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Mobilizing Learning

A translanguaging view

Abstract: This article offers an alternative view of mobile learning, moving away from a focus on technology to an emphasis on the mobilization of multiple resources by the learner and the interactivity between the learner and the environment. We present an analysis of an episode of self-directed online learning by a multilingual learner using the perspective of translanguaging. We argue that the mobilization process is a process of translanguaging whereby the learner goes beyond not only the boundaries between different-named languages but also linguistic codes, transcending modalities and making use of the technological environment and artifacts. In so doing, we highlight the need for researchers to broaden the definition of language and language learning and look more closely at the details of how learners orchestrate and coordinate their mind and body to adapt to the affordances of the diverse range of multilingual, multimodal, and multisemiotic resources.

Keywords: Chinese; languaging; mobile learning; mobilization; multimodality; resources

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1 Introduction

This article analyzes an episode of self-directed online learning by a multilingual learner to show how she mobilizes multiple resources – linguistic, semiotic, artifactual, technological, and socio-cultural – to simultaneously make sense of what she hopes to learn and make meaning of what she produces during the process. The main argument we wish to put forward is that learning is a continuing adjustment process whereby the learner adapts their mind and body to multiple cues in the environment. In doing so, the learner needs to go beyond what is conventionally conceived of as language and transcend the

boundaries between different-named languages, as well as between language and other cognitive and semiotic resources.

The article is structured as follows: we review the existing literature on mobile learning, especially on mobile learning of languages. We point out that much of the current attention is on the use of mobile technology in language learning. Issues of learner agency and learner autonomy are discussed in particular ways to suit the learning technology research agenda. We then present a radically different view of mobile learning: we consider it as the mobilization of learning resources. We connect this view to the languaging perspective on language, cognition, and learning. We further extend the view by linking it to translanguaging, which is particularly relevant to multilingual language users and learners. The example we analyze concerns the learning of Chinese characters by a multilingual learner who does it on her own using an online digital platform. We show how she mobilizes the various resources at her disposal and adapts to the affordances of these resources in a continuing process of translanguaging. The theoretical and methodological implications of the study will be explored in the concluding section of the article.

2 Mobile learning, learner agency, and autonomy

There has been a surge of interest in recent years in mobile learning, partly due to the wider availability of different kinds of mobile technologies and partly due to the mobility of learners who need to acquire information and skills quickly on their own without going to a set course. Within this broader context, the rise of mobile-assisted language learning (MALL) has caught the attention of applied linguists (see, e.g., Kan, Owen and Bax 2018; Kukulska-Hulme 2018; Pachler Bachmair and Cook 2010; Pegrum 2014; Rosell-Aguilar and Kan 2015). They are interested in the potential of MALL to liberate learners from the spatial and temporal boundaries of learning, and to enrich the content of language teaching and learning through multimodal means that may be difficult to manage in a traditional classroom. For example, Zheng et al. (2012) studied digital gaming as a site where players engage in coaction which requires interlocutors to be highly coordinated to achieve a shared objective, resulting in meaning construction. They advocate for a more "participatory and dialogical views of interaction" (p. 341) for learning (see also Newgarden et al. 2015; Thorne et al. 2009).

Much of the existing research on mobile language learning, and on mobile learning in general, however, focuses on technological issues. For instance, Kim

and Kwon (2012) discussed the use of smartphone apps for vocabulary learning, and Kukulska-Hulme (2007) discussed the usability of mobile learning devices. "Mobile learning devices" generally refers to smartphones and tablets. The attention of these studies is on the affordances and functions of mobile technology, and how teachers and students can harness these affordances to fit their learning agenda. Other studies focus on the usability aspects of technology so as to evaluate whether the available tools are effective in teaching languages in different settings (e.g. Stevenson and Liu 2010). However, the technical orientation of evaluating technology is not without criticisms. Shield and Kukulska-Hulme (2006), for example, problematized the conventional notion of usability as a list of technical metrics to evaluate the technology, and pointed out that a better link needs to be built between usability and pedagogical design.

Nevertheless, technology is not the sole factor in mobile learning. While it is important to understand what the technology enables us to do, it is equally important to conceptualize mobile learning as a holistic experience beyond the use of technology. It is particularly useful to note that mobile technologies are used much more by learners who themselves are also mobile, either because their job entails high physical mobility or because they actively seek social mobility through self-initiated learning. Issues of learner agency and autonomy are clearly crucial here. The research literature on learner agency and autonomy in relation to mobile learning, though, has been preoccupied with how technology enables learners to have a high degree of self-determination and control (see, e.g., Schwienhorst 2003; Alm 2006; Terhune 2015). A significant number of studies on technology and learner agency and autonomy seem to hold the assumption that it was all about learners being "independent," i.e. learning on their own without overt instruction and supervision of teachers, as in the case of self-access learning centers in a lot of schools. While the role of the "external" conditions, e.g. physical environment and technology, is undeniably important for the development of learner agency and autonomy, the "internal" capacity of the learner to be agentive and autonomous is just as important (Lamb 2008). In particular, the ways in which the learner strategically mobilizes diverse resources for their self-directed learning and interacts with the physical environment and artifacts need to be better accounted for in order to better understand the impact of mobile technologies on learning.

