MAPPING LANGUAGING IN DIGITAL SPACES: LITERACY PRACTICES AT BORDERLANDS

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The study presented in this article explores the ways in which discursive-technologies shape interaction in *digitally-mediated* educational settings in terms of affordances and constraints for the participants. Our multi-scale sociocultural-dialogical analysis of the interactional order in the online sessions of an *Italian for Beginners* language course provided by a university in Sweden is illustrated in terms of an Introduction phase, a Language and Grammar phase, a Discussion phase, and a Concluding phase. Dimensions of TimeSpace shape the organization of the lessons where a range of literacy practices can be identified. A second step in the analysis zooms into the Discussion phase. Taking the concepts of epistemic engine and epistemic domains as points of departure, we explain how the written word shapes the interactional order in online settings.

This study highlights how different interactional orders allow for the opening up of new socialization spaces, in which students are more likely to be prevented from getting trapped in their own script of task-oriented activities. Here, participants' cultural processes are complexly layered in digitally-mediated encounters, where their focused orientation towards a variety of offline and online oral and written resources is partly curtailed by the digital environment itself.

LITERACIES IN AND THROUGH DIGITALLY-MEDIATED SETTINGS

This paper deals with the study of synchronous online communication in the videoconferencing software Adobe Connect, where students regularly meet to practice Italian within the framework of an online course *Italian for Beginners* offered by a Swedish University. Our focus lies on the study of the students' languaging across time and space to reach a deeper understanding of how the online encounters shape and are shaped in the moment-by-moment interaction participants are involved in.

To be literate in the 21st century entails more than the ability to read and write; literacy today refers to the use of different communicative channels, including audio, video, or other semiotic systems (Bagga-Gupta, 2014; Bagga-Gupta & Säljö, 2013; Bagga-Gupta, Evaldsson, Liberg, & Säljö, 2013). In this article, we understand the written word as a dimension of languaging and a social practice (Heath, 1983; Säljö, 1988). Languaging leaves behind a noun-centric view on language and refers to participants' situated, moment-by-moment embodied ways-of-being-with-words (Bagga-Gupta, 2013). In particular, our take on languaging entails an understanding of language as *embodied action*, which includes both spatial and temporal processes or "linguistic actions and activities in actual communication and thinking"

(Linell, 2009, p. 274, see also Garcia, 2009). Languaging helps forefront the dialogicality of communication in terms of the primacy given to actions or activities, rather than an understanding of language as discrete systems or purely cognitive objects that reside in the human brain. A focus on language as activity also opens up for alternative understandings of language learning—languaging is used here as an analytical lens in the study of situated interaction and not as a pedagogical tool that facilitates the learning of a so-called second language. The latter is a position taken by Second Language Acquisition (SLA) scholar, as in Swain (2006) and Swain, Lapkin, Knouzi, Suzuki, and Brooks (2009). Thus, in line with a conceptualization of language as situated activity, literacy practices "refer to the broader cultural conception of particular ways of thinking about and *doing* reading and writing in cultural contexts" (Street, 2003, p. 79, emphasis added) and imply *semiotic work* as succinctly outlined by Kress (2010). And indeed, literacy today has become "a synonym for knowledge, competence, and learning" (Säljö, 2012, p. 6). Referring to the use of inscriptions and other kinds of technologies as tools that mediate thinking, Säljö (1999) argues that "the mastery of mediational means is … an essential aspect in the process of learning" (p. 152), wherein a fundamental assumption is that "learning is always learning *to do something with cultural tools*" (p. 147, emphasis added).

The study presented here is concerned with the performative and interactive nature of time as space, or *TimeSpace* (see also Edwards, 2012; Messina Dahlberg & Bagga-Gupta, 2014, 2015). This is displayed in a university course in terms of the organization of the lessons, how turns-at-talk are organized, and what participants do with the semiotic and technological resources they have at hand. The organization of time as space in online educational settings is an aspect on which we focus in our current research. We are, in this study, interested in mapping communication in online education and epistemic and literacy practices that are enabled or curtailed in digitally-mediated settings.

Our overarching aim is to make visible the organization of time as space from a range of different perspectives or analytical scales (Scollon & Scollon, 2003) from the analytical description of how the interactional order of the encounters is organized in TimeSpace (see Goffman, 1983) to the analysis of micro interactional sequences. We argue that such a multi-scale interactional perspective is needed in the study of digitally-mediated learning and instruction in videoconferencing platforms (e.g., Adobe Connect) that afford a range of semiotic resources. More specifically, this study aims to account for two specific issues:

1. What are the ways in which the written word shapes the interactional order within the constraints and affordances of digitally-mediated settings where individuals participate across the boundaries of digital and physical spaces? Here, a specific interest relates to participants' epistemic orientation in interaction.

2. How can the analysis through a range of representational techniques, including an expanded conversation analysis (CA) transcription, allow for revisiting dimensions of language learning inside and outside institutional settings?

The next section situates our study against the backdrop of some relevant literature in the field of synchronous Technology Mediated Communication (TMC). The data used in the study (including the project of which it is a part) is introduced in the Data Sets and Methodological Considerations section. The empirical analysis is presented in the two subsequent sections, before bringing the salient findings together. A transcription key that presents an expanded CA notation system is presented before the Appendices. Original language representations (written and oral) of the micro-scale analysis are available in the appendices.

LEARNING AND LANGUAGING IN DIGITAL SPACES: RELEVANT LITERATURE

When dealing with the study of TMC, Hampel and Hauck (2006) introduce the notion of *multimodal meaning making*, where "it is the individuals' needs and interest, with their personal, cognitive, affective,

and social dimension, that together with task and institutional demands determine the direction of the remaking of the resources available to them" (p. 6). Furthermore, meaning making that occurs in multimodal digitally-mediated settings[1] offers challenges for the participants (including the analysts) in a range of ways. However, Hampel and Hauck (2006) emphasize that new creative representational resources alone cannot enrich learning processes, without also promoting "the kind of literacy required to use the new democratic learning spaces to their best effect" (p. 13). They highlight that affordances (and constraints) for participants are related to the aspects of the use of the most appropriate tools amongst those offered in online spaces and those that are best suited to the communication situation participants have at hand. Social interaction, in such a line of thinking, takes place through the coordination of different kinds of "artificial technological resources for meaning making" (Säljö, 2012, p. 8). Mapping these, as well as the exploration of how (digital) technologies are deployed to (re)use, customize and appropriate the world-out-there constitute central interests in our study. Such processes have been conceptualized in terms of *chaining* (Bagga-Gupta, 2002; Bagga-Gupta & Säljö, 2013), that is, re-semiotization and appropriation of semiotic resources including the oral and written word. This is in line with Boellstorff (2012) who maintains that "all semiosis involves movement across gaps [and that] extending the notion of the digital can help avoiding any assumption that the virtual and the actual are converging or blurring" (p. 42). However, while categories like digital, virtual, and actual can be heuristically used to make sense and navigate the processes of data analysis, they must also be empirically challenged and analyzed in their cultural and normative framings.

