1. Introduction

Carrying out navigational acts, understood as learners' intentional actions for navigational purposes, such as clicking a screen-based navigational resource, can form part of how language learners exercise their agency because they can make choices and act on these choices in online tasks. Navigation can be defined as “the process of determining and maintaining a course or trajectory from one place to another” (Gallistel, 1990, p. 35). The ability to maintain a trajectory is a core component of the process involved in approaching a destination (Ferretti, Adornetti, Cosentino, & Marini, 2013) and goal achievement. Therefore, navigation implies learners making choices about how to achieve particular goals and learners' actions based on those choices are needed in order to maintain the trajectory for goal achievement, understood as task completion. To maintain a trajectory, learners also need to control navigational possibilities. Learners’ choices and intentional actions not

only can shape task outcomes (Knight, Barberà, & Appel, 2017) but also conceivably offer ways for learners to shape the task process as well as the non-verbal meaning that may emerge from this scenario.

Parallel to this scenario is the fact that digital tools that facilitate computer-mediated communication (henceforth CMC) are expanding in range and complexity. For example, through tools such as Skype, Google Hangout and Webbex, learners may communicate through audio, video and/or text whilst also carrying out navigational acts (e.g. click on a hyperlink or screen-based navigational resource that moves the task on in some way). This scenario conceivably reflects an "ever expanding semiotic budget" (Blin & Jalkanen, 2014, p. 150) whereby learners can be 'semiotic initiators and responders' (Coffin & Donohue, 2014) not only with language as a semiotic resource but also with navigational screen-based resources (e.g. a button for accepting an invite from another participant to connect).

Navigational screen-based resources, when considered as forming part of all the semiotic resources learners have at their disposal during a task, may have what van Leeuwen calls 'meaning potential' Van Leeuwen (2004, p.3). However, their meaning potential realised through learners' choices and related actions and their effect on spoken interaction, have received little attention in Second Language Acquisition research (henceforth SLA). Whilst a dominant conceptualisation of meaning making during task processes has been studied through the notion of 'negotiation for meaning' (henceforth NfM) some argue that the term is problematic because of its dominance and narrow focus that has led to an omission of other understandings (Block, 2003). Furthermore, the term 'Negotiation for Meaning' has been applied to purely verbal meaning making over non-verbal, highlighting 'the lingual bias' (Block, 2013) in the field. However, the presence of navigational screen-based resources in tasks and the acts that learners can carry out using them can be another way in which learners might negotiate meaning. For example, a navigational resource may be designed to move learners forward but learners may use it to go backwards and therefore resignify its original purpose/meaning.

In this study, we seek to explore non-verbal meaning negotiation that pertains to navigational acts. In order to advance our understanding of non-verbal meaning making and to gain insight into how navigational acts may also be shaping spoken interaction in online language learning environments, we use a multimodal perspective. This perspective has the aim of encompassing some of the complexity of all the layers and modes involved in meaning creation (Calvo-Ferrer, Melchor-Couto, & Jauregui, 2016). It signals a shift away from a purely linguistic approach to meaning making. Greater insight into screen-based navigational resources as having meaning making potential and their relationship with online spoken interaction may inform future task and/or tool design for task-based synchronous CMC (henceforth SCMC) whereby navigational screen-based resources play a prominent role in learners' experience(s).

Throughout the paper we use the term 'navigational resources' in place of 'screen-based navigational resources' for the sake of expediency.

2. Theoretical framework

2.1. Learner agency, computer-assisted language learning and tasks

Without learner agency, navigation cannot take place as part of the mediation process. Agency is understood in this study as "the capability of individual human beings to make choices and act on these choices in a way that makes a difference in their lives" (Martin, 2004, p. 135) and is used over the more common definition "the socioculturally mediated capacity to act" (Ahearn, 2001, p.112). However, many agree that an individual's capacity to act is socioculturally, contextually and interpersonally mediated (Mercer, 2011).

Whilst a few studies have focused on agency and tasks involving speech (e.g. Novick & Sutton, 1997; Van Lier, 2008), more recently Knight et al. (2017) identified types of agency in online speaking tasks. One type, related to navigational choices and acts, is named 'directional agency'. Directional agency is described as being physical in nature, but also implies a spoken or written aspect accompanying or preceding it, necessary for decision-making. It involves choices and physical moves to navigate (e.g. with a button or hyperlink) using technological features (Knight et al., 2017). Learners' use of directional agency was found to affect both time interacting in the target language (henceforth TL) and whether spoken interaction was recursive or not (Knight et al., 2017).

2.2. Navigation and CALL

Navigation has been studied in CALL in relation to navigating hypermedia (visual/musical/animation elements) and/or hypertext (textual) in Intelligent CALL systems and tools. Heift (2002) identified three different personas within an ICALL system, namely 'browsers', 'peekers', and 'adamants', which were reflected in navigational patterns. Results suggested that language proficiency and the amount of control the learner could exert in an instructional situation needed to be considered. Navigation as a design consideration has also been a focus for ICALL (e.g. Amaral & Meurers, 2011; Virvou & Tsiriga, 2001). Virvou and Tsiriga's (2001) study on adaptive navigation support found that due to extra navigational freedom they provide, hyper-documents imposed greater cognitive loads on users compared to linear documents.

The integration of navigational resources in tasks is one way in which learners can be 'scaffolded', namely the steps taken to reduce the degrees of freedom in carrying out some tasks so that learners can concentrate on the difficult skill they have in the process of acquiring (Bruner, 1978). Whilst, 'scaffolding' in SLA has been considered with respect to language learning (e.g.

Gibbons, 2002) the scaffolding of tool-use is also a research area. Studies in virtual environments such as Second Life have also discussed navigation (including proxemic acts) but these are not explored because of the scope and limitations of this paper.