In this article, we define mobile learning not in terms of mobile technology, not the mobility of the learner, but in terms of the mobilization of resources for learning. We want to highlight the learner's capacity to seek out the best available resources and to make strategic choices among the resources through continuous adjustment and adaptation to achieve their desired learning

outcomes. In particular, we are interested in how language learners in self-directed online learning environments interact with technology and other artifacts while drawing on diverse linguistic, semiotic, and socio-cultural resources in doing specific language learning tasks. Our way of conceptualizing mobile learning as mobilization of resources for learning is informed by the *languaging* view on language, cognition, and learning, to which we now turn.

3 Languaging and learning

The idea of languaging has existed in the literature in anthropology, linguistics and studies of human cognition for some time. The particular take on languaging that has inspired our thinking on mobile learning is the one pursued by the "distributed language" scholars such as Nigel Love, Stephen Cowley, Paul Thibault, and Sune Steffensen. They see languaging as "an assemblage of diverse material, biological, semiotic and cognitive properties and capacities which languaging agents orchestrate in real-time and across a diversity of timescales" (Thibault 2017a: 82). As pointed out in Li (2018), this languaging perspective challenges the conventional view of language as sets of abstract codes identifiable in terms of morphosyntax or lexicogrammar that are divorced from cognitive, affective, and bodily dynamics in real time. This group of languaging scholars argue that "human languaging activity is radically heterogeneous and involves the interaction of processes on many different timescales, including neural, bodily, situational, social, and cultural processes and events" (Thibault 2017a: 76). They therefore regard what has been conventionally identified as language to be a second-order construct, the product of first order activity, languaging (Love 1990, 2004, 2016, 2017; Cowley 2017; Thibault 2011, 2017a, 2017b; and Steffensen 2009, 2011). Thibault (2017a) urged us to rethink language not as an organism-centered entity with corresponding formalism such as phonemes, words, sentences, etc., but as "a multi-scalar organization of processes that enables the bodily and the situated to interact with situation, transcending cultural-historical dynamics and practices" (p. 78). As Li (2018) argued, such a perspective would render the traditional divides between the linguistic, the paralinguistic, and the extralinguistic dimensions of human communication as nonsensical. Instead, our analytical attention should be paid to what the languaging scholars call the "orchestration" of the neural–bodily–worldly skills of languaging. This languaging approach is clearly linked to the broader distributed view of human cognition that emphasizes the interaction and reciprocal effects of human

cognitive processes and the objects and constraints of the environment (see, e.g., Hutchins 1995; Hollan et al. 2000). Most relevant to the present discussion is that languaging scholars advocate a radically different view on language learning where the novice does not "acquire" language, but rather "they adapt their bodies and brains to the languaging activity that surrounds them." And in doing so, "they participate in cultural worlds and learn that they can get things done with others in accordance with the culturally promoted norms and values" (Thibault 2017: 76).

Thibault (2017b) analyzes a number of examples of young children engaging in complex languaging work around and in relation to text and artifacts, e.g. an iPad, in learning to read and write. In one example, a young girl, Catherine, and her father draw on and embed the products of their prior experiences of letter shapes into the short timescales of looking, touching, moving, talking, tracing, etc. in the process of articulating and reflecting on the graphic traces that they make. Their interactivity with tools (the pencil), a writing surface (sheet of paper), and articulatory movements of the eye–arm–tool–surface trace-making system drives the trace-maker's lived experience of making, construing, and reflecting on graphic traces. The activities of both articulating and perceptually exploring the graphic tracings catalyzes further talk, thinking, action, and affect as Catherine hones and develops skills in making graphic marks on a surface and in reflecting on and evaluating them. In doing so, Catherine, in concert with her father, brings into play and articulates what Thibault calls "the writerly self" who not only writes but also comments on, evaluates, reflects on, and prescribes what they write. It is a process of learning and becoming.

In another example, Thibault shows how a child integrates the verbal activity of self-communication with the manual activities of reading/playing with an iPad: she reads the images, text, and icons, taps the icons while verbally articulating self-commands, moves the icons and images on the iPad, adjusts her posture, the positioning of the iPad and her hands, and responds to error messages both verbally and physically through touching and tapping. All these activities are seamlessly coordinated into a coherent and structured process. The kind of self-communication the child produces is language-for-thinking: monitoring and coordinating activities, making decisions, changing the focus of attention and awareness, anticipating the flow of the activity. This self-communication is embedded in, related to, and influenced by the environment and what is happening around the child. Thibault calls this the "languaging meshwork" that is grounded in bodily dynamics and circumstances, but also ultimately constrained by cultural processes and traditions deriving from longer, slower cultural-historical timescales.

Languaging helps to create inter-connected and socially coordinated meshing of persons, artifacts, cultural norms, values, routines and institutions together with their cultural-historical traditions.

With regard to language learning, Thibault argues that the learner does not encode and decode syntactic structures and semantic contents in language. Rather, they learn to use verbal "objects" (wordings and texts) normatively to focus attention and attune to wordings and the flows of experience catalyzed by them, attune to a fluctuating environment in flexible and adaptive ways along an unfolding temporal trajectory, manage sense-saturated coordination, manage and anticipate the temporal flow of interactivity, differentiate and orient to situations and situation-types, and enact and display their selfhood. Steffensen (2013: 196) points out that human interactivity is defined as "sense-saturated coordination that contributes to human action." Seeing the mind as a sense-making system which is "(partly) conscious of its own sense-making" (Linell 2009: 12), it highlights the fact that humans are strongly interdependent with others, and interbodily movements are highly coordinated (Linell 2009; Steffensen 2013). Sense-saturated coordination also involves integrating the "not-here and not-now" with the "here-and-now" (Steffensen 2013). This is a multiscalar process involving the "whole range of bodily resources that are assembled and coordinated in languaging events together with external (extrabodily) aspects of situations, environmental affordances, artifacts, technologies, and so on" (Thibault 2011: 215).

