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Chapter 5
The Personal Repertoire and Its Materiality: Resources, Means and Modalities of Languaging

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Abstract The chapter is a theoretical discussion of the concept of *personal repertoire* and its application in the context of applied linguistics, particularly in the study of language learning and development. It questions conceptualisations that understand language learning as acquisition of abstract, decontextual and disembodied language knowledge and argues that learners' know-how is not based on any kind of 'mental grammar', but on a personal repertoire of different multimodal semiotic resources. Bringing together 'old' and 'new' arguments for materialism, personal repertoires are examined focussing on how embodied agentive activity is intertwined with the socially structured environments and their specific material features, tools and artefacts. The repertoire, or the know-how that emerges, is not, strictly speaking, 'language', but rather, a meshwork of 'skilled linguistic action' in the analysis of which embodiment and materiality are highly significant considerations. The viewpoint transcends the alleged gap between social and cognitive orientations of language learning research and discusses learning and use of language from an ecological point of view as 'languaging'.

Introduction: Learning and Knowing Language

The chapter is a theoretical discussion of personal know-how of language(s) in the context of applied linguistics, particularly in the study of language learning and development. The objective is to question the acontextual, dematerial and disembodied conceptualisations of language that were typical of classical psycholinguistics and SLA (second language acquisition). Instead, language is approached from

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a "first-order perspective" (Love, 2004) and regarded as *languaging*, as different sets of embodied agentive activity that take place in a variety of social and material contexts. At the same time, this point of departure also points out the inadequacy of seeing language learning as acquisition of a 'mental grammar' – a collection of abstract knowledge that does not embed any reference to social use or bodily performance. Re-configuring 'language knowledge' as personal know-how, or, as a *personal repertoire*, the focus is shifted to investigating how individual agents cope with different types of semiotic resources in their social and material environments, and how they use different modalities for this. The repertoire, or the know-how that emerges, is not, strictly speaking, 'language' (in its abstract sense), but rather, a meshwork of 'skilled linguistic action' in the analysis of which embodiment and materiality are highly significant considerations.

To continue, the point of departure is ecological, and aims at transcending the alleged gap between social and cognitive orientations of language learning research. In line with most chapters in this volume, social and societal phenomena are approached as both "materially real and socially constructed" (Coole & Frost, 2010, p. 26; Ennser-Kananen & Saarinen, in this volume). Still, a further argument is introduced to suggest that the processes by which individuals learn and use language is similarly defined by materiality and embodiment, and thus not only social practices, but also cognitive processes are to be defined as embodied activity that takes place in a material world (Dufva, 2012). The chapter aims at explaining how embodied agentive activity is intertwined with the socially structured environments and their specific material features, tools and artefacts.

The discussion brings together different, "old" and "new" perspectives on materialism: observations from the Russian dialogical/sociocultural tradition (e.g. Voloshinov, 1973; Bakhtin, 1981; Vygotsky, 1981), contemporary sociolinguistics (e.g. Blommaert, 2010; Pennycook & Otsuji, 2015), new materialism (e.g. Fox and Alldred 2019) and distributed / embodied views on language and cognition (Chemero, 2011; Cowley, 2011). While the ontological and epistemological positions of the above may not be identical, and while their readings of materialism may differ, I will point out how certain commonalities in their arguments would be highly productive for re-formulating our understanding of agentive knowledge.

The starting points challenge the dichotomous representations of both individual vs. environment and mind vs. body relationship. In this, they also transcend the alleged 'gap' between social and cognitive perspectives of applied linguistics (Hulstijn et al., 2014) and argue that languaging – language learning and use – emerges in *learner-environment systems* (Järvilehto, 1998) that involve human actors but also non-human objects and artefacts. Thus, the social-cum-cognitive perspective (Dufva, 2010) on how human agents approach 'language', how they make it their own, and how they 'know' it, is ecological. Therefore, as Lantolf (2014) indicated, there is no gap between social and cognitive views (see also Douglas Fir Group, 2016). To understand the complex ecology of eventing, an agential cut is made into the entanglement of a variety of processes (Barad, 2007). Here, I focus on how personal know-how of languages emerges in the ecology of eventing and discuss it from the point of view of embodiment and materiality.