In CMC tasks, navigation can also occur using hypermedia synchronously whilst communicating. Hypermedia can support individual navigation within and across sites and be used in a shared way (Riva, 2001). Shared hypermedia or SHY tools allow learners to communicate whilst synchronously browsing. In the field of CMC very few studies have focused on navigation and the relationship with speaking, possibly because many tools for spoken interaction have not all had hypermedia possibilities or navigational possibilities are not incorporated in task design. However, Blake (2016) notes that with CMC exchanges the computer and the screen mediate the entire communication experience and highlights studies that have warned that the interface profoundly affects conversational dynamics. Because navigation can be carried out through hypermedia and hypertext on interface pages, it can be a task and tool design consideration.

In CMC, speaking is one of the most important skills that engages language teachers and students (Mahdi, 2014). However, studies on audioconferencing and videoconferencing for speaking skills (see Blake, 2016 for overview) have not primarily focused on navigational aspects.

However, Levy and Kennedy (2004) study highlighted the affordances of an audio-conferencing tool (with real-time audio and video, text-based chat, document sharing and whiteboard graphics exchange) that facilitated the ability for two learners to browse through web sites and see the same on-screen material as they talked about it. Appel, Robbins, Moré, and Mullen (2012) focused on how navigational features of a task might guide the conversation and act as a 'scaffold' influencing the use of the TL for task completion. Results of learners using three versions of the interface (HTML version, Tandem with buttons and Tandem without confirmation buttons) revealed that learners reported feeling more nervous with the Tandem, while the HTML version allowed learners to prepare beforehand, leading to less naturalness and spontaneous talk.

In a telecollaboration learning project to develop speaking amongst other skills, Guth and Helm (2011) outlined three tasks using Skype for speaking (and textchat) alongside other web-based sources such as images, video, dictionaries and translation services to support discussion. In some tasks, learners switched from the Skype window to an internet browser or kept other tools open at the same time e.g. wikis (implying navigation). In the first session, learners spent a lot of time becoming familiar with the technology with some students reportedly feeling anxious about it.

2.3. Semiotic mediation, navigational screen-based resources and spoken interaction

The notion of 'semiotic resources' or 'tools' (Vygotsky, 1981) is a way of understanding how learning is mediated through the use of printed materials, physical environment, gestures and classroom discourse (Lantolf, 2000). In online tasks, navigational resources can form a part of an "ever expanding semiotic budget" (Blin & Jalkanen, 2014, p. 140) but they can also be a means whereby learners control their screen-based resources e.g. navigating between interface pages or minimising browser windows.

A number of studies on CMC for spoken interaction have highlighted how clicking various screen-based resources can form part of the accomplished interaction. Lamy (2012) found that in audiographic conferencing, a user may close a conversation by typing 'bye for now', by clicking a specific button, or withdrawing orally (Lamy, 2012) and proposes that clicking a resource that means 'temporarily away' is likely to influence the direction of the conversation differently compared to disconnecting altogether. Liddicoat (2010) found that in an opening videoconferencing exchange, the securement of a non-present co-participant for the conversation was achieved by the initiator through the technology: a message via the computer (screen). According to Liddicoat (2010), this sequence resembled summons-answers sequences. Furthermore, whilst learners were establishing a channel, learners orientated to the technological interface in their talk, rather than to personal interaction with their peer before moving to the first topic. In a synchronous CMC scenario both Cunningham, Fägersten, and Holmsten (2010) and Fägersten, Holmsten, and Cunningham (2010) identified meta-modal discourse pertaining to the screen-based resources of a seminar tool involving video, whiteboard facilty and textchat. The meta-modal communication occurred in the form of students trying to help other participants with the technology (the pointer function, text box) (Cunningham et al., 2010). Fägersten et al. (2010) found that the metamodal discourse helped interactants navigate the medium. Learners' overt attendance to (screen-based) communication modes was considered part of video-conferencing, serving to initiate repairwork and facilitate the progression of communication. Knight and Barberà's (2016) study of peer-to-peer spoken interaction tasks using an audioconferencing tool found that learners were multi-tasking as they interacted with different screen-based resources. Oral negotiation of meaning was not limited to the pedagogical task. Focis included co-ordinating navigational resources, which learners acted upon and which shaped how and what was negotiated. However, the extent to which this ocurred depended on if and how dyads followed the route/sequence of the task design. Some dyads had created their own route or 'lines of desire': an architectural term that can be applied to technology that highlight the paths people make, which are often shortcuts that ignore the given route (Luckin & Du Boulay, 2003).

2.4. Negotiating meaning, online speaking tasks and multimodality

In SLA, semiotic mediation from a sociocultural perspective has predominantly focused on the use of spoken or written language to mediate meaning making and language learning. However, the term 'negotiation for meaning' (henceforth NfM) from a cognitivist perspective has stemmed from research that seeks to determine which task variables have a positive effect on quantity of meaning negotiation through turn-taking (Foster & Ohta, 2005), with a focus on communication breakdowns

(from Varonis & Gass, 1985). Some studies have used the term 'negotiation of meaning' but maintain the same construct as NfM (Block, 2003). Typical pedagogical tasks (e.g. Information gap or role-plays) from a cognitivist perspective have been considered as cognitive devices (Ellis, 2000) that can elicit the most amount of turns. Despite the different conceptualisations of the term 'negotiation for meaning' (NfM), Block (2003) highlights how the dominant construct of NfM from mainstream cognitivist perspectives has meant that other interpretations have been omitted such as 'negotiation of solidarity and support' (Foster, 1998) and 'negotiation of face' (Davies, 2000). This study conceptualises meaning negotiation as the act of exchanging information between peers (or negotiation for meaning) *and* for different purposes (or negotiation of meaning) following Knight and Barberà (2016). An example of this can be seen in Guth and Helm's (2011) study of a CMC task where learners orally negotiate roles, deadlines and a mode of communication (of meaning) using oral turns (for meaning).