The languaging perspective discussed above also highlights a difficulty in subscribing to the "language versus language learning versus language use" distinctions. "Language learning" and "language use" are misleading concepts since they assume that language exists in some objective form that human beings learn to possess first and then start to "use". Linell (2009) argues that language is constantly evolving and a "never finished product." Bakhtin (1981: 293) reminded us that "[the word in language] becomes 'one's own' only when the speaker populates it with his own intention". Before the word is appropriated by a speaker, it is not neutral and impersonal, as the word had already existed and had been used by other people, serving other people's intentions. Therefore, when a speaker appropriates a word, s/he has to make it her/his own. This process of making words one's own is crucial in understanding the mobilization process to be discussed in this article.

4 Translanguaging: Transcending boundaries

Building on the languaging approach to language, cognition, and learning, researchers of multilingualism, including multilingual communication and learning, have developed the concept of translanguaging (Li 2018). It challenges the traditional understanding of bilingualism and multilingualism where a bilingual language user is conceived as someone with two distinctive linguistic systems, or two monolinguals in one brain. Instead, translanguaging reminds us of the fact that different-named languages such as English, Chinese, Arabic, or Russian are a "socio-political categorization rather than a description of psycholinguistic reality" (Otheguy et al. 2018: 22). Human beings have the natural instinct to transcend the boundaries of named languages and the boundaries between what has been deemed as the language faculty and other faculties of the human mind, such as memory, perception, and thinking.

Translanguaging sees language learning as a process of knowledge construction that goes beyond different linguistic structures and systems and different modalities (Li 2018; Garcia and Li 2014). In a study of "informal" language teaching and learning in a multi-ethnic and multilingual karate club in London, Zhu et al. (2019) show that the karate instructors employ verbal utterances to cue and complement body movement and therefore become part of embodied repertories. For the participants of the club, karate learning is a performance of body movements, techniques, and Japanese karate terms, which need to be learned and perfected by repetition and copying. The instructor, who is Polish Roma and also speaks Polish, Romani, Russian, German, English, and karate Japanese, embodies teaching through an orchestration of embodied repertories – body movements, eye gaze, gestures, etc. –and verbal instructions. As learning and performing Japanese karate terms is emphasized as much as learning karate moves, doing Japanese becomes part of embodied performance, repeated, copied, and polished along with drilling of moves, while the other available linguistic repertoires, Polish and English, become languages of discipline, explanation, elaboration, or reinforcement.

Translanguaging embraces the social semiotic view of multimodality which problematizes the ideological preoccupation of conventional linguistic codes in meaning-making. It aims to challenge what Block (2014: 56) called the "lingual bias," and he views it as the tendency to privilege the linguistic aspects in communicative practices, such as an exclusive focus on morphology, syntax, phonology, etc. in linguistics research. For us, language learning is a translingual, transmodal, and trans-sensory experience, which has become more visible and recognized thanks to the ubiquity of mobile, online

technologies that have helped create diverse multilingual, multimodal, and multisensory sign-making practices that were unimaginable before. Language is an ensemble whereby the meaning of the message is distributed across different modes and carried in different ways by each mode in the ensemble. From the translanguaging perspective then, language is a multilingual, multisemiotic, multisensory, and multimodal resource for meaning- and sense-making, and a multilingual is someone who is aware of the existence of the political entities of named languages, has acquired some of their structural features and meanings, and has an ability to use them purposefully in social interaction (Li 2018). It is therefore important for us to understand how the sign/sense-maker which includes both the producer and the receiver of the sign, makes use of the affordances of the resources at their disposal.

From a dialogical perspective, "sense" is related to the perceptions of our bodies. These perceptions may motivate us to act, and therefore perception and action are intertwined (Linell 2009). In interactions, there is coordinated movements between bodies and body parts, and with objects in the environments, as well as "our perceptual uptake of these movements by use of proprioceptive, haptic, visual, auditory and other senses" (Linell 2009: 139). These interactions rely on the coordinated production and perception of the multimodality of interactions, such as rhythms, movements, gestures, etc. Some of our senses, such as touch, are able to produce and receive perceptions which have the potential to shape interaction and communication. Borrowing the words of Linell (2009: 142), "[t]he senses are used by self to make contact with others and the world'," and therefore they play a crucial role in interaction and sense-making in the case where the body and mind are embodied and integrated. As Steffensen (2013: 199) points out, "living organisms perceive as they act and, conversely, act as they perceive". Our senses are dialogical. Understood from the perspective of social semiotics, "meanings" are manifested in "signs". They involve the interaction between the sign-makers' interests and the meaning potential of the resources available. Meaning is made twice, first when the sign has been interpreted ("inwardly productive"), and second, when it is materialized or realized as signs ("outwardly productive") (Kress 2010: 108).