The social and semiotized character of time and space as a single dimension, made relevant by individuals in everyday mundane talk, are frames that index specific interactional patterns (Bagga-Gupta, 2012b, 2012a, 2014; Blommaert, 2010). As outlined earlier, these interactional orders (Goffman, 1983) need to be focused analytically in relation to different scales: from the specific to the general, from the personal to the collective, and from the local to the global or transnational (e.g., the opening of a turn-at-talk, an instructional meeting at a university, a semester of study at a university language department). We argue that space is an unexamined dimension of the discussion regarding how the internet shapes education. It is simply considered as "a different context or container for technologically mediated teaching and learning" (Edwards, 2012, p. 205). We concur with Edwards, who suggests that there exists a need to analytically consider "spacing and timing as actions, verbs rather than nouns, thus pointing to the ways in which they are performative rather than simply existing as properties of the world to be left unexamined" (p. 208; see also Bagga-Gupta, 2012b, 2014).

The analytical approach of an expanded CA is used here to throw light upon and illustrate (a) the sequentiality of languaging in TMC, and (b) the chaining of modes and utterances in the data, that is, how participants (re)use and orient towards repertoires of semiotic resources available across modes. In other words, the concept of chaining as analytical aperture allows for highlighting the complexity of languaging in the practical activity which is constituted by a range of language varieties and modalities across sites (both online and offline; Bagga-Gupta & Säljö, 2013; Gynne & Bagga-Gupta, 2013). More specifically, we focus upon the role of epistemic domains and how their distribution pushes the interaction forward. Such a take on CA is used to investigate how participation develops from the assumption that what individuals do in their talk-in-interaction is a constant, ongoing attempt to (re)establish balance in their mutual epistemic status. Such an epistemic engine is indeed what drives "interactional sequence(s)" (Heritage, 2012a, p. 49) where meaning making is seen as a key element in communication.

The issues of an alternative multimodality and parallel conversational floors (Örnberg Berglund, 2009; Simpson, 2005) in digital spaces (as compared to in-real-life interaction) have been addressed by scholars recently (see Hampel & Hauck, 2006; Jenks & Firth, 2013; Lamy, 2004, 2012; Tudini, 2012). The focus in these discussions concerns primarily methodological issues in the analysis of synchronous TMC. The analytical representation of TMC in relation to its sequentiality vis-à-vis simultaneity across modes is highlighted in our study. At an overarching level, a crucial aspect of TMC lies in its mediational

component: by means of the digitalization of the processes at stake in the online interaction, the tools and the literacy practices afforded in the communication inside the virtual classroom become visible for the participants (and analysts) and can be accounted for. They have un-curtailed access to everything that occurs inside the digital environment and can, a posteriori, access the contributions in the environment in all the modes and thus map how these are (mutually) shaped in online interaction. In the next section, the data and the methodological underpinnings of the different analytical scales are described.

DATA SETS AND METHODOLOGICAL CONSIDERATIONS

This study draws upon the ongoing work in the project Everyday Communication and Identity Processes in Netbased Learning Environments[2] (CINLE) in which two online courses are analyzed, *Italian for Beginners I* and *Italian for Beginners III* (Ita III). Both were offered with a synchronous mode of teaching by a Swedish university. In this study, we have focused upon the Ita III data set which comprises approximately 20 hours of naturally occurring empirical material, generated over a period of one semester, through screen recordings of 10 online sessions. The course instructors' planning and materials are also included as are the materials that one student had access to and works with at her physical desktop during the online meeting sessions (see below).

The first author has worked as a language teacher in similar online courses for several years prior to starting this research project. She is familiar with the field, and the teachers involved in the project were her colleagues and was not involved in any teaching in the Italian department at the university which offered the online courses focused in the present study, during the data creation. The students met once a week in the virtual classroom in online synchronous meetings. The plans for each course week and course materials, including weekly tasks, were available on the university web platform accessible to the students. The synchronous meetings scheduled in the virtual classroom were envisaged as institutional spaces that provided opportunities to practice Italian with other participants and meet teachers and other students. Figure 1 represents one of the course sheets used in preparation of the weekly meetings (see Appendix A for other examples). It constitutes an example of course material where the theme is "Market and Supermarket".
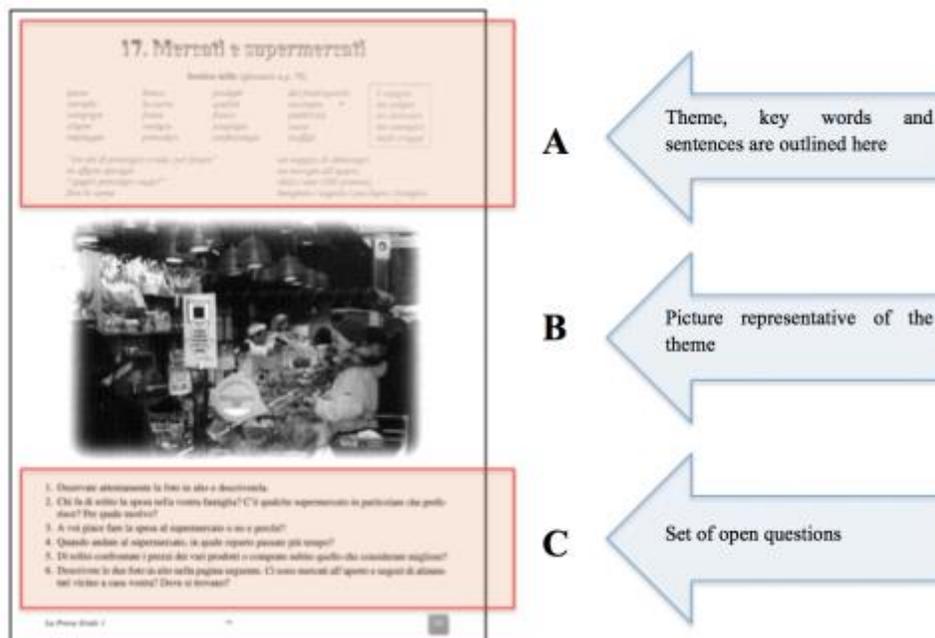

Figure 1. Example of course materials used in preparation for online meetings (for a clearer scan of this figure, including a translation in English, see Appendix B).