Few studies on task and non-task based language learning scenarios using SCMC have highlighted external semiotic resources as screen-based, non-embodied modes (not pertaining to humans such as gaze). Regarding audioconferencing, which is the focus of this current study, Collentine (2009) highlighted learners' need to click for screen-based navigation, images of characters and text-based questions and answers on the screen. Lamy (2006; 2012) highlighted natural language (spoken and written) as well as visual resources (icons, images, colours and shapes) and Knight and Barberà (2016) noted a photo, text and navigational screen-based resources. Balaman and Sert's (2017) study on two different task types highlighted the video clips on the screen whereby learners could type answers, click on answer buttons and receive correct answers while conversing with their partner. Hampel and Stickler (2012) in a videoconferencing event, identified communication modes as linguistic (spoken and written) alongside visual such as icons (vote buttons yes/no/? and emoticons). Liddicoat (2010), in a non-language learning, videoconferencing scenario identified that learners needed to 'invite' and 'accept' each other technologically through clicking a screen-based resource before participants could orally converse.

The studies outlined above are primarily focused on verbal meaning making so now we turn to how potential non-verbal meaning making in tasks may be understood through a multimodal perspective.

'Negotiation of Meaning' is also a term used by Wenger as part of Communities of Social Practice Theory (Lave & Wenger, 1991). Wenger (1998) describes 'negotiation of meaning' as how we experience the world and our engagement in social processes as meaningful. Participation is an element in the negotiation process that requires active involvement by learners. If all change involves a process of learning, then effective change processes consciously facilitate negotiation of meaning (Wenger, 1998). Learners can engage in legitimate peripheral participation (a viewpoint that makes a fundamental distinction between learning to become part of the community of practice vs intentional instruction). Mediation with tools during participation is imbued with potential meaning not only with regard to what participants learn and do not learn but also what it comes to mean for them (Wenger, 1998). Activities (or tasks) therefore, involving cultural artifacts (technological tools) can 'pass on social inheritance' (Jenlink & Jenlink, 2007, p. 381). From this perspective, learners as participants can engage in the process of *learning to be* and thereby construct an identity commensurate with the community of practice (Jenlink & Jenlink, 2007).

A way of understanding and exploring mediated action involving tool-use can be through notions from multimodal (inter) actional analysis (Norris, 2004). In multimodal (inter)actional analysis, different levels of social (mediated) action is a core notion. Higher-level actions and lower-level actions deal with different levels of interaction. Higher-level action is used to refer to large-scale actions, such as a meeting, and is made up of 'multiplicity of chained lower-level actions' (Norris, 2004, p. 13). Lower-level action refers to smaller-scale actions, for example, gestures or gaze shifts that become 'chains of lower-level interactions' (Norris, 2004, p. 13). Lower-level actions support the achievement of the higher-level action.

3. General objectives

The study aims to understand how meaning is negotiated non-verbally with the navigational screen-based resources in an online task and how that meaning negotiation shapes spoken interaction. These are the research questions:

1. How is meaning made non-verbally with the navigational screen-based resources in an online task?
2. How does the meaning making shape spoken interaction?

4. Method

4.1. Participants

The participants were adult students in an English as a Foreign Language class as part of their degree programme at a 100% virtual university. The learners stem from two data sets: the first were in a B2.1 level class on the CEFR (upper intermediate) group and engaged in two virtual synchronous peer-peer speaking tasks, one after the other. These were eight participants in the form of four dyads. The second data set were in a level B1.1 class and were engaged in one task with formed by two tasks within it. These were twelve participants also in the form of six dyads, resulting in ten cases in total. Students were bilingual (Catalan and Spanish) with English as an additional language.

4.2. Context

The participants across the three tasks are presented with various screen-based resources on the interface pages including text and navigational buttons/resources, with a photo in the first tasks and a timer and pop-ups in the second task. The pages are part of the Tandem tool http://www.speakapps.eu/#tandem that facilitates audioconferencing and can distribute different or same materials to different students who are engaged in synchronous spoken interaction tasks.

The first data set was taken from a previous study by Appel et al. (2012) in order to explore how different navigation features influenced learning strategies and TL use in tasks. The sampling rationale was to select dyads that demonstrated 'good' performance and followed task design and those who approached the task differently to task design. A result from this study was that only one out of the four cases, based on this criteria, mentioned the navigational features explicitly and consistently in their talk. Because of the various foci of learners' talk that appeared to take place in relation to the screen, a further study took place (from another classroom, another task type, language level and teacher) to understand how personal and joint meaning making was being carried out across the three tasks using the same tool (Knight & Barberà, 2016). Knight and Barberà (2016) compared the first data set (info gap and opinion sharing) with a second data set (role-play). There was one interface version (Tandem with navigational buttons) with cases from the second set whereas cases from the first data set had two versions (html or Tandem with navigational buttons) because of the nature of Appel et al.'s (2012) study.

Based on the results from the first data set as an exploratory study, the second data set used the same sampling rationale, whereby cases were selected that followed task design and those who appeared to approach the task differently. Specifically, the rationale for case selection were based on findings that learners' relationship with navigational resources affected recursivity of speech, time spent talking in the TL than was designed/expected and that speech could accompany physical moves to navigate (Knight et al., 2017). Therefore, the selection criteria for case selection for the second data set were the indicators of speech recursivity and the presence/absence of navigational resources in the talk. However, the task type (role-play) appeared to force speech recursivity through learners' need to use questions and answers, so we deemed that this was not a reliable indicator. The focus then turned to explicit oral mentions of the screen-based resources, particularly navigational resources.

Regarding the tasks, cases from the first data set had to collaborate to complete two out of four tasks on the topic of 'travelling'. The first was an Information gap task (spot-the-difference) and the second was an opinion-sharing task, which learners had to navigate to after the first task. Learners had four differences to find in a photo. The second task used the same photo, accompanied by an open question: *What kind of activities can people do in a holiday destination like this?* Students received instructions and guidelines and the tasks were compulsory course assignments. There was no time limit.

