws on the task data (for a data example from the learner interviews see [Appendix B](#).) Each dyad took part in one videoconferencing task each which lasted from fifty minutes to an hour. The data from the information gap speaking tasks generated 280 minutes of data from which the linguistic negotiation of meaning excerpts were identified. This resulted in approximately 60 minutes of video-captured data of negotiation. Whilst the full data set evidenced use of semiotic resources and was subject to multimodal analysis, in this paper we draw on approximately 10 minutes of video-recorded data. These reduced data were reviewed further with agreement reached for the sections presented in this paper. To indicate the scope of negotiation in this learning environment, we first choose to present a brief example of linguistic negotiation to illustrate the coding scheme before the introduction of Scollon and Scollon's (2003) framework (see [Excerpt 1](#)). We then analyse a section of data from the lengthiest example in our data set (approximately 4 minutes) (see [Excerpt 2](#)). Following this, we present three examples of negotiation which were chosen because they demonstrate learners' ability to 'control' and foreground certain semiotic resources to exchange information, despite exposure to a seemingly boundless "semiotic budget" (Knight et al., 2018) (see [Excerpts 3, 4, & 5](#)). We also share an example of non-negotiated data from the speaking tasks (see [Appendix C](#)).

The Varonis and Gass (1985) coding schema is based on an initial *trigger* and the subsequent *resolution* of the perceived communicative difficulty, summarized below:

- *Trigger* represents the source of the difficulty and prompts the non-understanding
- *Indicator* represents signaling from an interlocutor that they have failed to understand
- *Response* represents the original speaker's acknowledgement of the non-understanding and attempts to address this
- *Reaction to response* is conveyed as an affirmative response to the prior response to indicate comprehension and therefore resolution
- *Comprehension check* (occurs at any point in the sequence)

[Excerpt 1](#) illustrates an example of how the spoken negotiation of meaning was coded, whereas the second stage of analysis entailed identification of the use of multiple semiotic resources within these same sections

of data through introduction of Scollon and Scollon (2003).

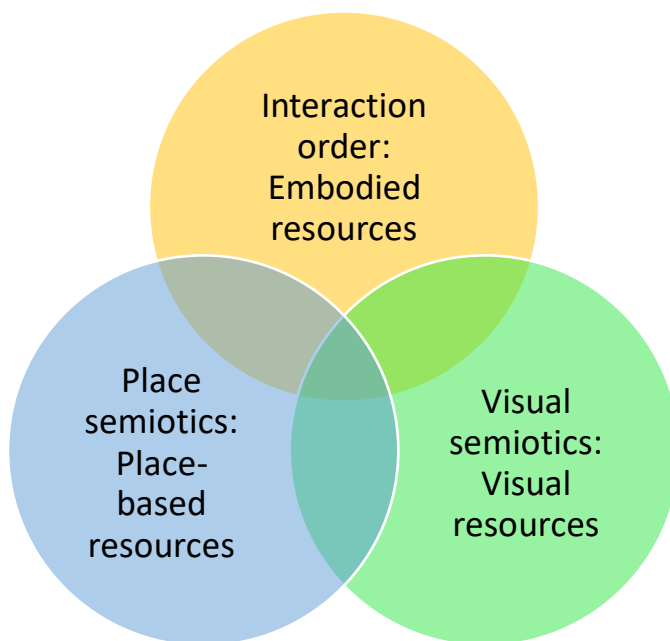
### Excerpt 1

- 1: F: Where are you? Is it a coffee shop or a library? (*Trigger*)
- 2: A: Sorry, I can't understand. (*Indicator*)
- 3: F: There are cakes behind you and and some books also. (*Response*)
- 4: A: Yeah. (*Reaction to response*)
- 5: F: There are different cakes and biscuits as well you know behind you. I can't see everything but (*Response*)
- 6: A: Yes. I am in the coffee shop. (*Reaction to response*)

Isolated examples of linguistic negotiation provided a first unit of analysis and supported the second multimodal analytic phase. which was then proceduralized through the introduction of Scollon and Scollon (2003; see [Figure 1](#)).

### Figure 1

*Semiotic Resources in Negotiation of Meaning across MVC, based on Scollon and Scollon (2003)*



This second phase of the analysis involved use of the software tool [ELAN](#) (see [Appendix D](#)), the production of a series of analytic transcripts (see Flewitt et al., 2014; Mavers, 2012 for an overview). In the current study, the elicited negotiation was largely due to the researchers' strategic approach to task design which had required learners "to negotiate the meaning of the message with the aim to succeed at exchanging information" (Blake, 2000, p. 111). As Hampel (2006) notes, strategic forms of task design can be exploited to foster aspects of multimodal communication and SLA simultaneously.

