

Challenges of multilingual education: Streamlining affordances through Dominant Language Constellations

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Abstract

This contribution to the special volume is written in tune with Prof Marianna Visser's seeing linguistic diversity in Africa as an asset rather than a complicating factor (2012, 2013). Multilingualism is without a doubt an advantage. With that said, multilingual education is a truly challenging enterprise. In particular, the realisation of appropriate educational affordances is a daunting task. In view of this, the aim of this chapter is to highlight the necessity of systematic managing of affordances in multilingual education and introduce the idea of *affordances streamlining* as an additional way for bettering the practice of multilingual teaching and learning.

Keywords: Multilingual education; affordances; Dominant Language Constellation; affordances streamlining.

1. Introduction

The selection of proper affordances is a must against the backdrop of global complexity and diversity that have transformed and challenged educational and language practices. The challenges of multilingualism have been addressed in the volume edited by Kramsch and Jessner (2015) and also dealt with specifically in the African context (e.g. Kamwangamalu, 2012; Mufwene, 2010; Muthwii, 2007) and most recently by Banda (e.g. 2016, 2017, forthcoming). Educational challenges have been referred to in the works of Visser (2007, 2012, 2013; also Steenkamp and Visser, 2011) and Coetzee Van Rooy (2010, under review). Visser (2013: 4) expressly notes the multiplication of socio-political and educational challenges associated with the colonial past and multitude of languages in the African continent, where it is often difficult to distinguish between varieties and dialects. In this context, detecting and realisation of appropriate affordances only, and not all affordances that relentlessly appear and fade in multilingual education present a specific challenge in their own right.

This chapter suggests the use of an analytical tool, Dominant Language Constellations (DLC), as a framework for detecting and sorting out the plenitude of affordances arising for multilingual education. Employing certain algorithms for perception, selection and realisation

of appropriate affordances in specific multilingual situations delimited by the frame of DLC is called *affordance streamlining*.

To this end, in the following sections of this article, I shall first refer to affordances in multilingualism and education and then describe the concept of Dominant Language Constellation highlighting its features that enable targeted selection and organisation of affordances. Finally, I will explain how DLC can serve as an analytic tool for streamlining affordances, and suggest a general, still crude technique of sifting through and picking out only these affordances that are appropriate for particular settings.

2. Affordances in multilingualism and education

The affordances approach is famously originated by James Gibson (1979/1986) in the field of biopsychology. Gibson introduced the term “affordance” to denote what the environment “offers the animal, what it provides or furnishes, either for good or ill” (1979/1986: 127). Explaining his concept, he provided examples of affordances for “terrestrial animals like us” (Gibson 1979/1986: 130) as horizontal, flat, extended and rigid terrestrial surfaces, such as ground or floor, that afford support as well as climb-on-able, or fall-off-able cliffs, trees and stones, which can also be get-underneath-able or bump-into-able. To continue examples in human milieu, a table affords writing on, or serving food on, conversing around, sitting on, standing on for any purpose, such as whitewashing the ceiling, or changing the electric bulb. Doors afford entering and leaving, or marking the borders; a needle affords piercing; rope affords weaving.

Due to the many advantages the knowledge on affordances can bring, their study is employed in various areas of human activity such as industry, business, technology, or entertainment. Considering affordances will help resolve or limit the challenges of the multilingual education.

2.1 Educational affordances

Theoretical approach to affordances that is applicable to affordances in education originates from a number of disciplines. Among the criteria used to categorise affordances are (a) the triggers and probability of affordances; (b) reference to society or a person; (c) or form of manifestation of an affordance; (d) desirability, detectability and the extent of dependence on social norms (see more criteria in Aronin 2017: 190).

- (a) *Goal* affordances are events triggered by the selection of a goal. Scarantino (2003) calls them “doings”, to distinguish such affordances from the *happening* ones or “happenings”, which are not so triggered. This distinction allows taking advantage of the former (goal) and creating the latter (happening) when they are required in order to deal with educational challenges. It seems that in multilingual countries, happening and sure-fire affordances underlie the use of some languages and not others.
- (b) For the purpose of recognising the already existing educational affordances, it is also sensible to single out the *social* (Feibish 2014; Kaufmann and Clément 2007; Gaver 1996) and the *canonical* affordances, since these are the ones that are the most influential in maintaining the given sociolinguistic situation.