The second data set consisted of six cases carrying out a role-play task (divided into two parts) in which learners took turns being the interviewer and interviewee. The first part required that one learner ask questions to his/her peer in their given roles whereas the second part required the interviewer to describe two jobs, one of which their partner had to choose. After the first two parts are completed (parts/tasks 1 and 2) the two parts are repeated but the peers change roles (parts/tasks 3 and 4). The task is timed: a timer is present indicating how much time learners have left to do the task and when the time is up, a pop-up (navigational resource) appears. Learners have to click on the pop-up to 'close' before navigating further. Only the first two tasks were analysed, meaning that one student in each case is analysed as interviewer, not both.

4.2.1. Data

The data consists of recorded oral conversations: the first data set with approximately 23 min and the second set with approximately 97 min but of which 53 min was used (before learners exchanged roles). Recordings were captured by learners using a plug-in for Skype, a free video and audio conferencing tool. Task instructions as a document, tool log files and twenty-two screenshots of the interface that appeared during task (according to task design) were also used.

This current study uses a multimodal and discourse analytic approach in order to gain greater insight on how non-verbal meaning making may be occurring. It revisits the first data set and the second data set (which has become part of a wider study on how learners mediate turns verbally and non-verbally in a task by Knight, Dooly, & Barberà (2018)). This is relevant because the procedure of data analysis forms a part of this wider study. Six cases are presented here because while data saturation is considered to have occurred up until case 4, a closer analysis of case 6 added to what was learnt from analysing and choosing the original four cases.

4.3. Procedure

A qualitative case study approach was used and cases were purposively sampled based on the criteria outlined. In the first data set, one case out of four explicitly, consistently mentioned the navigational resources. Following this, in the second data set, the recordings of all dyads from one classroom was listened to and initial notes were made about whether learners explicitly mentioned the navigational resources in their talk and which ones. A list of screen-based resources emerged, including navigational resources (from the learner perspective) and was added to iteratively when learners (interviewee or interviewer) mentioned them. This took the form of using phrases like "we can confirm" or learners' replicating the words on the navigational resource in speech e.g. "next task". Incomplete or unintelligible recordings were disgarded. Whilst listening to all the dyads, we made notes about whether learners mentioned the screen-based resources, including navigational resources and which ones from an emic (learner) perspective. A display table was created revealing learners' trajectories of use

of the screen-based resources. The table allowed us to compare evidence, identify patterns and see where cases converged and diverged. Conversations of cases chosen followed general transcription conventions and were segmented according to what was deemed a meaningful utterance and converted to a text document.

In order to attend to the screen-based resources, including navigational resources, the main researcher also carried out researcher task simulation: once with a colleague for the duration of the task and on a second occasion, alone, to focus on the navigational requirements before the task (e.g to choose the task, to invite peer). Random screenshots of the task were taken during task simulation resulting in twenty-two. This was in order to become familiar with task, minute-by-minute i.e. what, when and how learners should be responding to the screen and compare this with what they were saying in the recordings. Results were triangulated following Yin (2009): comparing evidence from different 1) data sources e.g. tool logs and task instructions (document); 2) perspectives-learner emic perspective and researcher etic perspective plus checks with course co-ordinator and 3) methods -listening and note taking, transcribing, researcher task simulation and task reconstruction through sequencing screenshots. Regarding the Tandem tool logs, 50% were collected from the six cases in the role-play task because during the data collection of the log files the log files disappeared, as they were not available indefinitely. No Tandem logs were available for the first data set because the identification of the phenomenon had not yet occurred during data collection.

Computer Mediated Discourse analytical perspective (henceforth, CMDA) (Herring, 2004) was used to focus on learner talk. In CMDA the general meaning is studied by focusing on the phenomena of the meaning of words, utterances (speech acts), macrosegments and raising issues as to what the speaker intends, what is accomplished through language (Herring, 2004). By tracking learners' general trajectory, we extend the 'meaning' dimension in CMDA to include how meanings may be being made non-verbally and how navigation can shape oral interaction. Notions from multimodal (inter)actional analysis were also used to understand the relationship between navigational resources, agency and tool-use.

5. Results and discussion

The results revealed that learners have different trajectories of use and non-use of the screen-based navigational resources, which builds on the initial findings from Knight and Barberà (2016). Through different navigational trajectories, which was made apparent in learners' consistent, explicit oral mention of (or omission of) the navigational resources, we propose that meaning was made non-verbally in the online tasks and this result pertains to research question 1.

5.1. Navigational trajectories of use as a means for non-verbal meaning making

Table 1 shows the general trajectories of the cases in the role-play task. The ticks indicate explicit oral mention of a navigational resource.

Table 1 shows that cases 1 and 3 (role-play) consistently and explicitly mention the navigational resources. Cases 2, 4, 5 and 6 do not. To compare, we revisit data from the information gap/opinion sharing task as shown in Table 2.

Table 2 shows that case 1 consistently and explicitly mention the navigational resources. Cases 2, 3 and 4 do not. From this, we conclude that some cases allow the tool to sequence/scaffold them during spoken interaction in the TL whereas others do not.

Case 1 (information gap) does not explicitly mention all navigational resources (confirmation 3 is absent) and nor do cases 1 and 3 (role-play). Case 1 (role-play) omits the first two navigational resources (waiting for confirmation and close) and case 3 (role-play) omits the last 'next task'. We conclude that learners that allow the tool to sequence them do not therefore necessarily make all navigational resources explicit everytime they click them. Case 6 (role-play) makes no explicit mention of navigational resources but does mention the time being up ("when the time out we change the roles"). This indicates that case 6 either allowed themselves to be sequenced by the navigational resources but chose to eliminate reference to them while talking or alternatively, chose to time themselves without the screen-based timer. The mention to "time out" is ambiguous as to whether they are referring to the screen-based timer or not. Learners can also start the recording after their partner accepts their invite (as they wait for confirmation) so control of when to record the talk may also eliminate this moment in their recordings. It appears that cases that make consistent, explicit mention of navigational resources across the task(s) are allowing the tool to scaffold them even if there are some absences. However, cases also appear to be able to choose not to mention the navigational resources while being sequenced, although this can not be confirmed for case 6. We propose that the cases' ability to eliminate reference to the navigational recources is due to their familiarity with the resources (and pop-up) before recording their oral exchange and/or not using the screen resources to sequence them while talking.