The section of the materials that outline the content (A in Figure 1) presents the topic and vocabulary items as well as useful sentences related to the task (see also Appendix B). Word items in the course materials were used by participants during the online meetings when dealing with such task-related activities. An illustrative picture related to the theme is available in the pictorial space B with a representation of what could be a grocery shop space replete with customers and workers. The third space, C, presents open questions related to the theme (i.e., they encourage some degree of discussion instead of a yes or no answer; see Appendix B). The data focused upon in this study includes, as mentioned above, one student's handwritten notes from her physical setting during a digital synchronous session with other participants (see Appendix C). This unique data set has allowed the analysis to focus upon the borderlands between the recordings of the naturalistic digitally-mediated sessions and languaging at one of the participants' physical settings. This allows a focus on the complexity of everyday instructional interaction and enables an investigation of how the written word shapes the interactional order within the constraints and affordances of digitally-mediated institutional settings.

Adobe Connect was the videoconferencing software used during the course sessions and constituted the online educational setting that has been focused upon in the present study (see Figure 2). Connect enabled synchronous communication and was situated in a specific timespace framework: while students were required to stick to a specific schedule and participate online at given temporal slots, there was no need for them to congregate at a given physical place. The online educational setting could be accessed from anywhere, as long as the participants had access to a mediating technical device (e.g., computer, tablet, smart phone) and an internet connection.
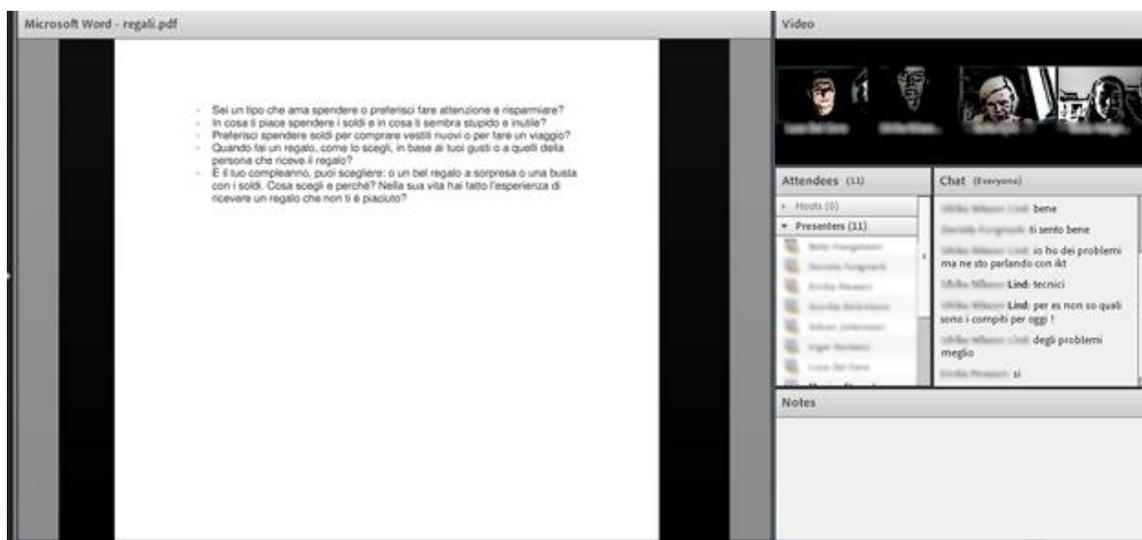

Figure 2. Screenshot illustrating the mediating specific digital resources (potentially) available for participants in the videoconferencing program.

Adobe Connect allowed participants to use oral and written communication as well as to share their individual webcams. Figure 2 illustrates this digital technology that enabled synchronous communication using different semiotic resources (to use the terminology of Kress, 2010) in the form of oral and written communication, gestures, as well as other symbols.

While ethnographers like Hammersley (2006) and Scollon and Scollon (2003) have discussed the need for concentrating on the bigger picture and a holistic ethnography, including micro-scale interaction (i.e., the in-depth analysis of human action during specific events), or the relationship between analytical scales, our study attempts to go a step further and focuses on significant issues in current-day fieldwork where the field is not a static entity (Bagga-Gupta, Messina Dahlberg, & Gynne, 2014). In traditional data-

related terminology, the analytical aperture in our educational *netnography* is directed towards an institutional virtual learning environment, its members, the range of semiotic resources available in that environment, and data from participants' parallel physical, analogue and offline settings. Netnography, or internet-based research, offers challenges to the boundaries of what is micro or macro, what is online or offline (Bagga-Gupta, 2015; Bagga-Gupta, Messina Dahlberg, & Gynne, 2014; Horst & Miller, 2012). It was at times, for instance, not apparent whether participants in an encounter were physically "there" in our data, in front of the screen that gives them access to the virtual classroom. The students and the teachers commonly refrained from having their web cam-option on during the sessions, or if they do, it is only for a brief moment at the beginning of a session.

MAPPING INTERACTIONAL ORDER IN AND ACROSS DIGITALLY-MEDIATED MULTIMODAL SETTINGS

A unit of analysis can be articulated in relation to the aims and the power of magnification used during the inquiry process in a study. Here, this has been envisaged in terms of the organization of time as space in relation to three aspects in the data set: (a) how interactional turns are distributed, (b) who the interlocutors are, and (c) the business at hand during the instructional meetings. The analysis at the micro-scale focuses on particular moments in time, where the unit is the oral-and-written-turn-at-talk with mediational means (or *cultural tools*) in digitally-mediated educational settings (see Vygotsky 1978, 1981; Wertsch, 1998).

Analysis of data is approached heuristically at different scales in terms of TimeSpace patterns. The analysis also focuses on the ways in which these TimeSpace patterns get played out in the digitally-mediated setting. These patterns are illustrative of the range and ways in which languaging, including modalities, shape (and are shaped by) discursive technologies afforded in the online settings marked by different activity types and literacy practices. A meso-scale analysis of the data with a focus on the organization of the meetings in terms of different phases and typologies is presented first. After analytically describing each phase and typology, we focus on the discussion phase by zooming into micro-interactional sequences for a fine-grained turn-by-turn analysis of two specific encounters.

Mapping the interactional order in the data set has given rise to five different types of global lesson patterns. The following thus constitute an overview of lesson patterns where the organization of lesson is time *as* space.

- Plenary lessons: These are teacher-led.

- Written-oral-based work lessons: Here the teacher is in plenary mode orally during a language and grammar lesson phase (see Figure 3) and some students communicate in the chat tool.

- Oral-written-based work lessons: Here the students perform their contributions orally without oral feedback from the teacher. The teacher does not take the oral floor and instead communicates using the chat tool

- Mixed cyclical lessons: Here plenary and individual or group work alternate

- Group dispersed settings lessons: Here group work is the focus. Participants are located in different virtual sites.

The analytical description of the data presented illustrates the complexity of everyday instructional interaction through a meso-scale analysis of the individual meeting sessions that usually last for 1 hr[3] (see Figure 3). The phases and typologies illustrated in Figure 3 exemplify the interactional order during the digitally-mediated meeting sessions in the Ita III data set. The second and third typologies, where students' languaging is forefronted, are focused on in Figure 3. The teacher is present (and visible in the attendee list in Adobe Connect) during all phases.