5 Affordances and resources

Drawing on the work in ecological psychology and applying it to our understanding of (trans)languaging, we see environmental affordances as shaping behavior and awareness. Gibson (1979) first put forward the notion of

affordances and referred to it as what the environment offers the animals. However, this view was challenged as being overly simplistic. Instead of seeing them as properties of the environment, Chemero (2003: 184) argues that affordances are "relations between particular aspects of animals and particular aspects of situations". He further reminds us that affordances should been seen as "features of whole situations", emphasizing the interconnectedness between the environment and the animal. This view is also echoed by Rietveld and Kiverstein (2014), who argue that affordances have to be considered as embedded in the animal's way of life and its niches. Put it simply, affordances provide possibilities for humans and animals to make certain actions possible. Humans and animals can see and interact with these affordances, which provides possibilities for them to make certain actions possible. Resources, on the other hand, refer to the supplies of material goods or symbolic capital for humans and animals to take action for specific purposes; these include time, space, language, etc.

6 Multimodal learning of Chinese characters

Let us now look at an example of how a multilingual learner of Chinese interacted with an online digital platform designed for language learning, and adapted herself to the affordances of the technology in order to seek out the best available resources for learning. This example comes out of a larger study by Ho (2018a) which includes case studies of self-directed learning of Chinese via online platforms. In that study, 11 learners of Chinese with different linguistic and cultural backgrounds were observed regarding the strategies that they used to learn to read and write Chinese characters. At the time of the study, the learners were located in different geographical locations, and had different life and work experiences.

Data collection methods included screen-based observation and semi-structured Skype interviews. The learners agreed to be observed via screen recording using software called Camtasia over a 4-week period and subsequently participated in Skype interviews. The online screen recording captured learners' use of the keyboard and mouse, their facial expressions, what they were saying to themselves, and what they saw on the screen. They installed the free screen-recording software on their computers and did the recording in their own time. They then uploaded their recordings to a designated password-protected Dropbox account every week (Ho 2018a). The

students uploaded a total of 18 hours of recordings, averaging 1.6 hours per learner.

All the learners were volunteers who were recruited through online channels, and at the time of the research, they were all using a specific online platform, Memrise, to learn to read and write Chinese characters on their own. Memrise, a London-based company, offers online courses in languages. It is a multilingual platform where one can learn different languages through different languages. We had permission from the company to study the design of the platform, and in particular, we looked at the Chinese courses and how learners interacted with the lesson materials (refer to Ho 2018a, 2018b; Li and Ho 2018 for detailed descriptions of Memrise, and an account of the affordances of Memrise).

Memrise is one of the many online platforms that offers language learning materials to users. It operates both in website form and as a smartphone application. Thus far, not a lot of studies have been done on Memrise. Nevertheless, the limited number of studies on it have focused on two areas: vocabulary learning by drawing on principles of mnemonics and spaced repetition (see, e.g., Walker 2016) and studies to evaluate the technological aspects of it (see, e.g., Arvanitis et al. 2016). As far as we are concerned, studies on how users of Memrise mobilize learning resources are scarce. Studies of the same nature on other similar learning platforms is also limited.

The learner that we focus on in this paper is Valerie. She was a 20-year-old university student from Germany majoring in Communication at the time of the study. She described herself as being raised as a German monolingual. In addition to speaking German, she also speaks English, French, Spanish, Polish, and Portuguese. While she learned English, French, and Spanish at school, she learned Polish and Portuguese through other online platforms. When asked why she was so keen on studying languages, she revealed that throughout her education, she scored the highest marks in languages in comparison to other subjects, and therefore she perceived herself as being talented in learning languages. She had attended Chinese classes offered by the university for one semester, and she used Memrise during the semester break so that she could keep on studying when there were no classes. This article focuses on one of the learning sessions that Valerie provided to us, which is based on a list called "First 500 characters in Mandarin Chinese."

Here we present a partial transcript showing how Valerie learned to write Chinese characters. We acknowledge the limit of paper transcript of any dynamic and multimodal action, and focus on a selection of dimensions of the episode for highlighting rather than a comprehensive account of what went on. We have also included a more detailed multimodal transcript with the help of ELAN (see Appendix). The transcript has four columns. From left to right, the

first column shows the frames that we selected as significant: the format of the transcript was determined by our research question, which is to understand how the learner interacted with the digital platform and adapted her body in the process of learning. The second column shows the screenshots of such interaction, as well as showing what the learner was seeing on the screen. The third column is a description of how the learner positioned herself in relation to the screen and other artifacts. The fourth column presents an audio transcription of what she was saying during the recording. Note that in this case, what she said could be directed to herself, or directed to the researchers, whom she knew would be watching the video retrospectively. Her thinking-aloud was part of the research design. She was instructed by the researcher to do so in order to elicit the resources that she drew on when learning to write a Chinese character. Nevertheless, she was not instructed to speak to the researcher directly, and therefore it could still be the case that her speech was directed to herself.

As the learning episode is a multimodal interaction, a transcript such as the one shown in Table 1 can only attend to some of the modes that are of interest to us, and therefore this is a partial representation of reality in which some details are prioritized and others are left out (Flewitt et al. 2014). This was the first lesson that Valerie recorded for us, and therefore she chose to review some characters, and learn some new ones as well. The whole session lasted for 13 minutes: the first 7 minutes was on reviewing previously learned words, while the last 6 minutes was on learning to write new characters from the list provided. It should also be noted that within the last 6 minutes of learning, not all the words were new to Valerie, as she had been exposed to some of these words in other contexts. Also, as Valerie told us, she wanted to learn to write the characters, and therefore she had a notebook dedicated to writing practice. In the excerpt below in Table 1, we see how Valerie adapted her body between her computer screen and her notebook, as well as when talking to herself (or to the researcher).