### Analysis

In this section, we present and multimodally analyse four transcript excerpts of negotiation from the task data (Excerpts 2, 3, 4, & 5) to answer our two research questions. These data and micro-analyses explicate



how dyads interacting from outside the classroom are pushed to manipulate the mobility of the technology in relationship to the wider material environment to foreground and avail themselves of distinct “meaning potential” (van Leeuwen, 2005). Use of semiotic resources in this learning environment is also evidenced as supportive of the types of interactional adjustments associated with negotiation of meaning (Varonis & Gass, 1985), although these are achieved through the resource of language operating in multimodal interplay with other resources.

### Transitioning Meaning via Different Semiotic Resources within an Online Speaking Task

We first present an analysis of Excerpts 2 and 3, where two different dyads exploit “iconic” or “pictorial” gestures which co-occur with spoken language (McNeill, 1992). [Excerpt 2](#) occurred at the beginning of the speaking task and was triggered by a sequence of meaning-based gestures which one learner coordinates with his spoken language to support his interlocutor to complete a section of the speaking task. McCafferty (1998) argues that gestures help learners negotiate for meaning by marking instances when they gain control of the structure of a task. A lengthier version of the transcript for [Excerpt 2](#) can be found in [Appendix E](#).

#### Excerpt 2

1. P: It's a place. There is like a \*head of a man (T)  
In the \*wall attached in the wall.  
Like eh he's \*getting through the wall you know.  
Like a \*door and there's a door is \*broken  
and his face is like eh \*getting through the door.
2. L: The face? (I)
3. P: Yeah, it's \*a (R)
4. L: It's a man? (I)
5. P: Yeah it's a \*place around you I think. Maybe downstairs?
6. L: Could be downstairs. So ok. Just ask. It's a face of a man. He goes outside of the the wall. It's near to the door? (I)
7. P: Maybe downstairs. (TAR)
8. L: Could be downstairs (R)
9. P: Yeah. (R)
10. L: So ok. Just ask. It's a face of a man? (I)
11. P: Yeah. (R)
12. L: He goes outside of the wall? (I)
13. P: Yeah. (R)
14. L: It's near to the door? (I)
15. P: It's a scene of a movie actually. I don't know if you know this movie of Stanley Kubrick. I don't I don't think so but it's easy to find. I think it's a \*man that is getting through the door you know (TAR)


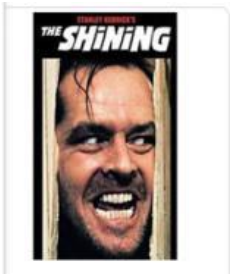
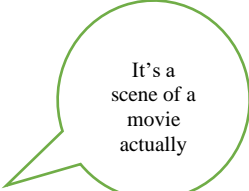
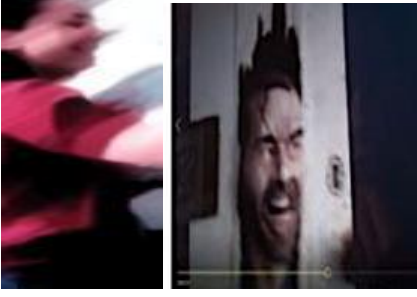

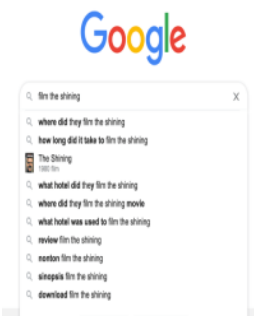
*Note.* \*Indicates the point where the learner gestures in relationship to speech

The first multimodal trigger involves Paul (P) combining six iconic gestures with speech (\*) (see also [Table 3](#)) within the interaction order. The aim of the multimodal communication is to prompt Lily (L) to stand up and walk with her device and camera to find the correct artifact within her place. Lily's place is a café, and the task instructions indicate that she is required to elicit sufficient information from Paul to allow her to find the artifact: a plastic model of the actor Jack Nicholson's face coming through a door (based on the film *The Shining*). Paul has been given a map of Lily's café and knows where the object is to be found but plays along with the task, realising the aim is for Lily to clarify multiple sources of information in order to understand where to go with her device and camera. The copious amounts of verbal and non-verbal input in the first trigger led to Lily clarifying a series of lexical items verbally, with Paul offering various task-appropriate responses (TAR) to help his interlocutor when she expresses non-understanding (see van der