Time:	5-10 min	15-30 min	15-30 min	5-10 min
Space:	*Phase 1 - Introduction*	*Phase 2 – Language and Grammar*	*Phase 3 - Discussion*	*Phase 4 - Conclusion*
Typology	Plenary **T-initiated**	Written-oral-based work lesson **T-initiated**	Oral-written based work lesson Group dispersed settings lesson **Stud-initiated**	Conclusion **T-initiated**
Participants	1 T; 8-10 Stud	1 T; 8-10 Stud	1 T; 8-10 Stud; sub-groups of 2-3 stud	1 T; 8-10 Stud
Mediating tools employed	T: Mic/CW Stud: CW/Mic	T: Mic/WB Stud: CW	T: CW/NT Stud: Mic/CW	T: Mic Stud: CW/Mic
Literacy tools	CW/WB	CW/WB	CW/offline notes	CW/WB

Note. T = Teacher; Stud = Student; Mic = Microphone; CT = Chat Tool; WB = Whiteboard; NT = Notes Tool

Figure 3. *Overview of lesson phases and typologies in the Ita III data set.*

The online session is usually initiated when the teacher orally asks whether the students have any grammar-related queries, questions about the course schedule, or other practical issues of concern (Figure 3). During the introduction phase, students usually take the floor to pose questions regarding grammatical issues in the written modality (see Figure 3 and Table 1). Taking the students' written questions in the chat as a point of departure, or transitions-relevant place (Sahlström, 1999), the teacher devotes 15–30 mins of the session to provide examples and explanations about the issues that have been raised. The interactional order here differs from that in the introduction phase and constitutes a language and grammar phase in the data set. The students are active almost solely in the chat tool and it is the teacher who initiates and keeps the floor in the oral mode throughout this phase, distributing turns-at-talk to the other participants (Sacks, Schegloff, & Jefferson, 1974; Schegloff, 2007). Here the teacher organizes the turn-taking and the students work at their desks in their dispersed physical settings, participating in the session in the written mode. This constitutes a phase of written-oral-based work lessons where languaging occurs in the written (students) and oral (teacher) modes. Literacy tools such as the whiteboard and the chat tool are commonly used by the participants during this phase.

Table 1. *Modes of Interaction, Mediating Tools, and Lesson Phases in the Digitally-mediated Platform*

	Phase 1	Phase 2	Phase 3	Phase 4
Visual	CT, WB	CT, WB	CT, WB, NT	CT, WB
Auditory	Mic	Mic	Mic	Mic

Note. Mic = Microphone; CT = Chat Tool; WB = Whiteboard; NT = Notes Tool

A different interactional order emerges when the teacher asks if the explanations have been helpful and if there are any further questions about the specific topic in focus at the session. Students rarely have any further questions and the seminar moves towards the third discussion phase (see Figure 3) where the topic of the session is focused in the oral modality by the students who have previously prepared for this topic

with the help of course material that includes word items, pictures, and questions about the theme of the week (see Figure 1).

The interactional order moves once again to a plenary structure in the fourth and final conclusion phase (see Table 1), a few minutes before the end of the session. Here the teacher wraps up the seminar by asking if there are any questions or issues that the students would like to raise. Literacy tools like the chat tool and occasionally the whiteboard (WB) are used during this phase. The session comes to an end with explicit oral goodbyes from the participants.

Thus, the discussion phase constitutes a timespace during the meetings where a shift in focus occurs, from the teachers and their oral instructions about language-focused issues where the students contributions are in the written mode (see Figure 3 and Table 1), to the students, and their oral contributions to the themes that have been allocated for each session (for examples, see Figure 1, Appendix A, and Appendix B). More specifically, this phase constitutes the transitional space from a teacher-centered to a student-centered interactional order in terms of how students manage to navigate the task-oriented activities (with a specific interactional order) as well as the interruptions in such an order. This is analytically interesting and relates to the aim and the specific issues raised in this study. The analysis of the data from the discussion phases in the data set is presented at the micro-scale in the next section. This augments and illustrates the intricate chaining of the oral and written modes in languaging in digitally-mediated educational settings.

LANGUAGING DURING THE DISCUSSION PHASE: LITERACY PRACTICES AT BORDERLANDS

The representation of routine languaging at micro-scales of analysis highlights the interactional order: how time is co-constructed by participants and gets played out as space in the interaction. The analysis also illustrates the finely tuned and chained oral-written nature of languaging, including literacies at the boundaries of different online and offline settings. The excerpts in this section are drawn from different session meetings, although they are all representative of the meso-level interaction order we have presented above.

Chaining of Oral and Written Modes

Four sessions into the semester, the students in Ita III are focused upon a task where they are expected to talk about the theme that has been allocated for that week, "Presents and Money". Excerpt 1 is a representation of what transpires between nine students and one teacher at the beginning of the discussion phase of a meeting session (see Figure 3). The teacher asks whether the students have access to the questions for the current meeting and then uploads the file with the questions on the WB (see Appendix A). After that, the instructor says orally in Italian, "Now I shut off my mic and I listen." The arrows attempt to highlight the chaining of oral and written modes and illustrate the ways in which the students and the teacher orient towards both different online documents and other participants' contributions in this interactional sequence (see also the Transcription Key).

Excerpt 1. *Use of forse and Epistemic Imbalance*

Time	Voice	Chat-tool
00.00	**01 Maria:** s:e devo comprare un regalo? e vorrei comprare qualcosa: che la persona: desidera	
	if I have to buy a present? I'd rather buy something that the person would like	
	02 h:e:mi piacciono le sorprese? e quindi vorrei nono mai sol-i soldi (.) he: s:::e riceve un	
	hhe: I like surprises? and therefore I would never like the money (.) e: if I get a	
	03 regalo? penso non è così buono? lo tengo? e metterle-lo in un armadio (.) h::e::m e la	
	present? that I don't like? I keep it? and put them-it in a wardrobe (.) h::e::m and	
	04 maggior parte delle: persone sanno quello che desidero e: per il mio: h. compleanno	**VOICE**
	most people know what I want e: for my h: birthday	
00.48	**05** (.) e:m mi piacciono i libri? e:o le cose? che posso utilizzare in cucina per esempio	Teacher: Non aspetti l'occasione per regararlo a qualcun altro?
	SILENCE (13)	
	06 Giovanna: e: per il mio e: compleanno e: preferisco un bel regalo a sorpresa e:	Teacher: *Don't you wait for the opportunity to give it to someone else?*
	e: for my birthday I prefer a nice surprise e:	
	07 ma qualche volta è (1) e:m (.) meglio con una busta e: con i soldi e:m	
	but sometimes it is nice with an envelope with money e:m	
	08 se voglio comprare qualcosa particolare	
	if I want to buy something in particular	
	SILENCE (6)	
		CHAT
	09 Anna: e:m (1) Pamela (.) e::m se qualcuno ti: regalo: e: qualcosa che non ti [f]ace che cosa	
	e:m Pamela (.) e::m and if someone buy you something that you don't like what do you	
	10 fai e:m dai questo regalo a qualcun altro?	
	do e:m do you give this present to someone else?	