In order to illustrate how Valerie adapted her body, mind, and her beliefs and experience in learning to write Chinese characters, we will now briefly describe an episode in her recorded lesson in which she was learning a new character. The following is the key to the transcript:

[...]	Omission of unnecessary details
li	Indication of Chinese pronunciation
[when it's done?]	Material in the square brackets is either inaudible or there is doubt about its accuracy
[inaudible]	What was said is unclear to the researcher

Table 1: Transcription of Valerie's learning episode

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Time	Screenshot	Description	Speech
Frame 1: 07:06		While she was speaking to the camera, she was flipping through her vocabulary notebook, which contains pages of her previous writing practice. She was seen making preparations for learning by finding the right page of her notebook and finding a pen at the same time.	I will learn new words. So I will be writing them down, because I am really bad at remembering if I don't write them down.
Frame 2: 07:27		Her gaze alternated between the computer screen (the character) and the notebook (see Appendix). She was simultaneously speaking to the camera when she was looking at the screen and the notebook.	[...] which is really fun because [it is?] based on part of 'two' and // for force
Frame 3: 07:40		When she was looking at her notebook, she was also writing with a pen. Her body leaned slightly closer to the screen whenever she was reading the character, and back to her original position when she was writing in her notebook.	To move. I think I should get the stroke order right [when it's done?] because the radicals are quite [normal?]
Frame 4: 08:04		Putting down her pen and holding the mouse to proceed to the next character.	Right. Got it down [inaudible]

Table 1 shows a cycle of events that occurred as Valerie was learning new characters. In the first 6 minutes (not shown in the transcript), Valerie was reviewing characters that were known to her through previous learning, so she only had to interact with the screen by clicking or typing the correct answer to proceed. However, when it comes to learning new characters, Valerie told us that she needed to write the characters down to help her remember them. As she was saying this, she was seen finding the right page in her notebook, and found a pen so that she could start the learning. This can be interpreted as a kind of framing by using artifacts such as notebook and pen to get herself ready with learning. Frames can be understood as the punctuation of semiosis. They indicate the spatial and/or temporal boundaries of a text or an action (Kress 2010). In this particular case, the appearance of the artifacts such as notebook and pen serve to mark the boundaries between the different stages of the lesson. This kind of framing can also be seen in other learning contexts, such as in pedagogical vlogs where semiotic resources are used as frames to ensure the smooth, uninterrupted flow of video lessons (Ho 2019). After a careful examination of this learning episode, we identified three main stages of her learning: 1) registering/deconstructing the character shown on the screen, 2) copying the character onto her notebook, and 3) holding the mouse to proceed.

6.1 Registering/deconstructing the character shown on the screen

The first step of learning involved registering the salient features of the character 动 ("to move" in English), and deconstructing it, both of which required Valerie to draw on her existing knowledge of Chinese, in particular, the knowledge of the composition principles of Chinese characters, for example, the knowledge that characters are made up of radicals, and also the knowledge of radicals. In the example shown, Valerie identified some features that were known to her in this new character, which was "two", ("二" in Chinese), and "*li*"("force" in English, "力" in Chinese). She was able to use this strategy to understand this sign because she had a history in making this kind of interpretation. She oriented herself to the screen, to the character in particular. She was thinking aloud during this process, and she was languaging. She was orchestrating an assemblage of semiotic and cognitive properties and capacities in real time and across timescales (Thibault 2017a).

6.2 Copying the character onto her notebook

After deconstructing the character, from her previous experience of Chinese learning in class and in online platforms, Valerie knew that the next step would be to practice writing the character using pen and paper. Valerie placed a strong emphasis on stroke order in her Chinese learning, and she believed in physically writing the characters. She mentioned in the semi-structured interview that

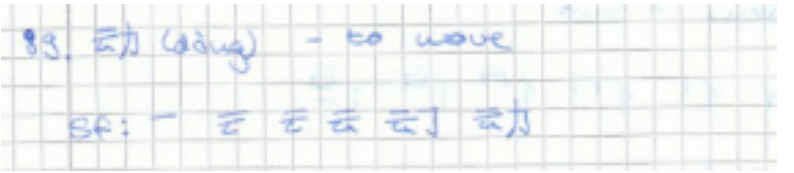
> Interview excerpt 1:
>
> I can only remember things when I've written them down. Also, with Memrise I have a little book where I write down the characters and meaning and the stroke order, so I remember them, also how to write them. (Valerie, semi-structured interview)

> Interview excerpt 2:
>
> When you know the radicals, it's easier to remember what the character means. And also if you have some order you know where to start and where to end, sometimes I'm like, okay wait, I know this radical is in this character...mostly if I get the first one right I get everything right because that's the way I learn it and it helps to get the rhythm of the words (Valerie, semi-structured interview)

The above quotes exemplify the interconnectedness of the mind and body, the embodied nature of learning. A languaging perspective invites us to understand linguistic knowledge not as "a store or collection of linguistic objects or information about them", but rather as "artefacts spontaneously created and re-created for our immediate purposes" (Love 2017: 140). Linguistic resources are created "on the spot" rather than being made available and waiting for us to use.