Zwaard & Bannink, 2019 for newly identified patterns of negotiation in CMC in relation to Varonis & Gass). In our data example, learners draw on embodiment, place, and visuals throughout different phases of the negotiation, with one of the learners attempting to sustain the negotiation via engaging with a Google search about the film, as suggested in his task sheet (see full transcript in [Appendix E](#)). We can consider the various resources made available for learners through the concept of *resemiotization* (Iedema, 2001; Jewitt, 2011) in that negotiation involves learners transitioning meaning across different media and forms of expression. The process of resemiotization based around Paul and Lily’s negotiation is shown in [Table 3](#).

**Table 3**

*Resemiotization in a Mobile Videoconferencing Environment Outside the Classroom*

	<p><i>Skype</i> screen and camera on mobile device used by learner to recreate an embodied representation of the meaning of the picture in his task sheet; also based on his memories of the moving images he associates with the film.</p>	
		<p>Language used to contextualize the meaning of the artifact through referencing the original film to help his interlocutor to locate the artifact.</p>
	<p><i>Skype</i> screen and camera used to share the meaning of the artifact, based on the film. The learner completes the task goal through sharing an image of this across <i>Skype</i> in real time.</p>	
		<p>Google used to search for further information about the film, associated with the artifact. The meaning of the artifact conveyed via an image on the learner’s <i>Skype</i> screen has transitioned to text-based input about the film.</p>

## Foregrounding Embodied Resources in Negotiation

**Excerpt 3** occurred around halfway through the task. Nadia (the learner on the left) and Simone (the learner on the right) are situated in two separate places (gardens outside a museum and a café) whilst connected via two smartphones. The dyad is fully engaged in orchestrating embodied semiotic resources, which were identified to predominantly fall in the *interaction order*. We found that decisions that learners make about how and where to position their mobile device and screen go on to shape the use of different embodied resources. For example, Simone chose to grasp her mobile phone in one hand, leaving the other hand free to exploit as a communicative tool. In contrast, Nadia decided to hold her mobile phone and camera close to her face rather than gesture on camera.

### Excerpt 3

#### Figure 2a

*Interaction Order Achieved via Language, Gesture, Facial Expression*



N: It's different to the one that you just explain but we have a special \*cake handmade cake called \*Crostata which is a kind of shortbread.

*(Trigger)*

#### Figure 2b



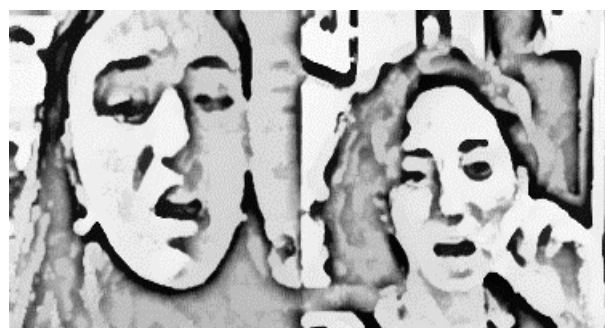
N: You know the \*Scottish shortbread?

*(Comprehension check)*

S: Sorry?

*(Indicator)*

#### Figure 2c



N: It's with butter and we \*put like at the top like a jam so we can serve this with coffee with a cappuccino.

*(Response)*

S: Ah, OK.

*(Reaction to response)*

*Note.* \*Indicates the point where the learner gestures in relationship to speech

Resources drawn on in [Excerpt 3](#) elucidate the interplay between language, gesture, and facial expression. Simone deploys one hand as a resource with which to form three different imagistic representations of the shape and size of the cake/biscuit as she verbally describes this whilst holding her device in the other (Figures [2a](#), [2b](#), & [2c](#)). It has been suggested that iconic gestures “enhance the chances of comprehension by drawing on the underlying mimetic properties of gestural imagery” (Stam & McCafferty, 2008, p. 15). From this perspective, non-verbal resources could also be counterproductive to negotiation as they allow for learners to resolve difficulties visually (Yanguas & Bergin, 2018). Nadia’s facial expression first conveys puzzlement through a slight frown, which, taken in conjunction with her use of the word “sorry?” was equated with *non-verbal non-understanding* ([Figure 2a](#)). This is followed by *non-verbal resolution*, expressed through an “Ah” and raised eyebrows ([Figure 2c](#)). As Smith (2017) suggests, attention during tasks is focused on coordinating the verbal with the non-verbal in “a multi-dimensional manner” which may be captured and analysed by researchers as a component of interactionist SLA (p. 453).