SILENCE (10)

01.28

11 Pamela: e: non so ((laugh)) e:m è difficile (2) ma forse e:m: m:

well I don't know ((laugh)) e:m it's hard (2) but maybe e:m: m:

12 Anna: dipende chi è la persona che: ti (.) ha (.) regalato (.) forse?

it depends on who gave it (.) to (.) you (.) maybe?

13 Pamela: e: ((laugh)) e: se è m: mia famiglia e:m (.) h: avete comprato qualcosa che non mi

e: ((laugh)) e: yes e: if it is my family that bought something

14   piace h: io (1) e:m io: (.) e: dico e: (.) a loro che non mi piace ma forse h::: e:che è

I don't like: I (1) tell e: them that but perhaps if it is

15   un'amica non so ((laugh))

a friend I don't know ((laugh))

16 Anna: sei obbligatoria tener-ten-tenere il regalo! ((laugh))

you have to ke-kee-keep the present! ((laugh))

SILENCE (6)

01.55

17 Pamela: che significa: tenere?

what does keep mean?

18 Anna: e: (1) penso che tenere è un verbo e:m (.) non regalare a qualcun altro e:

e: (1) I think that keep is a verb (.) not to give away to someone else e:

Among other issues, the turn-by-turn representation of this interactional sequence draws attention to how participants co-construct the micro-scale patterns that are typical of this data set: Maria[4] clearly selects herself to orient towards the task at hand (Sahlström, 1999), in this case the fourth question on the WB (see Appendix A). Several students before her have chosen other questions available on the WB and have responded to some follow up questions posed by the teacher in the chat tool. In the interactional sequence represented in Excerpt 1, the teacher orients towards Maria's contribution in Lines 01–05; the arrow linking Line 9 and Line 10 and the teacher's contribution in the chat tool illustrates that the orientation occurs across different modes—here, oral and written. Maria seems to ignore or does not notice the teacher's written contribution and after a 13-second silence, another student takes the floor. She, in similar fashion to Maria, orients towards an unanswered question—the fifth question on the WB—with a brief oral contribution.

This analysis at the micro-scale suggests that functions of silence can be understood in a number of ways. Firstly, they can be seen to be a consequence of the absence of a leader who distributes the floor. Secondly, they illustrate students' uncertainty since no explicit rule regarding the distribution of turn-taking seems to exist in these digitally-mediated spaces. Thirdly, the relatively long moments of silence in the data set can also be understood as being shaped by the constraints of the online environment itself. Here the participants cannot rely upon visual clues, such as one another's gaze and body orientation as

"an invitation to the listeners to choose the successive speaker" (Ephratt, 2008, p.1919). The first two stretches of silence in Excerpt 1 appear to have two specific functions: (a) marking the end of the present speaker's contribution and (b) enabling other participants to take the floor. Thus, these procedural silences work as discourse markers (Ephratt, 2008; Tannen, 1985) in the organization of the interaction in online settings.

The task orientation of another student, Giovanna, is made visible in Line 07 by the utterance *una busta con i soldi* (an envelope with money) which appears to be a phrase that is taken from the fifth question in the document displayed on the WB (see Appendix A). The oral-written languaging represented in Excerpt 1 thus shows how participants oriented towards different modes and constitutes a literacy practice in the virtual site: Maria appeared to orient towards the questions on the WB, the teacher in the chat tool aligned towards Maria's contribution, and Anna appeared to be orienting towards the teacher's contributions and those of a third student, Pamela (in Line 09). Anna uses the oral mode not for a contribution on a task-oriented activity, but in order to draw attention to a question that the teacher has previously asked in the chat tool (in Line 05). The teacher's query, originally a follow-up utterance for Maria, remains unnoticed or is ignored by the other participants until Anna asks the same question to another student, Pamela, using a vocative (Line 09). After another moment of silence, Pamela takes the floor to provide an answer (Lines 11–15). In Line 11, Pamela expresses her uncertainty by using the word item *forse* (maybe) and by producing a long e:m. Anna orients to this in Line 12 with a statement followed by a questioning *forse* (maybe, with raising intonation). Pamela orients towards Anna's question and she then ends the turn-construction unit by laughing saying *non so* (I don't know). The hesitant *forse* in Line 11, the questioning *forse* in Line 12, and the epistemic stance *non so* in Line 15 are understood by the participants as transition-relevant places (Sacks, et al., 1974). Anna takes the floor directly in Lines 12 and 16, in both occasions orienting towards Pamela's uncertainty in Lines 11 and 15, respectively. Anna's falling intonation in Line 16 can be understood as the end of the series of turn-constructional units initiated by Anna's ventriloquizing the teacher's written question in Line 09. Drawing from the work of Bakhtin (1986), Tannen (2007) refers to a ventriloquizing speaker as the participant in interaction who "animates another's voice in the presence of that other" (p. 22). We consider this type of ventriloquizing in terms of chaining, (here of written and oral modes), in that semiotic resources are (re)used and customized in order to, like in this specific case, give voice to the written word, uttered in the chat tool in this digitally-mediated space.

Pamela takes the floor again in Line 17. We could argue that during the relatively long silence between Line 16 and Line 17, Pamela recognizes an unknown word item, the meaning of which is requested for in Line 17: *che significa tenere?* (What does *tenere* mean?). This is related to what Heritage (2012a) calls the epistemic engine of a conversation or the role of territories or spaces of knowledge (or epistemic domains) in the motivation of interactional sequences. Anna and Pamela use information requests and position themselves in a lower epistemic status towards one another in Lines 09–10 and 17 (Heritage, 2012b). The enquiring initiations—that is, utterances from an unknowing questioner (K-) to a knowing recipient (K+; see Heritage, 2012b)—in Lines 09–10 and 17 clearly differ from the kinds of contributions we can see in Lines 01–08. This is because Anna and Pamela use interrogative morphosyntax and because it is in those K- initiations that an epistemic *seesaw motion* takes place (in Lines 11–16). The angled arrows in the excerpts illustrate this, highlighting participants' mutual orientation, which in turn tends to drive the interactional sequence forward (Heritage, 2012a). We argue that this "change of state" from K- to K+ (Goodwin, 1979; Heritage, 2012b) is crucial in the organization and understanding of the utterances in digitally-mediated environments.