Furthermore, a learner in case 2 (info gap) says "ok. I confirm the one difference. We have the one difference" which is not a word repeated again throughout the task. This can be explained by learners allowing the navigational resources to sequence them but then choosing to give up. However, this explanation is not reflected in their talk. Another explanation for the reference to the word "confirm" is that case 2 previously allowed themselves to be sequenced (without recording) but carried the word 'confirm' over to their recorded interaction (a lexical item taken originally from the navigational resource).

The navigational resources were designed to scaffold learners in the Information-gap task (submit/look at answers and sequence learners as in Fig. 1) and sequence learners in the role-play task (as shown in Figs. 2 and 3). These navigational resources are shown below.

Table 1
Cases' oral mention of screen-based resources in a role-play task including navigational resources.

	Waiting for confirmation Task 1	Pop-up Time up!/ close button	Next task	Pop-up Time up!/ close button	Interface page 2 'solution page'	Timer	Next task
Case 1	X	X	√ Inter	√ Intee	X	X	√ Intee
Case 2	X	X	X	X	X	X	X
Case 3	√ (before start of task) Inter	√ Inter + Intee	√ Inter	√ Intee	√ Intee	√ Inter	X
Case 4	X	X	X	X	X	X	X
Case 5	X	X	X	X	X	X	X
Case 6	X	X	X	X	X	√ Inter	X

Key:

Pop-up requiring a response to 'close'

'Next Task' navigational resource

***Waiting for confirmation**

Timer
Intee: mentioned by interviewee

Inter: mentioned by interviewer

Following this, we propose that learners negotiate meaning non-verbally through their experience of the trajectory of use/non-use of navigational resources as they mediate with the tool in the process of task completion.

In the role-play task, the Time Up! pop-up in particular, which would have occurred twice during the two tasks, would have surprised learners, yet no reference or utterance of surprise was made by cases 2, 4, 5 and 6. An explanation for why no explicit reference was made is that learners appear to have already familiarised themselves with the resources (implying navigation) and the tool prior to starting the task. It was possible to enter, navigate through and exit the task (as navigational acts) an unlimited amount of times and which is evident in the Tandem logs (role-play). Being able to exit the tool to prepare or script the spoken interaction was a learner behaviour identified by Appel et al. (2012).

The Tandem logs revealed that apart from a general trajectory of allowing the tool to sequence them whilst orally interacting or not, learners also had unique trajectories, highlighted in Fig. 4. Whereas Case 1 and 3 were deemed as generally choosing to be sequenced by the tool the frequency and duration that they entered and exited the tool were different and indicated a more specific, nuanced trajectory. Whereas case 1 (role-play) indicates one entry to the tool, cases 2 and 3 (role-play) indicate many more entries. However, case 2 makes more entries lasting over the 11 min to do tasks 1 and 2 compared to case 3.

Although the logs cannot tell us exactly what learners did once they had entered the tool and we cannot assume they were attending to the task, we do consider entering and exiting as an indicator of intentional tool management made up of smaller navigational acts. What is also notable is that cases 2 and 3 (role-play) managed the tool over a number of days, possibly

Table 2
Cases' oral mention of navigational resources in an information gap followed by opinion-sharing task.

	Confirm	Confirm	Confirm	Confirm	Next task	See solution
Case 1 Tandem with buttons	√	√	X	√	√	√
Case 2 Tandem with buttons	√	X	X	X	X	X
Case 3 html versión	X	X	X	X	X	X
Case 4 html version	X	X	X	X	X	X

Key:

Confirmation button after finding a difference

'Next Task'

See solution (after opinion sharing task)

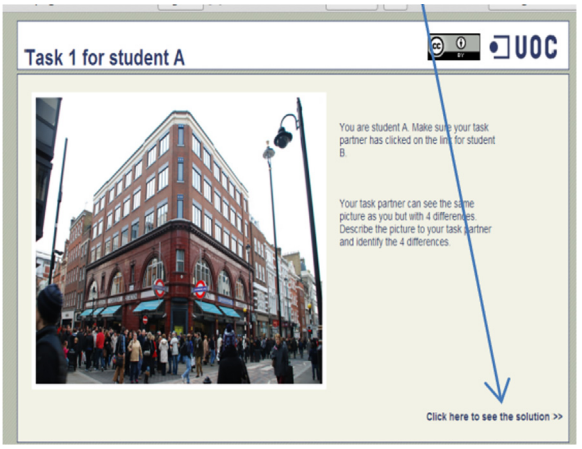

Fig. 1. Navigational resource (Information Gap): Click to see solution.

having a different purpose for each visit. We propose tool (or task) familiarity (Guth & Helm, 2011) as an explanation for numerous visits given that technological tool use can induce anxiety (Appel et al., 2012; Guth & Helm, 2011).

Learners' action/s can be understood both in terms of legitimate periphery participation (Lave & Wenger, 1991) of tool use as well as lower-level and higher-level actions (Norris, 2004). Entering and exiting the tool at different times and over a number of days can be understood as legitimate peripheral participation in the online community. We propose that different behaviours relating to entering and exiting of the tool reflects the means by which learners physically negotiate participation.