Below, language learners and users are examined as embodied agents who operate in particular physical and material environments and with resources that are afforded in particular kinds of materiality. Hence, it will be argued that the base for how languages are known and used is in different kinds of embodied activity in different types of material contexts. These arguments are used to present an alternative to classical, cognitivist views of "mental grammar" that postulate an abstract, acontextual and amodal system of language "inside one's head". Here, agentive know-how of language is conceptualised as a *personal repertoire* that helps the agents to navigate in the fluid and diverse world of languaging. Repertoire is defined as an assembly of semiotic resources which embed a link to particular social contexts and their particular means and modalities. This also entails a view that, rather than a set of static linguistic knowledge, repertoire can be understood as an assembly of social and multimodal know-how.

The chapter also aims at demonstrating that the field of applied linguistics needs an in-depth (re)consideration of the 'cognitive' aspects of language learning and use, which, since the social turn (Block, 2003), have been either ignored, or investigated from 'classical' cognitivist, internalist and individualist points of view. However, it is seen both timely and significant to go beyond the descriptions and discourses at social scenes and re-examine the cognitive dimension, in particular how individuals learn and use their first, second and additional languages. This is deemed not only as theoretically significant, but also vital for developing practices, such as, e.g. language education or assessment.

Materialism and Embodiment: Old and New Perspectives

Although one obvious materialist influence in the Russian dialogical and sociocultural tradition comes from Marxian tradition, one needs to note that Bakhtin, Voloshinov and Vygotsky were well-read on other traditions of continental philosophy, psychology and linguistics of their time – and thus also influenced by other sources (for the work of the Bakhtin Circle, see Brandist, 2002). I raise some points in their work that seem particularly pertinent for the discussion of materiality and embodiment.

First, the dialogical perspective implies that the focus of linguistic study should be on the concrete and material presence of language in different societal arenas, in societal heteroglossia (e.g. Voloshinov, 1973; Bakhtin, 1981, 1984, 1993). This involves the argument that language does not exist in abstraction but is material, given in bodily form. As Voloshinov (1973, p. 90) indicated, linguistic items do not work as *signs* until they are objectified "in some particular material (the material of gesture, inner word, outcry)". Similarly, language user is never a "disembodied spirit" (Bakhtin, 1993, p. 47), but an embodied being participating in lived dialogues "with his eyes, lips, hands, soul, spirit, with his whole body and deeds" (Bakhtin, 1984, p. 243).

Second, also the sociocultural tradition observes the significance of materiality, but is concerned particularly of the materiality of the social world, and human culture with its tools and artefacts. Their main arguments may be summarised in the claim that (language) learning and development is inherently intertwined with the social (material) world and its other human (embodied) agents (see, e.g. Leontiev, 1981; Vygotsky, 1987). The central observations are by no means outdated. Today, there are lively research traditions that discuss human cognition as distributed across the environment (e.g. Hutchins 2014; Li et al., 2020), that address human-artefact relationships (e.g. Kirsh, 2010; Salovaara, 2008; Guerrattaz, 2021), or that show the significance of human scaffolding to learning (e.g. Lantolf & Thorne, 2006; Strömmer, 2016).

Third, there are several contemporary fields of study, independent of the Russian tradition, that argue for the relevance of materiality. Among them is *new materialism* (e.g. Coole & Frost, 2010; de Freitas & Curinga, 2015; Fox & Alldred, 2019) that set out to reconsider and challenge some habitual assumptions and dichotomies underlying the twentieth century human and social sciences and argue for a shift of research focus from linguistic or social abstractions to activity that highlights bodies, spaces and time. Similarly, recent *sociolinguistic* research points out how crucial it is to turn from abstractions and analyse space as a material context and language as different semiotic *resources* (e.g. Makoni & Pennycook, 2007; Pennycook, 2017; Blommaert, 2010). At the same time, this raises ontological questions about dualistic representations of nature vs. society or human vs. non-human, as Pennycook (2018) in his paper on posthumanist approach to applied linguistics points out. However, similar concerns and arguments for materiality and embodiment have also been brought in in the *integrationalist* and *distributed* conceptualisations that analyse language in its "first-order" manifestation, as embodied 'languaging' (e.g. Love, 2004; Cowley, 2005). Finally, it is clear that recent views on *cognitive science* see cognition as *embodied* (Chemero, 2011) and/or *distributed* across the (material) environment and its tools (Hutchins, 1995; Cowley, 2011).