The slice of interaction illustrated in Excerpt 1 shows that the students' contributions can be understood as task-oriented (in that they repeatedly refer or orient to task-related literacy practices); they tend to convey information rather than request for it. This is furthermore shown by the long silence stretches between the turns and the lack of orientation towards one another's contributions. Anna changes this

pattern by posing a direct question to another student and the relative epistemic status that originates from this imbalance is decisive and drives the interactional sequence further. Another example of participants' orientation to literacy practices and (or rather, as opposed to) one another's contributions is illustrated in the next subsection.

Online-offline Chaining and Affordances in Languaging

Data generated in netnographic screen-based projects often do not provide information about participants' languaging behaviors that may be termed offline or not recorded on the screen. As mentioned earlier, we have access to some unique local language data from one of the participants in project CINLE. The analysis of this offline data, together with the flow of languaging in the online educational activities, highlights interesting issues related to the aims of our study. The episode in focus here is about 20 minutes into Lesson 8 in the Ita III group. Prior to the languaging illustrated in Excerpt 2, the teacher had started the session inquiring whether the students had any questions related to grammar issues. One student posted a question about verb tenses in the chat tool. The teacher responded orally with a lengthy elaboration on this subject and used the WB to display some examples. At this point, one student (Maria) used the *raise-hand* function on the platform and asked a question orally. After an oral response to Maria's query, the teacher asks the students if they have looked at the questions for the day's meeting. The teacher simultaneously uploaded the file with the questions on the WB. The theme for this session was "Markets and supermarkets" (see Figure 1, Appendix B). One student (Giovanna, Excerpt 2, Line 01) orally asked *vado io?* (Shall I?) and the discussion phase began, approximately 20 minutes after the start of the digitally-mediated session.

Excerpt 2. *Mercati e supermercati. Markets and supermarkets.*

Time	Voice		Chat-tool
00.00	01 Giovanna:	vado io? (4) ok e:m nella mia casa facciamo di solito	
		Shall I? (4) ok e:m in my home we do usually	
	02	la spesa insieme io e il mio fidanzato e: sono due	
		the shopping I and my boyfriend e: there are two	
	03	grandi supermercati vicino a casa si chiamano (xxx)	
		big supermarkets near home they are called (xxx)	
	04	e morrisons preferisco (xxx) perché sembra più	
		*and **morrisons** I prefer (xxx) because it seems more*	
	05	organizzato e i prodotti sono migliore ma sfortunato	
		organised and the products are better but unfortunately	
00.41	06	è più costoso là quindi normalmente facciamo la spesa al	
		it is more expensive there therefore normally we do the shopping at the	
	07	morrisons e quando vogliamo comprare qualche prodotto con qualità	
		***morrisons** and when we want to buy some quality product*	
00.51	08	allora andiamo al waitrose e poi per comprare la frutta e le verdure	
		*then we go to **waitrose** and then to buy fruits and vegetables*	
	09	preferisco di andare al mercato dove abito adesso sono tante frutterie e mercati	
		I prefer to go the market where I live now there are a lot of fruit stores and markets	
	10	all'aperto che vendono la frutta fresca e quando sono in tempo vado là	
		that sells fresh fruit and when I manage I go there	
01.11	11	ma l'unica cosa è che le frutterie chiudono presto verso le sei e quindi	Teacher: esiste ancora Europa Foods, Giovanna?
		but the only thing is that the fruit stores close early around six and	
	12	tante volte non ho tempo per andare dopo il lavoro e devo comprare anche	Teacher: *Does "Europa Foods" still exist Giovanna?*
		therefore a lot of times I don't have time to go after work and I have to buy also	
01.37	13	la frutta e la verdura al supermercato e questo è un peccato perché qui	
		fruits and vegetables at the supermarket and this is a shame since here	

The arrows in Excerpt 2 highlight that, in her contribution in Lines 01–14, Giovanna oriented towards both the task as it is displayed in the WB (see Appendix B) and to offline material in the form of her handwritten notes (see Appendix C). A close analysis of Giovanna's offline notes allows us to follow and attend to the intricate chaining that is involved in languaging here (see Figure 3): different modes and communicative projects are at play offline and online.
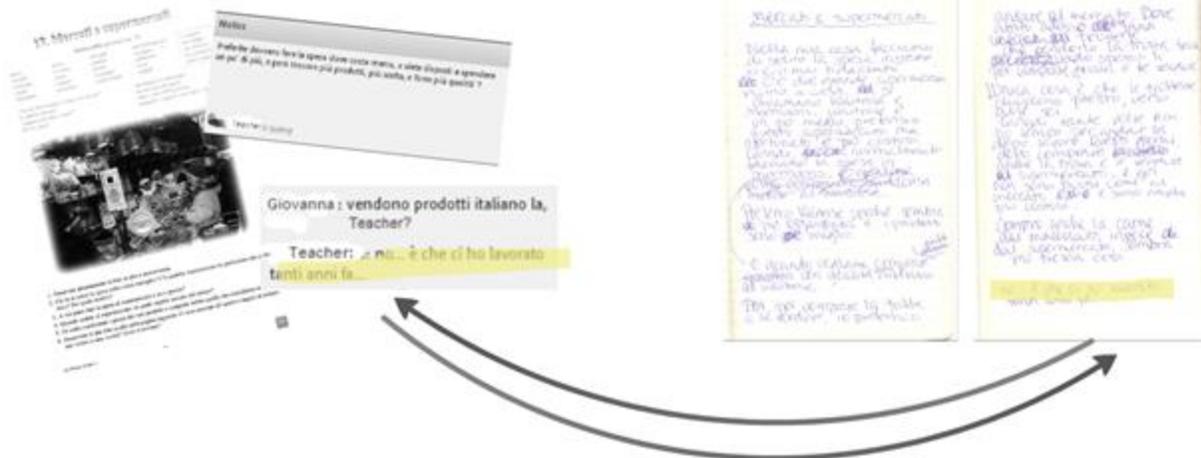
Figure 4. Literacy practices and chaining at the borderlands of virtual and physical or online and offline spaces.

Figure 4 illustrates the re-semiotization or chaining between the literacy practices inside the virtual classroom (online) and at one student's physical desk (offline). Figure 4 represents the notes that one student has access to offline during the online meeting. In these notes, she writes some of the sentences in Italian that the teacher writes in the chat tool inside the online environment: *No, è che ci ho lavorato tanti anni fa*. (No, it is that I have been working there for several years; see Figure 4 and Figure 5).