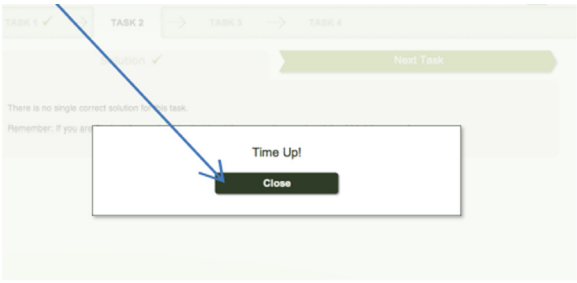

Fig. 2. Navigational resources (Role-Play): Time Up! Pop up/close.

Whilst some cases did not use the tool as designed, all negotiations of participation require 'active involvement and are legitimate' (Lave and Wenger, 1981).

Learners' use of navigational resources can also be understood as lower-level actions which, when combined together, lead to the higher-level action of technological tool management. In terms of meaning making with the navigational resources, learners' responses to navigational invites to 'close' or as an invite to go to the 'next task' can be understood as meaning 'accept' going forward as a completed (computer-human) lower-level action. However, we propose that clicking the same navigational resource going backwards or navigating back and forth overrides the original meaning of the resource as an 'acceptance', and through learners' own navigational sequence, learners re-assign a different meaning to this resource.

Learners appear to have their own 'lines of desire' (Lukin and Du Boulay, 2003) which they carry out using navigational resources. We propose that through non-compliance with the navigational route according to task design, learners negotiate or exhibit a disagreement with it. Tool management appears to be what some cases physically 'negotiate' through their use of navigational resources, before orally negotiating with their peer in the target language.

In order for the cases to complete the pedagogical tasks however, learners needed to have used the navigational resources to access the pedagogical task instructions (text) and thereby entering the tool to get what they needed from the different interface pages. This indicates learner purpose in their navigational acts. Through different trajectories, learners re-purpose the navigational resources: one purpose being to use them to obtain task instructions (using the tool as a kind of repository space) and another as a scaffold to sequence their steps.

Heift's (2002) identification of different personas would be useful to hypothesise that specific learner navigational patterns may resemble the behaviour of 'browsers', 'peekers' or 'adamants'. However, the personas generally related to learners' language proficiency levels, whereas learners in this study are of the same global language level. Proficiency does not explain the different trajectories taken.

Learners alternatively may have found the simultaneous nature of initiating and responding (Coffin & Donohue, 2014) orally and physically, as something that was cognitively problematic (e.g. Virvou & Tsiriga, 2001) as learners had to attend to the technological interface as well as personal interaction (Liddicoat, 2010). Another explanation is that learners were anxious to carry out synchronous interaction using the tool (Appel et al., 2012) given that they were not familiar with using it. Numerous entries into the tool would have afforded learners tool and/or task familiarity and a means whereby learners could scaffold themselves into how to use it.

5.2. *Navigational trajectories and the shaping of spoken interaction*

With respect to how the navigational trajectories, as a means for non-verbal meaning making, shapes spoken interaction, we identify two aspects. The first is the impact on the amount of time learners spend interacting orally in the TL. The second is how it shapes their discourse and these results pertain to research question 2.

With respect to the impact on the amount of time learners spend interacting orally in the TL, Table 3 shows the time required to interact orally in order to complete the role-play task (11 min) and the actual time taken. Results appear to confirm

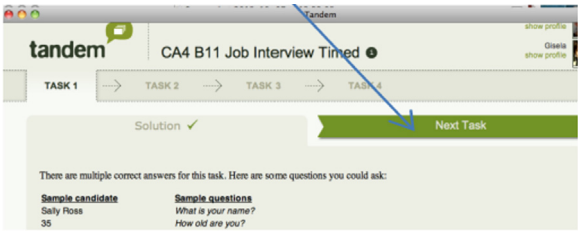

Fig. 3. Navigational resources (Role-Play): Next Task.

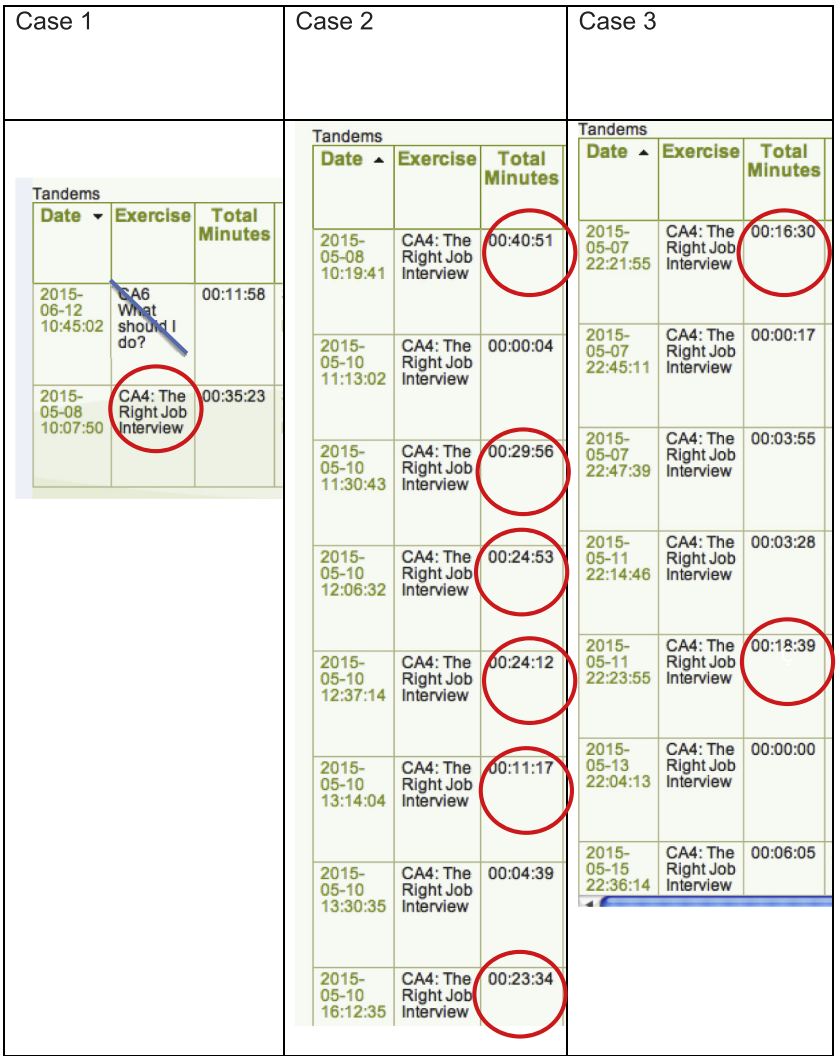

Fig. 4. Tandem tool logs for 'The Right Job' Interview (Role-play).