Although the theoretical strands above have different interpretations of materialism, their observations help to re-examine the agentive dimension of languaging, and see it as *interactivity* (Steffensen, 2013; Gahrn-Andersen et al., 2019), that is, as a complex network of embodied processes that helps human agents engage with the materiality of their world. In resonance with Barad's (2007, p. 139) philosophy of agential realism and her recognition of "the ontological inseparability/entanglement of intra-acting agencies", human agentive activity is regarded as a dimension in the ecology of eventing. Thus agency, or, agentive activity, is not defined by this or that pre-existing categorisation, and not 'located' within a single individual.

Know-How for Languaging: From Mental Grammars to Personal Repertoires

Know-How for Languaging: Against Mental Grammars

The point of departure for describing the principles that underlie a person's know-how of language is to recognise language learners/users as embodied agents that operate and are intertwined with their various natural and cultural habitats and need to be examined accordingly. This argument contests the theories that assume any kind of mental grammar, that is, an internal storage of language. First, the concept of mental grammar is what is called cognitivist (Still & Costall, 1991), that is, it reflects an internalist and individualist view on cognition, and implies that 'external' language is 'internalised', turned into (static) mental representations (for different views on representation, see Ramsey, 2007). Second, the assumptions of language are formalist and lead towards seeing mental representation as decontextual and amodal forms and structures. However, the conceptualisation of mental grammar as an internal library of essentially static formal rules and representations is problematic in several senses.

First of all, the metaphor of a speakers' know-how as a 'grammar' is misleading in itself. Grammars are artefacts that result from reflective, conscious analysis by a linguist or a pedagogue (Voloshinov, 1973). However, as Voloshinov (1973, p. 38) points out, the purposes and processes by which a scholar devises a linguistic or pedagogical grammar are simply unlike to the purposes and processes of agents involved language learning. To postulate a mental grammar is a hypothesis at best and a fallacy at worst – and it is proposed that it would be replaced by considering know-how as a repertoire.

Second, the assumption that a speaker's know-how is insensitive to the diversity of its social and ideological environment is a repercussion of a monolingual research bias and the idea that agents develop their know-how with one single language in mind. It seems to be a fact that most if not all 'external' grammars have been based on the notion of one boundaried (and homogeneous) language (Blommaert 2005), and, when used in education as a singular ideal and prescriptive model, have aimed at standardization of practices and have thus both spread and amplified the monolingual bias. Rather inevitably, however, to describe a person's know-how of language(s) as a grammar smuggles in the principles of such external grammars and leads one to imagine that learners' goal is to develop a system of a homogeneous 'language', a national language, or a named language. Still, this view is not genuinely substantiated by any research evidence, and may not be at all how learners approach language. A more likely explanation – and my working hypothesis - is that learners work on the basis of what is available in their communities and networks. Thus they appropriate a variety of resources from a variety of contexts, and their know-how may consist of different 'languages', but also of

different situated usages, dialects, genres, styles etc. (Dufva et al., 2014). This would also, arguably, entail in know-how that is practical and "ready-for-use" in different socially situated contexts.

Third, to assume that the speakers' know-how is 'language' *in abstracto* fails to account the role of different means and modalities by which languaging happens – the material uses of language in the social world and the embodiment of users. Consider language learning: in order to learn a 'word', for example, one needs to be exposed to its usage, either in spoken interaction or in the visual landscapes of written or printed media – and the exposure means that the agent encounters it with relevant particular means of their sensory capacities: hearing, seeing or, perhaps touching. Still further, to know a 'word' means that you can use in some specific manner – articulation, signing, writing, typing etc. To assume that know-how of language is 'linguistic', and insensitive to the modality of uses, is theoretically inelegant as this fails to account by what means agents turn their 'linguistic' knowledge into "real" language use – how they understand and use modality-specific and multimodal usages.

To conclude, while a 'grammar' – either external or internal – has commonly portrayed language in terms of formal and abstract representations, independent of diverse contexts and modalities, the obvious driving force for developing personal know-how would seem to lie in an ability to deal with the variety of material and embodied usages of the social world. My suggestion is that instead of an internal image of any named language, what language users need is multi-purpose networks of resources that are basically not only multilingual, but also multimodal. These networks of know-how are here named as repertoires.