### Conveying Aspects of Place: Learner as Image-maker in Negotiation

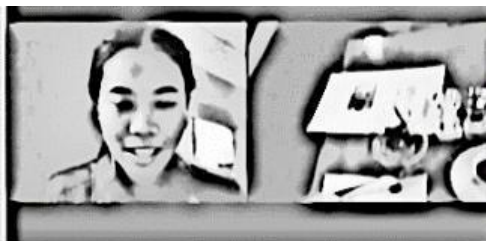
[Excerpt 4](#) is taken from data which occurred halfway through the speaking task between Belinda (the learner on the left) and Angela who is behind the camera busy conveying a series of images of her place (a Turkish restaurant; images on the right). The dyad is situated in a museum and Turkish restaurant (see [Appendix A](#) for the task). The use of everyday public semiotic resources such as dishes of food feature in this negotiation. The analysis identified that *visual semiotics* dominated this exchange across *Skype* in ways unique to the types of patterns associated with the Varonis and Gass (1985) schema. Conversely, when Angela was filmed with an external camera, she is seen to harness her entire body and the technology in attempts to convey the meaning of her material place.

The multimodal coding of Angela’s *trigger* demonstrates how the required coherence between the meaning of the moving image and parallel language use has broken down. Whilst the meaning of images dominate the exchange via *Skype*, deictic gesture also has a role. This is deployed in a transformative manner where Angela uses the technology as a form of “deictic prosthesis” (Lee et al., 2019) within negotiation. Whilst the *non-understanding* is initially queried as a lexical item “Shak-shou-ka?”, the learner subsequently draws her interlocutor’s attention to the fact that she cannot understand the meaning of the co-occurring language use because the visuals conveyed to her screen make little sense. Angela’s initial attempts to point with the camera and device (Figures [3a](#), [3b](#), & [3c](#)) result in her conveyance of a series of incoherent images of place (a table and some condiments) which cause *non-understanding*. To address the multimodal problem, Belinda asks, “Can you move your camera?” ([Figure 3c](#)), which was coded as a *visual indicator of non-understanding*. The negotiation is only resolved when the dyad collaborate online to check and clarify visual information ([Figure 3d](#)). [Figure 4](#) evidences the learner pointing with their device to make images which “show the world” (Kress, 2003, p. 140).

#### Excerpt 4

#### Figure 3a

*Language, Facial Expression, Pointing with Camera to Make Images, Place*



A: We put some vegetables sometimes. Sometimes cheese sometimes meat and near salad. And this name is a little difficult but Shakshouka they call it (*Trigger*)

B: Shak-shou-ka? (*Indicator*)

#### Figure 3b



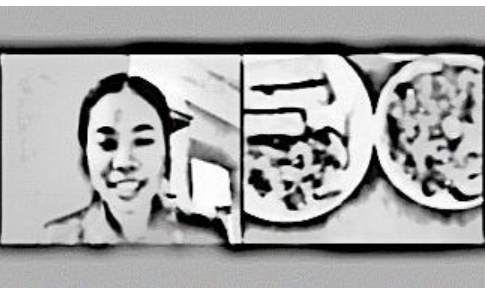
A: Yeah. This is made of aubergine and chilli and tomato. Firstly, all the vegetables we put in fried and after we cut it and with tomato with salad. Sometimes we put yoghurt (*Response*)

#### Figure 3c



B: Yeah. I can't understand. Can can you move your camera (*Visual indicator of non-understanding*)

#### Figure 3d



A: Now? (*Response/visual comprehension check*)

B: Ah yes. Good! (*Reaction to response*)

**Figure 4**

*The Learner Points with the Mobile Device at Some Food on a Table Below to Share with a Virtual Peer*