From the recording, it can be seen that her gaze, as well as her whole upper body, shows an alternating orientation between the computer screen and the notebook. In the one minute that she spent learning the character 动, her gaze shifted from the computer screen to her notebook repeatedly (see Appendix). While this was happening, she was thinking aloud, talking to herself (or to the researcher) on how the character should be read, and on the importance of stroke order and radicals. These "whole-body-sense-making" moments involved a whole range of bodily resources, and they occurred within rapid timescales, i.e., they are picoscale bodily events (Thibault 2017a). In the short space of one minute, she was seen constantly crossing the boundaries between the learning content on the computer screen, writing on her notebook, and talking to herself or to the researcher. Needless to say, while she was doing all of those, the

primary activity was the embodied practice of physically writing the character with respect to the stroke order which she knew from her prior experience. She crossed the boundaries of modalities by transforming the content shown on the screen onto her notebook (Figure 1). She also demonstrated her ability to orchestrate resources of different spatial and temporal scales available to her (Thibault 2011; 2017). She clearly had knowledge of the affordances of the tools that she had at her disposal. For instance, the Memrise platform enabled her to notice the form of the target character on the screen and have access to the English meaning of the character, as well as the pinyin (a romanized pronunciation system for Chinese characters); however, the constraint was that she was not able to interact with the strokes of the character with her body. Therefore, as an act of compromise, she used another resource, a notebook, so that she could engage in the embodied experience of using her body and mind to practice writing the character, while at the same time drawing on "situation-transcending practices" such as her experience of attending a Chinese class in the learning process. She (Linell 2009) understood that in order to practice the stroke order of characters, physically writing them down with a pen was the apt way to do it, as writing enables her to develop physical experience of writing a



character.

Figure 1: Valerie's handwriting

Writing by hand requires the knowledge of stroke order, the angle, curvature, directionality of the strokes, the spatiality of the different elements of the character, etc. Learning to write by hand helps her to "experience" the character differently from just looking at it or selecting it on the screen. In other words, writing by hand demands a different set of epistemological commitments (Kress 2010) that is different from just recognizing the form. Her decision to practice writing by hand shows that she understood the affordances provided by the technology and resources that she had at her disposal, and she actively adapted her body to these affordances.

In the process of "copying" the writing from the screen to the page, transformation occurred. The notebook that Valerie used had grids on it. She chose this kind of notebook because she could "determine the spacing between

the written lines better" (Valerie, email correspondence). This shows that although this is a new character to her, based on her prior experience of writing Chinese characters in Chinese classes that she attended, she understood that proportion is important in writing Chinese characters. This is an example of her drawing on knowledge accumulated in different contexts and timescales to help with the current task. Figure 1 shows the 89th entry of her notebook. From the arrangement of information, it can be seen that Valerie transformed the learning content. In the original material provided by the online platform, there was no stroke order. In Valerie's notebook, she added a row which showed the stroke order (*Strichfolgen* in German, or "SF" as indicated in the handwritten text).

Through the act of "copying", Valerie demonstrated her agency in learning. She had to select what she should write down in her notebook, and what to leave out. She had to recognize what was salient and what was not. It can be concluded that "copying" in this situation is an active, motivated act which involves semiotic work from the "copier", and it demonstrates signs of learning, as opposed to passively copying without engaging with the content. "Copying" should therefore be seen as "a relational process where an existing material entity is interpreted and then remade as a different material entity" (Mavers 2011: 15).

In the process of writing the character, Valerie had mobilized a variety of multilingual and multimodal resources. She was thinking aloud to herself and/or to the researcher, she was deconstructing the character to try to find out the correct stroke order, and on her notebook, she was determining the proportion of the various components of the character. The meaning of the character was in English, and she also used German to indicate other aspects such as the stroke order. She was constantly traversing between different language systems and modalities in so doing. Valerie also brought with her some offline classroom practices into the online learning environment (see also Ho 2018b).

6.3 Holding the mouse to proceed

After writing down the character on her notebook, Valerie put down her pen and held the mouse instead to move on to the next word. When that happened, Valerie's attention was back to the computer screen again. This can be seen as an action to frame the conclusion of learning a character. Nevertheless, from a dialogical perspective, her experience of learning the previous character, as well as her experience learning with Memrise, is mobilized again when she

encounters the next new character. She goes through the same mobilization process. It has to be noted that the three steps of learning a character repeated four times for four different characters in the whole recording that Valerie submitted, and the above analysis only focused on one such example.

7 Discussion

This short episode of how a multilingual learner mobilizes different resources, including the linguistic, the modal, the sensory, and the bodily, to learn a written Chinese character demonstrates that learning is a continuing adjustment process whereby the learner adapts herself to the affordances of the environment. In the screen recording, it was shown that Valerie was constantly adjusting her body to adapt to the changing environment, and to different artifacts. When she was first shown the character, she adjusted her body in such a way that all her senses, including her gaze, posture, and speech, were focusing on deconstructing the character, a skill which required a great deal of focus and attention for someone who was trying to learn a new writing system. Her thinking-aloud helped us to unpack what aspects of the character she was attending to, and what kind of knowledge she was drawing on when engaging in this languaging process, such as the knowledge of the composition of Chinese characters, radicals, proportions of the various parts of a character, and her own beliefs of Chinese learning. Her thinking-aloud can thus be seen as an "orchestration of different temporal scales" (Thibault 2011, 2017). When she was practicing writing the character, she oriented to the notebook that she was using, and based on her previous experience of learning to write characters, as well her belief of the affordances of writing things down, she sought the best way to practice writing characters by continuously adjusting her actions.