Knowhow for Languaging: Repertoire

The concept of repertoire has its roots in early sociolinguistics and ethnography where it was referred to "the totality of linguistic resources – available to members of particular communities" (Gumperz & Hymes, 1986/1972, pp. 20–21; see also Gumperz 1964). Although often discussed in the sense of a community reservoir, it is clear that agentive aspects are not necessarily denied or excluded. This is perhaps most obvious in Dell Hymes' notion of *communicative competence* (Hymes, 1972) which suggests that individual speakers *do* have specific contexts and purposes in mind and that they aim at utterances that are socially 'appropriate' rather than grammatically 'correct' (Hymes, 1996, p. 33).[1] Unfortunately, while Hymes' concept has been wildly popular in the field of language teaching, his observations were never developed into a full-fledged psycholinguistic argument.

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[1] Communicative competence is Hymes' explicit response to Chomsky's conceptualisation of competence vs. performance.

Agentive dimensions of repertoire have also been discussed in more recent socio-linguistic research, particularly in the extensive literature on multilingualism. Similarly to the present argument, several studies have challenged the monolingual idea that individuals set out to acquire one particular language, or that they acquire any 'named languages' in parallel or sequentially. As Blommaert (2008) argues, individual repertoires are now often seen as *polyglot*, consisting of a range of multilingual resources that are adopted for social action in different contexts. Thus repertoire is not described as a grammar but reconceptualised as a communicative and indexical biography that portrays the person's social and cultural trajectory. Even further into an agentive argument, Blommaert and Backus' (2013, pp. 6–7, 22), drawing on the framework of construction grammar, say that a repertoire can be understood as a constructicon i.e. a collection of constructs. Busch's (2012, 2017) notion of *experiental repertoire,* similarly embraces agentive aspects, and moreover, draws on the works of Derrida, Butler and Merleau-Ponty, to highlight the significance of embodiment and emotion that are part and parcel of one's multilingual experience (for other recent discussions, see, e.g. Pennycook & Otsuji, 2015; Canagarajah, 2018a, b; Pennycook, 2018).

Drawing on the insightful arguments present in the sociolinguistic literature, it seems evident that no ready-made theory for what repertoire is or is not, is to be found there. While some authors admit an agentive dimension, others seem to deny it. For example, although Pennycook's (2017) discussion of *emergent repertoire* seems to draw on distributed perspective, similarly to my own starting points, he fairly explicitly denies its individual dimension: "…rather than being individual, biographical or something that people possess, repertoires are better considered as an emergent property deriving from the interactions between people, artefacts and space."

My own interpretation is that repertoire is indeed useful as a metaphor for the subjective, agentive know-how of language. But as the theoretical points of departure above indicate, this does not deny the social dimension, but rather transcends the assumed social vs. cognitive antinomy (Cole & Wertsch, 1996). Repertoire is individual in the sense that it reflects the trajectory and experiences of a unique individual, but it is social as it has its origins in collective resources and usages. What human agents learn, know and can do is deeply related with the language use at social arenas. But as each agent has a different trajectory – with different exposure to resources and with different experiences – the repertoires can never be identical.

Thus, like Pennycook (2017) I also see repertoire as emergent. The know-how certainly *emerges* in learning, in events where the resources are first met, then perhaps rehearsed and appropriated. However, when we *use* language – do languaging by saying or writing something in language "we already know" – the processes are slightly different. Languaging certainly emerges in the sense that the outcome is influenced by the constellations of the particular situation and that each situation differs from another. Utterances or sentences that emerge are never a mechanical repetition – unless you use a machine for copying them. However, in another very significant sense, languaging *re-emerges*. Agents do not draw only on the external

circumstances, or on-going interaction, but on what they have heard, said, seen, written or done *before*; or in other words, their own biography, or their capacity to *remember* and relate what they remember to their on-line activity (for an embodied view of remembering, see Sutton & Williamson, 2014). Although interactivity reaches *beyond* a single agent (for a view on joint remembering, see Bietti, 2010), it is as clear that it is not achieved *without* an agent. Therefore, for me, it is simply impossible to imagine an explanation of language learning or use where the agents' capacity to participate in interactivity is overlooked.

Below, I will further discuss the role of the materiality of the resources and embodiment of speakers in developing further hypotheses of how personal know-how – a personal repertoire – emerges and develops.