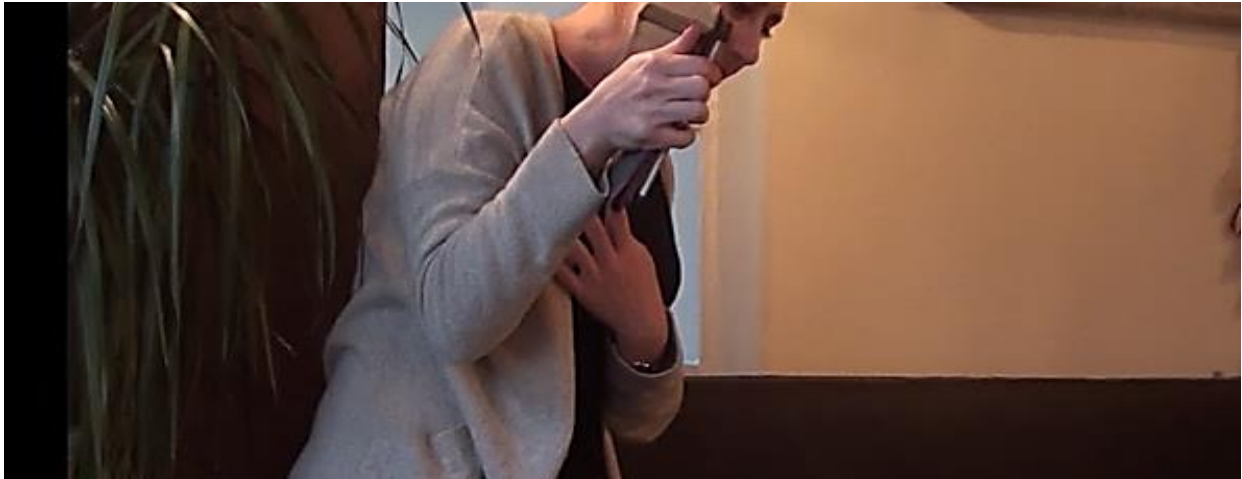
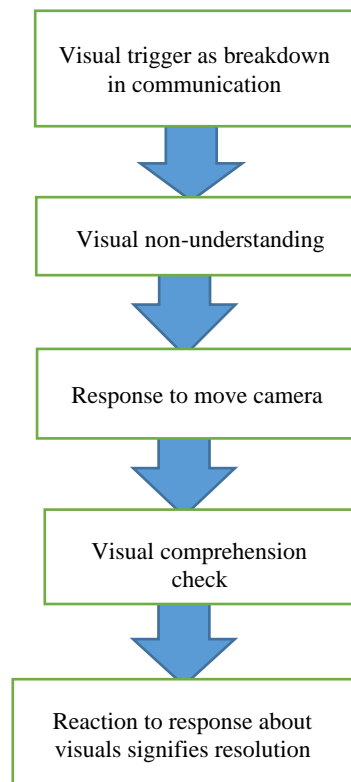


Figure 5 illustrates how the misdirection of the device and camera resulted in an example of negotiation.

**Figure 5**

*Pattern of Negotiation Based Around Visual Breakdown in Communication*



Whilst negotiation patterns are typically coded according to the trajectory of language use, we found that it was possible to identify a pattern of negotiation which conformed to Varonis and Gass (1985), yet was revealed through *visual semiotics*. The approach to analysis of negotiation as a multimodal phenomenon thus reflects “a broadened semiotically based way of looking at what people do when they interact” within an SLA paradigm (Block, 2013, p. 56).

### The Role of Place in Negotiation

**Excerpt 5** highlights the role of place, which becomes the focal point of Fay and Andrea’s meaning-making from an English country house (a historical building where Andrea is located) and a garden (where Fay is located). Andrea first spatializes the layout of the building as she announces, “This is the place!” (see **Figure 6**). As she does this, her online interlocutor is led through the place virtually in the role of online “viewer” (Scollon & Scollon, 2003, p. 164).

#### Figure 6

*Fay Affords her Interlocutor a Virtual Tour Using her Mobile Device: “This is The Place!”*



#### Excerpt 5

#### Figure 7a

*Place, Language, Visuals Through Pointing, Facial Expression*



1. F: So there are many book as well.

**Figure 7b**

2. A: There is somewhere you can light a fire.
3. F: Oh. That's lovely! Very British. Charming!

**Figure 7c**

4. A: There is a beautiful head. I don't know if you see.  
(T) (Visual check)
5. F: I can see it. It's a ...  
(I)
6. A: You see it? (Visual comprehension check)
7. F: Um how do you call it? (I)

**Figure 7d**

8. A: I don't know the name.. I don't know how what's the name. (R)
9. F: Horn horn? (I)
10. A: Like the wood. (R)
11. F: Horn. (R)
12. A: Yeah. (RR)

**Figure 7e**

13. F: Like eh. I don't know. And \*how do you say in Eng.. ah deer deer? deer.  
(T)
14. A: Deer? (I)
15. F: Head of deer. (R)
16. A: Ah yeah. (RR)