Giovanna's contribution in this micro-scale slice of interaction illustrates how she uses her notes as a script in order to perform her contribution in the global-local context (Hampton, 2010; Messina Dahlberg & Bagga-Gupta, 2013, 2014, 2015; Robertson, 1992) where she is a member (see also Bagga-Gupta, 2002; Bagga-Gupta et al., 2013). During Giovanna's turn, the teacher initiates a response by writing a question in the chat tool (this action is publically visible through an action symbol, a communicative affordance in Adobe Connect) and the outcome of this becomes visible first at 01.11 (Excerpt 2, see also

Figure 5, Line 01). Here the teacher, who commonly poses epistemic K+ queries, takes a K- stance. Giovanna orients towards the teacher's written question a couple of seconds after it becomes visible in the chat tool. The analysis of the offline notes highlights and suggests that Giovanna, at this point, stops orienting towards her written notes (in which she had prepared her contribution to be delivered in the oral mode). She instead attends to the teacher's question posed in the written mode in Line 15, where she ventriloquizes using raising intonation, a part of the teacher's written query. Giovanna and the teacher continue their transmodal chained conversation (where one participant takes the floor in the oral mode and the other in the written mode) in Line 16 and in the teacher's two further contributions in the written modality: *a Londra* (in London) and *ok!*. Giovanna's epistemic stance in Line 16, with falling intonation, appears to be understood by the teacher as conveying information rather than as a query (see also Figure 5). The teacher's *ok!* in the chat tool is used in third position in lieu of confirmation (for other similar empirical examples, see Messina Dahlberg & Bagga-Gupta, 2013, 2014), thus concluding the series of turn constructional units initiated by the teacher. Giovanna and the teacher continue this conversation solely in the chat tool from Line 04 onwards (see Figure 5), while another student takes the floor in the oral mode (not included in Excerpt 2).

Figure 5. Screenshot of the chat tool in Connect during Giovanna's transmodal conversation with the teacher in the chat tool and a translation of their written interaction.

The last paragraph in Giovanna's offline notes (see Figure 4) appears to have been directly taken from the teacher's contribution in the chat tool in Line 05 (see Figure 5). Lines 01–03 in Figure 5 illustrate a transmodal interaction. Thus, reading the written contributions in Lines 01–03 (Figure 5) does not make sense without attending to the oral contributions illustrated in Lines 15–16 (in Excerpt 2). However, in Line 05 and Line 08 (Excerpt 2), Giovanna and the teacher both interact in the written mode in the chat tool. This analysis illustrates how such intrusions by the teacher in the chat tool (or by Anna in Excerpt 1) prevent the students from getting trapped in their own script or the questions on the WB. In addition, the interactional order represented in Excerpt 1 and Excerpt 2 (also Appendix A, Appendix B, Appendix C, and Figure 5) highlights how participants deploy different modes in a fluid chained manner and how the platform enables different parallel conversational floors.

The interactional order at the meso-scale illustrated in Figure 3 and further analyzed in detail in Excerpt 1

and Excerpt 2 appears to be the outcome of the established group culture where participants collaborate in the use of specific dimensions of TimeSpace. Here their oral contributions are usually performed entirely in the target language. However, participants use the chat tool to engage in parallel interactions which are related to what is being said in the oral mode. Furthermore, access to one student's offline notes offers insights into how offline and online languaging are chained: the student uses her notes (both prepared before the session and during the meeting) as a back-up to support her oral talk, (see Excerpt 2, Appendix B, and Appendix C).

The analysis presented in the previous sections have focused upon different scales: (a) global lesson patterns that attend to the overarching interactional order across entire online instructional meetings and explicated in terms of different phases and (b) the chaining of the situated interaction inside and outside the virtual classroom. Our attempt at a multi-scale empirical analysis allows for a more holistic understanding of the processes of socialization in digitally-mediated settings.

DISCUSSION AND CONCLUSION: IMPLICATION OF THE STUDY OF LANGUAGE LEARNING AND INSTRUCTION

The analysis presented in this paper highlights how lesson patterns in the two types of desk work lessons identified (written-oral-based and oral-written-based) are framed by what is glossed as the multimodality of virtual environments that enable the existence of several conversational floors simultaneously. In addition, the interactional spaces enabled by the oral and written modes are publically available for all the participants here. A multi-scale analysis has been used to illustrate the complexity of everyday instructional interaction in digitally-mediated instructional settings. A key issue here has been the analytical and methodological handling of scale-jumps, that is, moving from the general to the specific or from the collective to the individual in the analysis of languaging, including literacy practices at the global-local scales. Drawing on the notion of scales, we argue that literacy, in the online spaces focused in this study, implies gaining access to (a) global-local environments, (b) the institutionally relevant variant of the target language, (c) the appropriate variant of the target language during each phase broadly, and (d) different variants of the target language according to a specific interactional order during each phase. Drawing on the understating of literacy as social practice, rather than an autonomous cognitive skill (Lankshear & Knobel, 2011; Street, 1984, 2003), the interactional order that has been mapped in the present study is conceived of in terms of a set of practices at both the local situated levels (at every participant's desk) and at the global level inside the virtual classrooms (i.e., the online public spaces of the meeting sessions).

In this study, we have used a representational system at the micro-scale of analysis that highlights a crucial aspect in TMC, namely the ways in which different modes are finely tuned with one another, or *chained* (see for instance Bagga-Gupta 2002; Bagga-Gupta et al., 2013). These modes constantly shape participants meaning making in interaction. The analysis has been illustrated through micro-scale extracts that represent the interactional order in the different language varieties and modes that are afforded in the digitally-mediated setting where students and teachers attend to several oral and written practices simultaneously co-creating the social structure of the situated-distributed, digitally-mediated practice. Furthermore, the micro-analytical focus on the discussion phase highlights the ways in which participants orient to one another as well as to the oral and written languaging online and offline. In this respect, the analysis shows how issues of normative validity (Blommaert, 2010), of what counts as knowledge or so-called good competence in the target language is at stake in the teacher-led instructional meetings, where students focus on performing the task at hand rather than using the target language to converse with one another.

The analysis shows that when a question regarding students' contribution is elicited, the interactional order gets disrupted together with a shift in the participants' relative epistemic status (see Excerpt 1). We argue that the epistemic engine of the conversation (Heritage, 2012b) gets initiated in such moments of

imbalance, and this in turn creates room for turn-relevant places to emerge without the long segments of silence, which arise when participants' relative epistemic status is in balance. Furthermore, a clear epistemic imbalance results in a dynamic and fluid interactional order, where students are more likely to be prevented from being trapped in their own scripts. Here, as we have seen in Excerpt 2, an alternative interactional order allows for the opening up of new socialization spaces (including room for misunderstandings and disruptions that mark the interactional flow). We have, in our previous literacy studies of classroom interactional order, referred to such alternative ways-of-being-with-words as dialogical languaging, where "students unwittingly receive opportunities to participate in literacy activities […] which (potentially) extend the students possibilities to appropriate and become competent in their secondary language" (Bagga-Gupta, 2002, p. 582). In a similar vein, Pennycook (2012) addresses the potential of such spaces in terms of "transformation" or "critical moments," which opens up for alternative unexpected trajectories in what he calls the "classroom pantomime" (p. 132). We argue that, while the culture or patterned ways-of-being-with-words of an institutional setting and participants' distributed practices are constantly being (co)shaped, this process becomes complexly layered in digitally-mediated encounters, where participants' focused orientation to a variety of offline and online oral and written resources is partly curtailed by the environment itself. Such findings are relevant in the learning sciences generally, and the domain of language learning and instruction in digitally-mediated spaces particularly.