Valerie's mobilization of her prior experiences of Chinese learning, or character learning to be specific, reflects her orientation to what Linell (2009) refers to as "situation-transcending practices", connecting the present language learning situation with past knowledge and experiences. Following Linell's (2009: 49) uses of "situated" and "situation", both terms are used when reference is made to "specific occasions or encounters, specified in terms of particular times and places and specific participants", and thus, all communication occurs in a "situation." "Situation-transcending practices" are linked to "habituality, routinization, conventionalization and institutionalization of human practices".(p. 50) In other words, they involve drawing on experiences and knowledges which occur at a different timescale

and space, and perhaps even transcending genres and activity types. (p. 50) In our example, Valerie's prior experience of learning Chinese through attending a course, and her experience of using Memrise and other online platforms to engage in language learning are indeed "situation-transcending practices" which shaped her approaches and strategies to learning in the present situation. Through those past experiences, Valerie developed a set of conventions and routines for learning. As mentioned elsewhere (Ho 2018b), the way Valerie practiced writing the character is also an example of her deploying institution-based requirements and expectations from a different timescale into her out-of-class learning practice. It is a case of showing the non-local and non-situational aspects of language learning, i.e., bodies are non-local, they extend in space–time (Steffensen and Cowley 2010).

In the example above, it can be seen that the second-order language, i.e. the character, is not the focus. Rather, the focus is on mobilizing and coordinating her whole range of bodily resources for learning, by moving between and beyond different linguistic and semiotic systems. In the short one-minute learning episode, she was looking at the screen, registering the salient features of the character, and deconstructing it using the resources that she possessed from her previous learning experience; she was physically writing the character down on her notebook; she was talking to herself (or to the researcher), verbalizing her cognitive processes. She was therefore engaged in a "whole-body-sense-making" (Thibault 2011, 2017) activity, linking past experiences and past knowledge, and applying them to the present situation thereby transcending timescales. More importantly, it can be seen that she was constantly adapting herself to the affordances of the different resources that she possessed, and transcending the boundaries between different-named languages, as well as between language and other cognitive and semiotic resources. She deconstructed the Chinese character with English and Chinese, both languages being resources in her repertoire. She was using these languages in a seamless and fluid way, showing that the multilingual, multimodal, and multisensory processes are dimensions of the same process and experience, not separated processes that can happen on their own (Li 2018). Translanguaging concerns the entirety of the learners' repertoire. Through her continuous adjustment and adaptation of her body, it can be seen how Valerie drew on her diverse linguistic, semiotic, and socio-cultural resources in this languaging activity.

To sum up, through mobilizing the different resources for learning, Valerie was, in Bakhtinian terms, making the word her own. Her learning process demonstrated how she populated the word with her own intentions, her own accent, and adapted it to her situation-transcending practices to make the word

her own. The act of adding stroke order in her notebook, a resource not directly given to her by Memrise, is a meaningful act. She recalled the "principles" that she had learned previously on stroke order, perhaps from her experience of attending Chinese classes, and externalized and materialized them in this "resemiotization" process (Iedema 2003), a process which shows "how meaning making shifts from context to context, from practice to practice, or from one stage of a practice to the next" (p. 41). This kind of "deconstruction" is frequently done in Chinese language classes, and there is a high possibility that the practice that Valerie shows here is a re-enactment of her memories of classroom practice from before, situating it in the here-and-now.

Figure 2: The mobilization process

8 Conclusion

Language learning in an era of heightened mobility requires us to reflect on current ways of thinking about mobile learning, learner agency, and learner autonomy. While it is true that technological advances provide more opportunities for individuals to engage in self-directed learning, with affordances to interact with, and engage in a variety of multilingual, multimodal, and multisensory sign-making practices, self-directed learning still places constraints on what the learner can do at a specific time and place. This article has presented a case study of a learner learning Chinese in a self-directed setting, and we have shown how she integrated her mind and body in the process of learning. We have shown how Valerie learned Chinese by

orchestrating resources from different spatial and temporal scales. We highlighted the non-local and non-situated aspects of language learning by extending her body and mind to orchestrate and mobilize resources across timescales.

We see the mobilization process as a process of translanguaging, whereby the learner goes beyond not only the boundaries between different-named languages but, most relevantly in this article, beyond linguistic codes, transcending modalities and making use of the technological environment and artifacts such as the resources provided by the online platform, physical artifacts such as the learner's notebook and pen, as well as the learner's experience and knowledge, such as beliefs and subjectivities of language learning, the feeling and memory of the learner toward the use of various resources, and previous experience of language learning in various settings. All of them become resources for learning through the mobilization by the agentive learner. Mobilization of these resources requires the learner to orchestrate the neural, bodily, situational, social, and cultural processes and events from different timescales and integrate them in the languaging process (Thibault 2017a). Not only are learner agency and autonomy related to the physical environment or technology, but also the learner's capacity to seek out the best available resources and to make strategic choices among the resources is also a manifestation of their agency and autonomy.

With regard to the learning of written Chinese characters which our example in the paper concerns, a set of "epistemological commitments" is required which is not normally expected of speaking, listening, or reading. It therefore requires more strategic thinking and planning by the learners to mobilize resources that go beyond conventional ways of learning. This article expands our understanding of mobile learning, which is more than just the use of mobile technology or mobile learners. Mobile learning is the mobilization of multilingual, multimodal, and multisemiotic resources for learning and the learner's continuous adaptation of the languaging activity. It is a dynamic process that is not linear.