**Excerpt 5** implies the necessity for the online dyad to establish sufficient intersubjectivity to enter “temporarily shared worlds” (Rommetveit, 1974) enabled by technology use. Access to place therefore enables negotiation from a semiotic but also situated perspective, allowing both learners to remain in separate locations but to collaborate in “withs.” As Scollon and Scollon (2003) note, “Every utterance places us in some implied grouping (...) at the same time as it places the rest of the world either to be included in that grouping or to be excluded from it” (p. 45). It is notable that embodiment is foregrounded by the learner on the left (Fay) with Andrea (learner on the right) utilizing her camera and screen to convey a visual representation of her place as she walks. Andrea does not follow the task instructions, instead



panning her camera around the place in one sweep as she “customizes” the task design (Viberg et al., 2021; Figures 7a, 7b, 7c, & 7d). In turn 4, “negotiation of lexis” (Yanguas, 2010) is triggered, although this occurs due to a visual rather than verbal prompt. For example, Andrea draws her interlocutor’s attention to a hunting trophy situated on the wall. This results in an opportunity to negotiate over this artifact: “Um how do you call it?” and then “how do you say...?”. The use of iconic gesture in this excerpt (Figure 7e) “allows the learner to embody salient physical referential properties of the lexical item, before transferring the referential information to the verbal mode, to produce a semiotically rich description” (Cohen & Wigham, 2018, p. 448).

## Discussion

This study examined how learner dyads within an ESL context were afforded rich possibilities to interact multimodally from places such as cafés, restaurants, gardens, and historical buildings through the concept of *public semiotic resources*. The approach to the speaking task offered online dyads opportunities to co-deploy distinct, yet interrelated, semiotic resources to engage with negotiation of meaning (Varonis & Gass, 1985) from a perspective rarely considered. Findings in this study corroborate the suggestion that online learners negotiate for meaning multimodally (Canals, 2021; Hampel & Stickler, 2012; Knight et al., 2018) and that L2 language use outside the classroom via mobiles involves “assemblages” of resources (Hellermann & Thorne, 2022). Through a focus on the *interaction order*, it was possible to elucidate the role of embodied resources. Findings identify how iconic gestures are important in triggering negotiation and support task goals (Excerpt 2 in Appendix E), furnishing an extra layer of meaning to spoken language (Excerpt 3), and enabling “semiotic word search” (Excerpt 5; Cohen & Wigham, 2018). Our findings also highlight how iconic gestures reinforce linguistic meaning-making (Canals, 2021), although to what extent this process allows learners to multimodally bypass communicative difficulty to ensure that input is comprehensible is worthy of further investigation. The face is also deployed as a resource to indicate *non-understanding* (van der Zwaard & Bannink, 2014) but also *resolution* (Excerpt 3) with different embodied resources foregrounded due to positioning of the device and camera in relationship to the learner’s body or surroundings. Furthermore, the task design prompted learners to point with the technology to negotiate (Excerpt 4) in a manner not evidenced in findings from studies in multimodal DVC.

In our findings, a multiperspectivist lens allowed for identification of embodied but also visual and place-based resources in terms of how these play a role in fostering negotiation from outside the classroom (see transcript in Appendix E). Scollon and Scollon (2003, p. 214) conclude that “place” is pervasive: that is, “anything in the built environment which contributes to meaning” offered considerable analytic possibilities, created through deployment of both *visual semiotics* (Excerpt 4) and *place semiotics* (Excerpt 5). These multiple perspectives included a methodological route to systematize how dyads operating in MVC are faced with the necessity to co-ordinate and negotiate the meaning of place though adopting the roles of “image-maker” and “viewer” (Kress, 2003) when communication breaks down (Figure 5). Learners also established “shared worlds” (Rommetveit, 1974) to allow an online interlocutor into their material place in order to negotiate (Excerpt 5). The mobility of device and learner (Pegrum, 2019) in this context resulted in multimodal patterns of negotiation which are not evidenced when learners are seated at fixed computers, rather than, for example, moving around a restaurant table or stately home.