Table 3
Cases and time on tasks 1 and 2 of the role-play.

Case	Time required to complete tasks 1 and 2 (Role play)	Spoken interaction time taken by cases
Case 1	11 min	14:33
Case 2		8:07
Case 3		11:48
Case 4		3:33
Case 5		6:20
Case 6		9:31

that learners chose either to follow the designed navigational path or not. This echoes Knight et al. (2017) that learners' navigational choices can reduce the time spent interacting orally in the TL.

The second finding relates to how the different trajectories impact on learners' talk and which is also evident in their discourse. Examples 1, 2 and 3 are excerpts from case 1 (Information Gap). In these examples learners believe they have found a difference and use the navigational resources (buttons) to confirm.

Example 1: Case 1 (Info Gap).

M: this can be the first difference?
F: yes
M: ok I confirm then ok let me (mumbling) ok good then I also see …

The negotiation that takes place in example 1 consists of first checking with his/her peer, stating who will be the person to confirm (therefore clicking the button), indicating that he is clicking ("let me" then mumbling) and then returning back to the pedagogical task.

Example 2: Case 1 (Info Gap).

F: ok so maybe this is another difference because I don't see that
M: ok we can confirm that. Waiting for confirmation
F. ok and then …

In example 2, a similar pattern emerges with the word 'confirm' featuring in the discourse (the same word on the resource) followed by an update to his peer or self-talk saying 'waiting for confirmation'.

Example 3: Case 1 (Info Gap).

M: I don't know what's the last difference
F: yeah I don't know because your picture is very small. Now I open
M: Ah the colour of sky
F: oh yeah yeah yeah

In example 3, learners are coming to the end of the task and they are not sure about the last difference. F decides to navigate to 'open' the answers, we hypothesise to finally know the answers based on his delight/relief expressed in 'Ahh … ' followed by details of what the last difference is.

Example 4 is also an excerpt from case 1 taken after they have seen the answers and discussed them. They negotiate navigating to the next task using, again, the exact term 'next task' from the navigational resource.

Example 4: Case 1 (Info Gap- Opinion Sharing).

M: ok. Next task?
F: yes ok what is next task? so now we havto discuss …

Results show that the navigational resources provide learners with a source for meta-modal talk, echoing results by Cunningham et al. (2010) and Fägersten et al. (2010).

In the role-play task, the pop-up is made up of two textual messages: 'Time Up!' and 'Close'. In example 5, the dyads have come to the end of task 1 and the interviewer has asked the questions to the interviewee. The excerpt starts with a response from the interviewee about how much she hopes to earn.

Example 5: Case 3 (Role-play).

L: Oh, well … I have not great aspiration and perhaps a thirty thousand … Euros per year.
A: Okay, perfect! Okay, thank you. I look for the position we have.
A: Okay … well ok. now … **close** no, I suppose … ?
L: I suppose too, I **close** it …
A: Well here are the **questions** and the **answers** … We go to the **next task** … ?
L: Sorry?
A: We go to the **next task**?
L: Okay, huh … But the computer say me that the **time is up**.
A: Ah, yes.

Following task design, learners would have been at the point in the task where the time to complete the task is now up (11 min). This is indicated by a timer on the screen changing to red, followed by a pop-up when time has run out. The pop-up enters the discourse, shaping the interaction by becoming a topic of talk. Learners need to attend to the pop-up (visually/textually) as well as physically through clicking the resource (somatically). In this way, meaning appears to be made verbally and non-verbally: multimodally. After closing the button (indicated by "I close it"), the learners negotiate further navigation to Task 2 using the 'Next Task' resource. The words 'next task' becomes part of the utterance.

Another example of how the navigational resources shape the talk is shown in example 6 from case 1 (role-play) where the learners are coming to the end of Task 2 and the interviewee is clarifying some aspects of the two jobs.

Example 6: Case 1 (Role-play).

L: Okay, well …
S: Do you prefer?
L: Yes, I think I prefer the second job. **Time up!** Ok, well I prefer the second job but I don't know if I can choice that because I don't have the experiences in industries but for me it's better, okay?
S: Okay good, thank you very much for your time, it's a pleasure er meeting you today (sound interference).

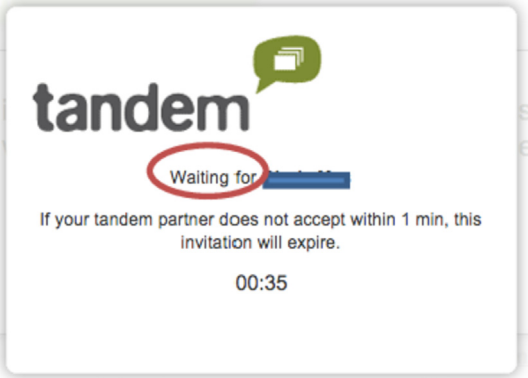

Fig. 5. Pop-up after 'inviting' partner technologically.