Materiality Within the Repertoire: Social Know-How Is Contextual and Material Know-How

Personal repertoire is introduced as a concept for approaching human agents' know-how of languaging, and proposed as an alternative metaphor for views that conceptualise the know-how as an 'internal catalogue' of rules and representations of a 'language'. Thus, considering everyday languaging activities, it seems reasonable to suggest that agents do not really find '*language* knowledge' as useful as, to use a slightly clumsy formulation, '*sociolinguistic* know-how'. Repertoires are not developed as a grammarian's exercise but assembled for a purpose: for navigating in the social world and its different contexts and for achieving various types of situated, meaningful action therein; thus they are not only 'multilingual' for doing translanguaging (Li, 2018) but multi-genre, multi-register and so on. Echoing Hymes, it is not decontextual items and rules that speakers need but a know-how that embeds how, when, why and where to use it.

Hence, as linguistic resources unquestionably are available for learners in particular contexts, they are not just pieces of 'language' but indexical, in the sense that they communicate particular styles, registers, genres, varieties, languages and so on – and particular ideologies present in the societal heteroglossia (Voloshinov, 1973; Bakhtin, 1986). As Hymes (1972) suggested, human agents aim at saying something that is *appropriate* rather than something that is grammatically correct[2]. The simplest explanation is therefore to assume that social know-how is somehow coded in the person's repertoire. Instead of 'language', repertoires can be imagined as collections of different types of resources that allow flexible and situation-sensitive language use: know-how that helps you to read a newspaper article, tell a

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[2] Note, however, that appropriateness should not be understood as a reference to any single social norm or a particular standardised practice, but as responsivity to act upon different dimensions of the particular situation (for a discussion, see, e.g. Flores & Rosa, 2015).

joke, send a text message, participate in classroom interaction. At the same time, social practices are associated with particular materialities and embodied processes.

The development of a repertoire can be approached as a chronotope (Bakhtin, 1981): personal know-how is intertwined with the agent's experienced and embodied trajectory of encounters in particular times and particular spaces. Social scenes are not to be considered as abstract 'linguistic contexts', but as particular material spaces (see also Costall, 1995) that are defined by particular conditions and means – by their geography, architecture, artefacts, tools, art, documents and various other aspects. Thus a personal trajectory of languaging embraces embodied experiences of actual spaces: memories of the first grade classroom, a faraway home country, visits to the library, circle of friends. It is their affordances and their constraints that make the language that agents know.

In sum, language learning does not imply a linear process by which learners copy external language or "add" an abstract linguistic item – a word or a grammatical rule – in their private internal storage. Rather, they develop a repertoire that is an assembly of a variety of embodied resources that grows chronotopically and that is influenced by the materiality of spaces, scenes, events and persons along each unique trajectory (see also Canagarajah 2018a, b; Dufva, 2020). As repertoires reflect the life-span of particular, embodied learners, and as no trajectory can be absolutely identical with another, also repertoires need to be individual. No repertoire is a mechanical copy of an imagined 'language', but not a mechanical copy of social usages either. Everybody has a voice of their own – a voice that echoes the social heteroglossia, but similarly adds to its multivoicedness.

Embodiment of Repertoires: Modality-Specific and Multimodal Know-How

As suggested above, social action in itself involves materiality. But as the linguistic resources manifest in different modalities and as they are enacted upon by different bodily means, human agents, arguably, should have capabilities for first, operating with particular modality-specific ways, and second, for coping with the obvious multimodality that is present in language use. Again, the ability to learn and use language cannot be imagined as a 'linguistic' process, but needs to be examined focussing on how agents interact with different modalities and material tools.

To illustrate, let us consider how infants learn spoken interaction. To what extent is it 'language' that infants learn and to what extent it is just participation in essentially human interactivity? From the very beginning, infants are exposed to a variety of auditory, visual and tactile elements of spoken interaction, commonly in familiar environments. What children learn is how to navigate in their auditory and visual environments, how to appropriate the resources that are available for them and how to become active participants themselves. Language learning, in this sense, refers to a highly complex set of intertwining processes that involve different types of

sensory and motor action but also cognitive processes and social considerations. Children watch and listen, attend and observe, imitate and articulate. The main actors in learning spoken interaction are clearly human bodies – the infant and other participants – but also the material environment with its artefacts and its bodily comforts and discomforts. And while infants learn to be humans, they also over the early months and years learn to be humans in particular ways – learning "to do interaction" embeds the embodied interactivity but also the particular social and cultural norms and values that are attached.