Findings in this study indicate that public semiotic resources can be exploited to foster negotiation across mobiles from outside the classroom, with task design seen as an important component but with scope for learners to reinterpret the task and to also communicate via non-negotiation (see Appendix D). Through adopting a multiperspectivist research lens (Scollon & Scollon, 2003), the findings of this paper identify the complex and multifarious ways in which learners’ use of embodied resources and public semiotic resources co-occur in relationship to the affordances and constraints of videoconferencing technologies, yet adhere to linguistic patterns associated with “negotiation of meaning” (Varonis & Gass, 1985). The posited approach to multimodal transcription and analysis was designed to systematize interactionist data from a multimodal mobile environment for theoretical and pedagogic purposes. The geosemiotic approach allowed

for the researchers to ascertain how L2 linguistic features within negotiation operate in constant interplay with embodied resources such as gesture and facial expression but also buildings and artifacts. The theorization of a mobile learning environment through the lens of geosemiotics suggests benefits for language learners when their multimodal communication breaks down. For example, findings based on negotiation of meaning resulting from multiple modality non-understanding in the present study can be contrasted with theoretical approaches and findings based on “social presence” (Satar, 2015). The learners’ willingness to engage in further interaction (and how multimodal resources facilitate meaning making) create opportunities for language use from a socio-constructivist perspective.

## Conclusions

This paper contributes to multimodal research by showing how with the help of mobiles and videoconferencing technologies, language learners can use environments rich in semiotic resources outside the classroom. The study differs from previous ones in that its focus is on multimodality “on the move,” thus providing an important contribution to an emergent field within multimodality both in terms of methodology and pedagogy. The limitations of the present study include an exploratory design, a wide diversity of nationalities, a single task, and a relatively small cohort of mainly female learners who had volunteered to take part. We would like to acknowledge the participants’ spirit of adventure in taking up the challenge to complete tasks from outside the classroom. Findings in the study highlight the potential for learning within informal or public environments outside the classroom as a basis for pedagogic task design. Teachers considering designing speaking tasks supported by mobiles, and their place-based contexts of use, might consider a semiotic approach as a potential way to extend communicative opportunities for learners to use language in multimodal, mobile, and situated ways. In choosing to position the current study within the paradigm of “rewilding” (Thorne et al., 2021), the exploratory approach to task design was considered a hybrid of pedagogic direction and informality in terms of place. The approach to mobile design therefore included pedagogic materials where the researcher/teacher indirectly guided learners to avail of the semiotic resources within a particular place, through highlighting these with the aim to stimulate negotiation of meaning whilst allowing for a degree of freedom and improvisation.

## Future Studies

A future study could focus on how geosemiotics might be integrated into a larger curriculum with a focus on the role of support from the teacher and the implications for them in integrating multimodal classroom practices with the design and implementation of tasks outside the classroom. The current study centered on negotiation within a speaking task focused on meaning, with the scope for more data to be collected and analysed from qualitative and/or quantitative approach in the future. Furthermore, the analytic system outlined in this paper could be further expanded and refined. It would also be relevant to find out how established theories such as “noticing” (Schmidt, 1990) and attention to form operate when observed through a geosemiotic lens.

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## Appendix A. Example Task Instructions



1

2

3

4

### PART ONE: Task instructions

- You hold some important information which you will use to help guide your partner to find four objects in her location via Skype. Describe each object from the pictures above and encourage your partner to ask questions to find out where they are located. The map is of the space and shows the location of the objects (1, 2, 3 & 4).
- When your partner points on Skype check together that each object matches each of the pictures.
- Discuss the objects together. Ask your partner to read more about the objects in the museum and tell you three interesting facts. You can google some more information about objects 2 and 3 together.
- You are located in a Turkish restaurant to complete the speaking task on your mobile device. Please go ahead and order your favourite dish which you told me was 'Shakshouka.' Enjoy!

PART TWO: Now you can go to the museum café and order some food and drink to relax and continue the task.

- Image 1 is a famous Turkish dish. Describe the picture to your partner and ask them to point to the dish on Skype and describe how to make it. What is the dish called?

## Appendix B. Example from Angela's Stimulated Recall Interview

Example from Angela's stimulated recall interview, based on her use of the mobile device and camera within negotiation shown in Excerpt 4.

**Can you remember what you are doing with the mobile device and camera here?**

I remember I'm exciting, I'm exciting ... I'm very excited. Actually I would love to share some of my culture, food and places with someone. I miss some of my old culture. I feel like she really wants to come here because I pointed and she asked lots of questions ... I want to explain what is the food and how they make it. I talked English and I speak spoke English and I used my culture with English. Actually it's a really good method because if someone's talking from a different place and eh told me something and after I remember because I'm living it at the same time. I remember I took the tablet but now I see that it didn't work but I'm thinking I'm pointing at the correct food. It's very difficult because it's difficult to talk and watch on the screen and the food is all over the table. I moved the camera a lot a lot and I did not understand. So she can tell me to move the camera and then I understand why but I say the dish before so maybe it's too late...