After the interviewee declares "Yes, I prefer the second job", she/he follows with "Time Up! Ok" and continues in the same turn with why she/he prefers the second job. The pop-up interrupts the learner's turn and the learner allows it to become part of his/her utterance but not a topic of talk. Its meaning is not jointly negotiated orally but is negotiated individually verbally (to self) and non-verbally by activating (textual/visual) recognition of it.

Example 7 from case 3 (role-play) is an excerpt from the very beginning of the recording. The learner utters the phrase 'I'm waiting' after 18 s.

Example 7: Case 3 (Role-play).
SILENCE.

L: (after 18 s) Mhu
A: *Unintelligible* (PAUSE). **I'm waiting.** (PAUSE)
L: Well
A: Okay, (PAUSE) A or two?
L: (PAUSE) I have to answer your questions.
A: Okay, perfect.

After inviting the partner in the opening of the conversation, following task design a pop-up appears that says 'waiting' as shown in Fig. 5.

We hypothesise that the learner's utterance may have been influenced by the text "waiting" on the pop up, as in previous examples. Because a technological response to the technological 'invite' has not been secured we propose that the utterance is either a form of self-talk as learners encounter text, "muttering the words to himself" (Raudaskoski, 1999, p. 115) or as a means of updating the teacher of task progression.

An analysis of the discourse reveals a number of things. The first is that navigational acts are sometimes negotiated orally between learners so that they become part of their discourse, confirming results found by Knight and Barberà (2016); Cunningham et al. (2010) and Fägersten et al. (2010). The exact text on the navigational resources often became embedded in learners' talk. However, this joint negotiation was consistently absent in cases that did not allow the tool to sequence their steps. The examples also highlight that multimodal communication is taking place both through the screen and with navigational resources on the screen suggesting that meaning making is taking place with two sources of mediational means, namely the screen and their partner and with two main orientations, namely towards their partner and towards the screen. We propose that this scenario represents a multi-party 'encounter' (Raudaskoski, 1999) not solely a conversation with their peer. Learners also individually take turns with navigational resources (e.g. 'accepting' the computer's 'invites') as found by Liddicoat (2010).

Some cases negotiate meaning orally for pedagogical task completion and orally pertaining to navigational acts, as a form of meta-modal talk. Furthermore, we propose that learners are physically negotiating with navigational resources regarding what to do with specific navigational resources (e.g. next task button) and the tool more generally.

6. Conclusions

We have sought to shed light on the non-verbal meaning making pertaining to navigational resources and gain insight as to how they might shape spoken interaction. We have employed a multimodal perspective in order to focus on meaning making and how that is negotiated in a CMC task with navigational resources. Results show that learner-learner oral turns and turn-taking (NfM) is the means for negotiating task content but we also identify that learners physically negotiate with

navigational resources. That is to say, learners negotiate their tool-mediated goal-directed action(s) physically through trajectories of tool-use: what learners can/want to do and can not/do not want to do with navigational resources and ultimately the technological tool. This physical negotiation highlights the potential meaning(s) that may be emerging from learners' experience of the navigational resources and the tool. These are not given meanings, but rather negotiated which can also be understood as participation in a community of practice. The application of the notion of lower and higher-level action has given insight into the carrying out of intentional navigational acts as a type of agency, and the means by which learners manage the tool. Learners negotiate how the tool is used and not used (higher level) through the navigational resources (lower level) and as a result, we propose, so are the (higher level) meaning/s that learners may draw from this process. By re-purposing the resources (from sequencing their behaviour to being the means of obtaining what they need) learners reconfigure their roles from tool users to tool managers. We propose that learners are participants engaging in the process of *learning to be* and through the somatic mode of human touch (with the screen) they can negotiate an identity. That is to say, make personal meaning as to who they *are* commensurate with the community of practice. Tool-use may even be considered 'a contested site'.

Furthermore, navigational acts can be considered as being a non-verbal way of making meaning that shapes spoken interaction. Navigational acts can form part of the meta-modal discourse. They can also effect the time spent talking in the TL and by implication, the amount of oral turns learners take, which is important for SLA research focused on NfM.

The conclusions drawn from the results also have implications for task design and online language learning aimed at developing spoken interaction skills. This study has focused on navigational resources as mediational tools, however as suggested by Wallace (1999) and echoed by Heift (2002), "the most important mediator of human behaviour in internet environments is the purpose of the people who visit or inhabit them" (p. 5). Indeed, learners' higher-level purpose/s for tool use seems to emerge in this study as an important design consideration. Therefore, if learners are using/controlling the tool in ways which do not harness the tool's affordance for a specific pedagogical purpose (in this case synchronous, spontaneous spoken interaction for language learning), then in addition to considering adaptations to the lower-level navigational resources, task/tool design may focus on the higher level action of how learners manage the tool. For example, learner training on how learners can use the tool for different purposes (e.g. planned/scripted spoken interaction vs spontaneous spoken interaction) and the different language learning benefits of each (e.g. less time in the TL vs more time in the TL/focus on accuracy vs focus on fluency). The tool design purpose may also need to be rethought in the light of how learners actually use it rather than how it is projected to be used as suggested by Heift (2002).

Although navigational resources as part of the tool may be part of a task designed with the aim of scaffolding learners, learners may use them to scaffold their own purpose(s). They may even re-purpose the tool from one use to the next use. Therefore, a focus on learner purpose and learner tool experience (experience focus) together with a shift away from the notion of tool affordance (design focus) may serve task designers in understanding learner purposes to improve task processes and outcomes. Whether designers should give learners choice and control over his/her own instruction in order to 'navigate the terrain to compose a unique and individual instructional sequence' (Lawless & Brown, 1997) is perhaps a false dichotomy if learners engage in navigational behaviours that minimise the optimal benefits of a tool so that little language learning gains are made. Focusing on learners' experience and purposes might help to reframe the issue. As Mantovani (1996) suggests, CMC participants cannot be regarded simply as technology users but rather, they are social actors with their own aims and autonomy in situations and it is technology that must adapt to them.

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