The embodied processes of learning to do spoken interaction, however, are blatantly different from those that occur when children learn literacy, when they learn to read and write. Literacy means learning a new set of embodied processes and learning to operate with new sets of tools, often also in different environments. New types of linguistic resources are met on different arenas of writing and print and new embodied processes are launched (for an embodied view on reading, see Trasmundi & Cowley, 2020). Learners encounter visual language in printed books, magazines, advertisements in the linguistic landscape, hand-written words on blackboard, typewritten texts on paper, computer screen or smartphone etc. Learning to write, respectively, involves learning how to use one or several of the optional material tools: pens, pencils, brushes, keyboards, that is, learning a new motor skill. Material artefacts are not genuinely external tools only, but rather, part and parcel of the learning process and the particular skill to be learned. Although children in literate societies are acquainted with literacy from their infancy on, the skills are often ultimately learned at school and in its classrooms and are associated with formal instruction. Literacy therefore also embeds that children acquire new sets of norms, values and expectations. The geography of the classroom, its seating arrangements, its activities using either the blackboard, tablets or pencil and paper, its textbooks and other materials do not only give young pupils a new material environment but also a new model for social action: new ways of languaging are associated with new norms and new ways of talking about language.

This means that learning "to do spoken interaction" involves particular sets of embodied processes as does also learning "to do literacy" – and that each modality has a variety of "sub-genres" that are defined by different contexts. This is something that should definitely be observed in speculations about the nature of the know-how. It should be obvious that one 'linguistic grammar' cannot be responsible for the ability to cope with spoken, written and signed language and the multitude of their variations, but that somehow, the modality- and context-specific knowledge needs to be coded in one's knowhow.

Hence, as important as it is to assume an ability that helps language users *to operate across different social and material contexts*, it is also necessary to assume a capacity to operate *across modalities.* For example, the acquisition of literacy means that children do not have one set of language knowledge, but two kinds of know-how – and that they somehow need to relate these with each other. Thus beginning readers need some sort of understanding how the visually presented discrete entities of writing might relate with the continuous acoustic flows of spoken interaction they have been accustomed to listen to, and thus need to learn

"sameness" between certain visual signs and spoken utterances. Although human interaction is inherently multimodal – a flow of voices, images and sensations – today languaging involves not only several modalities but also several material means in parallel: one gives an oral presentation accompanied by visually presented slides, one listens and watches a film reading the subtitles at the same time, one checks one's calendar when talking with somebody and writes down an appointment, and so on.

My argument is, then, that it is not sensible to postulate such a database for human languaging that is acontextual but that it is as unproductive to assume an amodal set of know-how. It is therefore suggested that the resources that are assembled in one's repertoire embrace a link both to the (material) social context and to the specific (embodied) sensorimotor activity required. It may be needless to say that the outcome can be imagined only as a highly complex network that helps its user to cope with specific activity but that also helps to operate across the different activities: it embeds context-sensitive but cross-contextual knowhow, and similarly, modality-specific and cross-modal know-how.

Finally, I have preferred to speak of know-how instead of knowledge. This is in accordance with the speculation that personal repertoire could be further investigated as an assembly of *skilled action* (Cowley, 2018) that is connected both with human embodiment and materiality of the environments. That is, know-how is not 'know-that' knowledge – such as mental representations of language usually were conceptualised – but 'know-how' knowledge (Devitt, 2011). Hence, agentive knowhow develops through a series of processes that can be analysed as *enskillment* (Newgarden et al., 2015). Unlike a 'grammar', a repertoire is *action potential* for *doing* languaging in its different material and embodied contexts. Language users are not Cartesian agents but embodied speakers that possess both species-specific and unique capacities and whose abilities allow flexibility and agility for moving in the complex networks of languaging.

Personal Repertoires: Materialism, Nature and Nurture

Personal repertoires, being *chronotopic*, show traces of the learner's trajectory. The trajectory is not a straightforward path but rather a dynamic, criss-cross meshwork that is attached to different environments and modalities. Above, I proposed a view of repertoire as a collection of material and embodied means, described language learning as enskillment and discussed personal repertoire as an assemblage of skilled action. However, it seems evident that there are differences in the ways the know-how develops in naturalistic and formal environments. While agents in "natural" environments often learn by, e.g., spontaneous observation and imitation, in "formal" environments they are more or less rigorously instructed.

The differences between nature and nurture are by no means categorical. Informal environments, such as family interaction, can be highly instructive whereas formal environments offer many opportunities beyond teacher talk and teaching materials.