TRANSCRIPTION KEY

Underlined	denotes that the word is focally accented
?	rising intonation, not necessarily a question
!	strong emphasis, with falling intonation
(.)	micro- pause
(1)	pause in seconds
((*laugh*)) actions	verbal description of actions noted in the transcript, including non-verbal
(xxx)	indicates a stretch of talk that is unintelligible to the analyst
e::m	one or more colons indicate lengthening of the preceding sound
no-	a hyphen indicates an abrupt cut-off, with level pitch
SOME	indicates loud voice
=	indicates that there is no gap at all between the two turns

In the English translation

| *Italics* | original utterance in Italian |
| **Bold** | original utterance in English |

indicates chaining between turns in the same mode

indicates chaining between turns in the different modes (from oral to written)

indicates chaining between turns in the different modes (from written to oral)

indicates chaining between oral contributions and WB
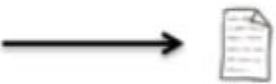
indicates chaining between oral contributions and Giovanna's offline notes

indicates chaining between oral contributions and course material not displayed on the WB

indicates chaining between oral contributions and course material not displayed on the WB

APPENDIX A. Screenshot of WB in Excerpt 1

Microsoft Word - regali.pdf

- Sei un tipo che ama spendere o preferisci fare attenzione e risparmiare?
- In cosa ti piace spendere i soldi e in cosa ti sembra stupido e inutile?
- Preferisci spendere soldi per comprare vestiti nuovi o per fare un viaggio?
- Quando fai un regalo, come lo scegli, in base ai tuoi gusti o a quelli della persona che riceve il regalo?
- È il tuo compleanno, puoi scegliere: o un bel regalo a sorpresa o una busta con i soldi. Cosa scegli e perché? Nella sua vita hai fatto l'esperienza di ricevere un regalo che non ti è piaciuto?

Microsoft Word – *presents*.pdf

- Are you the kind that likes to spend or do you prefer to pay attention and save?
- In what do you like to spend your money and in what you think is stupid and useless?
- Do you prefer to spend money to buy new clothes or to make a trip?
- When you buy a present, how do you choose it, following your taste or the one of the person who is getting the present?
- It's your birthday, you can choose: either a nice surprise or an envelope with money. What do you choose and why? In your life have you experienced getting a present that you didn't like?

APPENDIX B. Document on the WB (Excerpt 2)

17. Mercati e supermercati

lessico utile (glossario a p. 78)

spesa	banco	prodotti	dal fruttivendolo	il reparto
carrello	la carne	qualità	sacchetto	dei salumi
comprare	frutta	fresco	pubblicità	dei detersivi
cliente	verdura	surgelato	cassa	dei cosmetici
impiegato	pomodori	confezionato	scaffali	degli ortaggi

"tre etti di prosciutto crudo, per favore"   un negozio di alimentari
in offerta speciale   un mercato all'aperto
"quanti pomodori vuole?"   chilo / etto (100 grammi)
fare la spesa   barattolo / scatola / pacchetto / bottiglia

1. Osservate attentamente la foto in alto e descrivetela.
2. Chi fa di solito la spesa nella vostra famiglia? C'è qualche supermercato in particolare che preferisce? Per quale motivo?
3. A voi piace fare la spesa al supermercato o no e perché?
4. Quando andate al supermercato, in quale reparto passate più tempo?
5. Di solito confrontate i prezzi dei vari prodotti o comprate subito quello che considerate migliore?
6. Descrivete le due foto in alto nella pagina seguente. Ci sono mercati all'aperto e negozi di alimentari vicino a casa vostra? Dove si trovano?

La Prova Orale 1   33

17. Markets and supermarkets

List of useful words (world list at p. 68)

Shopping	market stall	products	at the fruit store	
shopping cart		the meat	quality bag	
To buy	fruits	fresh	advertisement	
customer	vegetables	frozen	check out	
employee	tomatoes	packed	shelves	

the department of
salumi (charcuterie)
cleaning products
cosmetics
vegetables

PICTURE

1. Observe carefully the picture and describe it
2. Who usually do the shopping in your family? Is there a particular grocery store that you prefer? Why?
3. Do you enjoy doing the shopping at the supermarket or not and why?
4. When you go to the supermarket, in which department do you spend more time?
5. Do you usually compare the price of the various products or do you buy the one that you thing is the best?
6. Describe the pictures on the following page. Are there open markets and grocery stores near your home? Where are they situated?

APPENDIX C. Giovanna's Notes

The translation is the same as in Giovanna's turns in Excerpt 2 (Line 01-14)

Mercati e supermercati

Nella mia casa facciamo di solito la spesa insieme, io e il mio fidanzato. C'è due grande supermercati vicino a casa, si chiamano Waitrose e Morrissons. Waitrose è un po' meglio, preferisco questo supermercato, ma sfortunato è più costoso. Quindi, normalmente facciamo la spesa in Morrissons, e qualche volta compriamo qualcosa invece al Waitrose.

Preferisco Waitrose perché sembra più organizzata e i prodotti sono meglio.

E quando vogliamo comprare qualche prodotto con qualità andiamo al Waitrose.

Poi, per comprare la frutta e le verdure, io preferisco

andare al mercato. Dove
abito adesso ~~ci sono~~ tanti
~~mercati~~ trottere
che vendono la frutta fresa
~~dsee tutto~~ Vado spesso li
per comprare frutta e le verdure

L'Unica cosa è che le trottere
chiudono presto, verso
alle sei
Quindi tante volte non
ho tempo per andare la
dopo lavoro. Questi giorni,
devo comprare ~~~~
anche la frutta e le verdure
al supermercato, e qui
non sono buoni come al
mercato, ~~~~ e sono anche
più costosi.

Compro anche la carne
dal macellaio, invece di
dal supermercato, sembra
più fresca così

Here Giovanna stops to read to attend to the teacher query in the chat

no... è che ci ho lavorato
tanti anni fa.

Giovanna writes this from the teacher's contribution in the chat

Translation last two paragraphs:

I also buy meat at the butcher shop, instead of the supermarket, it seems more fresh like that

No… it is that I worked there many years ago.

NOTES

1. We maintain that multimodality is an important dimension of communication in-real-life too.

2. See the Project CINLE webpage.

3. This means that the time spent during a particular phase shapes the length of the other phases of the session.

4. All participants' names in our analytical account are fictitious.

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