## Appendix C. Example of Non-negotiated Data From the Speaking Tasks

L: I'm from Switzerland the French part. From Lausanne near to Geneva.

P: Geneva yeah I heard of. So I was thinking of looking at the menu here. It's really interesting I think. Maybe we can compare the menu? They have a lot of kinds of sandwiches and starters. Different kinds of fries. French fries. Chips and different sauces and everything. It's nice. Do you have a menu with you?

L: No I have to find a menu maybe. Maybe I have to go downstairs. Let me check. It's this way. I can show you the café but I think this is not the task but we can practice. Can you hear me? Because the menu is on the wall so I can show you the menu. In my place it's a coffee place. There is a lot of coffee and yes like espresso, macchiato and a lot of beautiful and delicious cakes. Can you see? Kind of cookies, nice cake.

P: Yeah it's nice.



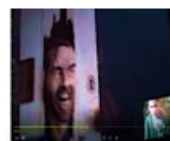
### Appendix D. Excerpt of Analytic Transcripts Using ELAN

The screenshot displays the ELAN software interface with a multi-layered transcript. At the top, there is a control bar with playback buttons (stop, play, fast forward, fast reverse, next, previous) and checkboxes for 'Selection Mode' and 'Loop Mode'. Below this is a timeline with time markers from 00:00:00.000 to 00:00:13.000. The transcript layers include:

- F1 speech**: Contains the text 'Where are yo', 'SITting', 'It LLooks like a library you know', 'is it?', 'laughs', 'Library', 'It LLooks like a Library', 'How you're sitting', 'eh'.
- A1 speech**: Contains the text 'sorry?'.
- F1 gesture**: Contains annotations like 'Iconic: 2', 'Iconic: RH', 'Deictic/Iconic2', 'Deictic: RH X 2', 'Deictic: R', 'B:RH', 'B: RH', 'B: RH', and 'Iconic s'.
- A1 gesture**: (Empty layer)
- Place**: Contains the text 'Iconic 2= circular library space. Iconic RH= same', 'Iconic 2= Forward path then circular. Ref: books', 'Gestures modified: path right to left on key words.', and 'Attempt'.
- I negotiation mod**: Contains 'TRIGGER IN SPEECH & GESTURE', 'RESPONSE IN SPEECH & GESTURE: BOTH MODIFI', and 'RESPO'.
- A1 negotiation**: Contains 'INDICATOR: SPEECH'.
- Visual**: (Empty layer)

## Appendix E. Full Transcript of Excerpt 2

2. L: The face? (I)
  3. P: Yeah, it's \*a (R)
  4. L: It's a man? (I)
  5. P: Yeah it's a \*place around you I think. Maybe downstairs?
  6. L: Could be downstairs. So ok. Just ask. It's a face of a man. He goes outside of the the wall. It's near to the door? (I)
  7. P: Maybe downstairs. (TAR)
  8. L: Could be downstairs.
  9. P: Yeah. (R)
  10. L: So ok. Just ask. It's a face of a man? (I)
  11. P: Yeah. (R)
  12. L: He goes outside of the wall? (I)
  13. P: Yeah. (R)
  14. L: It's near to the door?
  15. It's a scene of a movie actually. I don't know if you know this movie of Stanley Kubrick. I don't I don't think so but it's easy to find. I think it's a \*man that is getting through the door you know. The \*face. (TAR)
  16. L: Ok. So I have to walk and find the place? (Clarifying task instructions)
  17. P: Yeah. Maybe you're going to find it downstairs. (TAR)
  18. L: Ok. So you told me it's near to one door or not? (I)
  19. P: I think it's in the \*wall. (TAR)
  20. L: Ah ah ok, I think I've got it. It's ok. It's ok. I have it. I got it (RR)
  21. P: You can see? (Visual comprehension check)
  22. L: I got it. Yes. I have to show you. Maybe this one. I don't know if it's your picture? (Clarifying task goal)
  23. P: Yes. Try to show me. Yeah. (Confirming task goal)
  24. L: Ah wait.
  25. P: Yeah. I can see it. I can see it. Do you know who the actor is?
  26. L: I don't know the name of the actor. I don't know. You know the name?
  27. P: No. Do you know which film that?
  28. L: No no. I don't have a good knowledge of film. I really don't know. Sorry.
  29. P: I know there is. I don't know the name of the film of Stanley Kubrick the director.
  30. L: OK. OK.
  31. P: But it's famous. I can google it maybe (Attempt to sustain negotiation via Google search) (T)
- [32 - 47]



\*Indicates the point where the learner gestures with speech

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