A more noticeable difference between formal and naturalistic environments is that the normativity of the school frequently offers an interpretation of "proper" that differs from the casualties of everyday interaction. Duly, while it is true that at school children learn to sophisticate their spontaneously acquired skilled action and that they acquire new skills, they also may be exposed to new ways of talking about language. This talk may recycle language ideologies that, e.g., conceptualise language exclusively in terms of national languages, that define native speaker competence as the ultimate goal of foreign language learning, that devalue multilingual activity or that subscribe to overall prescriptivism. Some of these ways of talking may echo highly conservative views on language and, moreover, views that are in no way substantiated by contemporary research. If these are offered as authoritative views, they neither enhance the students' own language awareness nor their agency, but instead, present them a prescriptive model to imitate.

Hence, the ways in which languages are talked about and taught at school and other institutions are highly significant, both to individual learners and to the society. Any instance of interactivity is constrained by sets of underlying values, norms and power relations, and personal repertoires emerge from circumstances that either give or deny access to different resources, means and tools, and that produce (in)equity and (in)justice (Badwan, 2021). These issues, most explicitly, intertwine with social and material realities, and ultimately, with ethic concerns (Pennycook, 2018). Finally, while ethical and political considerations apply in any context of language studies, it seems reasonable to suggest that they are particularly relevant for researchers and practitioners concerned with practices of language education (for views on language education that highlight ecology and materiality of learning, and see its entanglement with social issues, see e.g. van Lier, 2004, 2007; Canagarajah, 2018a, b; Toohey, 2018; Badwan, 2021). One obvious example is textbooks: while they are material artefacts that provide many kinds of lexical, grammatical or textual affordances for learning, at the same time they mediate norms, values and ideologies through their representations and discourses (see Saarinen & Huhta, Chap. 9, in this volume).

Discussion and Conclusion

The notion of personal repertoire was intended for re-opening a discussion on how the individual agents participate interactively. I strongly feel that without going back to "psycholinguistics" and reconsidering its conceptualisations, the study of language learning and use is at a dead end. Individual agents are never sole actors and never alone on the scenes of languaging. Still, for me, personally, they are the protagonists. Above, my specific purpose was to re-ground the psycholinguistic arguments on the materiality of the world and embodiment of human agents. To represent people as Cartesian rational agents would mean to play down the significance of "the actuality of world" and people's "compellent, ought-to-be relationship to the world" (Bakhtin, 1993, p. 47).

It needs to be pointed out that an agentive view does not downplay the worth of socially oriented research, but rather, argues that views of languaging as dematerialised, linguistic social action are insufficient, particularly when theorising language learning and language education that involve deeply human interests and issues of wellbeing. Here, human languaging was approached as an ecology of eventing that does not deny the aspect we call social, but attaches it with embodiment of human agents and materiality of the environment and its different tools. The view can also be associated with Barad's (2007, p. 141) views that refute the *a priori* categorisations and that aims at understanding human agency within the ecology of eventing, and as a dynamic set of forces. Agency is not anyone's property but emerges in coordinations between human bodies, artefacts, and space.

One final disclaimer. Above, particular attention was given to the significance of materiality and embodiment. The argument does *not* suggest a naïve materialist and mechanist description of language learning and use as mere 'articulation' or 'writing' or the like. Nor does it subscribe to a view that "language resides in the brain". Clearly, however, there is a variety of "invisible" and "inaudible" dimensions that are present in interactivity. For example, while we can often watch, listen to and record how language users to relate with the present environment, we cannot necessarily see how they relate the *here-and-now* eventing to what is *not-here-and-not-now* (Steffensen, 2013; Steffensen & Pedersen, 2014; Cowley & Steffensen, 2015; see also Dufva & Aro, 2012; Dufva, 2019) that is, how they remember and anticipate. In most cases, we cannot see or hear how learning actually happens either, and similarly, while we sometimes see or hear an emotion, the meanings and values of conversation often lack a tangible manifestation. Simply, one needs to acknowledge that there exists a number of capacities by which language users are able to give meaning and to operate across time and space beyond their current environment: to remember, to categorise, to anticipate, to plan, to analyse, to give value, to imagine. Also these "immaterial" dimensions – that might be called cognitive and metacognitive - contribute to how agents operate. While embodiment and materiality ultimately may play a role in the development and use of these capacities, the issues, clearly, need to be explored and investigated in much more detail.

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