The languaging perspective on learning helps us to shift our attention from the acquisition of linguistic structures to the way learners "adapt their bodies and brains to the languaging activity that surrounds them" (Thibault 2017a: 76). The translanguaging perspective further emphasizes the importance of looking beyond the conventional conceptualization of language as codes of speech and writing, in particular, the embodied and multimodal dimensions of learning. As Thibault (2017a) reminds us, language learning involves "participating in and learning how to orchestrate these multimodal assemblages and the social practices they are embedded in" (p. 82). Therefore, bilingual and multilinguals'

flexibility of being able to switch or combine the range of resources available to them is a considerable advantage in a world in which communication is increasingly becoming more multilingual and multilingual (Kenner and Kress 2003). Methodologically then, researchers need to pay a lot more attention to the details of how the learner interacts with the environment and how they mobilize different multilingual, multimodal, and multisensory resources through continuous adjustment and adaptation of their body and brain in order to "understand languaging as a dynamical process across multiple time-scales" (Thibault 2017a: 84). In sum, this article hopes to bring about a shift in current thinking of what mobile learning is about by highlighting how the (trans)languaging perspective on learning can help us understand language learning as mobilization of resources beyond the conventional linguistic realm.

Not only can this perspective on learning shed light on mobile learning using technology; it can also contribute to our understanding of interactions in general. For instance, in classroom interactions, while a lot of attention has been placed on the way teachers use language to give instructions, construct knowledge with students, and address different issues in classrooms, the embodied aspect of teaching and learning is not yet adequately explored. More studies can be done to understand how teachers orient and adapt their bodies in relation to the students and artifacts in the classroom. Potential sites of interaction such as professional meetings or consultation sessions can also be explored in such a way.

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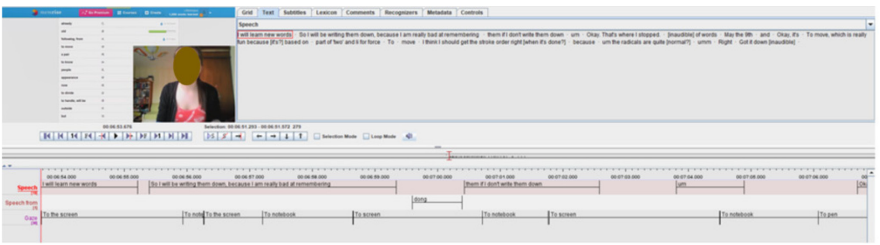
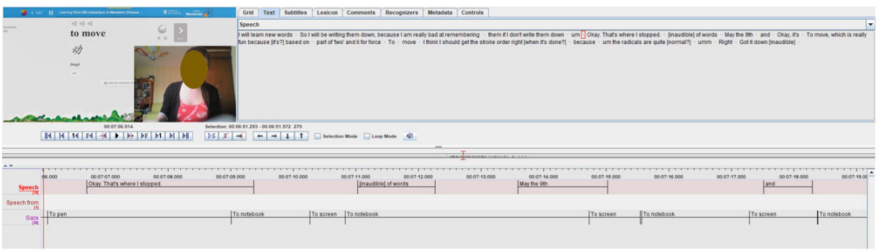
Appendix

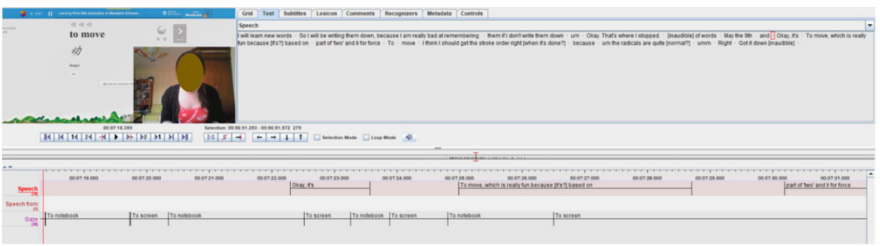
This is the original transcript from ELAN. There are three layers: Speech (from Valerie), Speech (from Memrise), and Gaze.



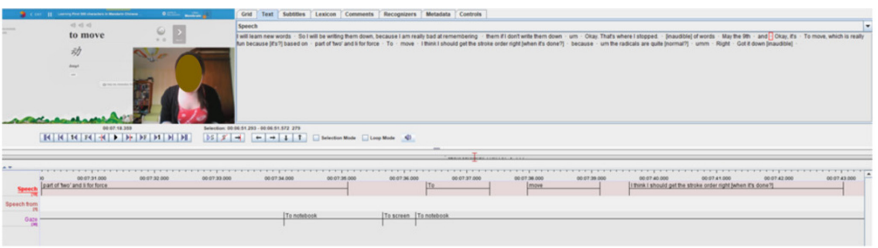
1: 06:53 – 07:06



2: 07:06 – 07:18

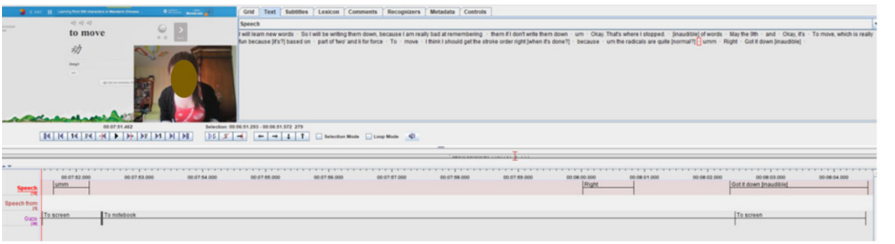


3: 07:18 – 07:30



4: 07:30 – 07:43

5: 07:43 – 07:51



6: 07:51 – 08:04