- (c) Affordances manifest themselves in both *material* and *intangible* forms. They often come as physical objects, such as everyday life items, pieces of art, books and buildings, and also computers technological devices (Aronin 2014).
- (d) Costall's distinction (2012, 2015) between "affordances in general" and the "canonical affordances" is also expedient for multilingual education. He defines canonical affordances as "the conventional, normative meanings of things, notably in relation to human artefacts. For example, a chair is for sitting upon, even if no one happens to be sitting upon it, or else is standing on it in order to change a light bulb" (Costall 2012: 90). The canonical affordances for each named language are conventional and normative in relation to the corresponding language community. Although in his article Costall speaks about artefacts and objects, the notion of canonical affordances can be projected further to languages and people.

2.2 Language teaching and learning affordances

In the realm of language teaching and learning, affordances have been investigated in relation to learners, teachers, teacher-learner interactions and learning environments. A special place is given to the technological affordances enhancing language learning. All these can arise in a classroom or beyond it and be seen as either useful or unwanted.

2.2.1 Desired affordances

The ways to recognise expedient affordances are frequently discussed in Second and Third Language Acquisition (SLA and TLA). According to Singleton and Aronin (2007), multilingual learners tend to exploit the full array of their multilingual affordances in language learning. For Van Lier (2007), language learning involves learning to perceive affordances and it is the teacher who makes resources available and guides learners' perceptions and actions so that they can reach their language learning goals. A 2010 study by Dewaele treated affordances with regard to learning not only second but further languages. Operating the concept of affordances as a cumulative score of typologically related languages, Dewaele clarified the role of affordances, depending on the level of proficiency of the multilinguals and considered the combined effect of quantity and quality of specific affordances on communicative competence and communicative anxiety in FLA in French L1, L2, L3 and L4. Otwinowska-Kastelanica (2011) studied affordances in a classroom of advanced Polish students learning English with respect to the use of cognate vocabulary. Visser (2012, 2013) employed the affordances perspective to analyse multilingual academic skills and the challenges of multilingual tertiary education at Stellenbosch University. In language teacher education an affordance-based approach is insistently argued by Anderson (2015). He encourages teachers to use it in language planning as an alternative to the traditional lesson plan *pro formas* which work towards strictly expected outcomes. Instead, maintains Anderson, teachers should embrace the arising affordances by planning for and responding to the learning opportunities of the lesson.

2.2.2 "Constraining" and "unwanted" affordances and "defordances"

The attention of educators is directed not only to affordances that enhance the learning process, but also to constraining affordances. Henry (2016) found that affordances associated with lingua franca English for recently arrived migrants in Sweden may be perceived by them

as either enabling or constraining when learning Swedish. The “positive” or “negative” perception of affordances in this situation, according to the researcher, is dependent on learners’ current motivational and affective state, and their at-the-moment cognitive processing. Gaisch (2014) focused on the teachers’ opinion on affordances in an international classroom where some of affordances were felt as “defordances” (Gaisch 2014: 170). Kordt (2018) is interested in teachers’ opinion on affordances, and for this she distinguishes between the affordances that teachers see and intend to realise in a lesson and the affordances that are actually perceived by the students. This allows her to judge the effect of educational interventions by analysing “to what an extent the affordances intended by the teacher emerged, were perceived by the learners and actually used” (Kordt 2018: 145). The “unintended” and undesirable from the teacher’s point of view affordances are to be detected by asking the students about their perception of helpful and less helpful elements of their learning environment.

2.2.3 Affordances beyond the classroom

Researchers increasingly expand the reach for affordances beyond the classroom to social spaces, places and niches and to the digital realm. Menezes (2011) grounds the knowledge on affordances on learners’ experiences in the contexts outside school and their language learning histories. Murray and Fujishima (2013) and Murray 2017 carried out a series of studies in the context of a particular learning space of English Café, later the L-café, a nonformal, out-of-class space located on the campus of a large national university in Japan. The affordances that emerged through learners’ engagement with the environment allowed the Japanese and International students to learn with and from each other the languages as distant as English and Japanese, and also communicate alongside German French, Korean, Chinese Thai and Serbian.

2.2.4 Affordances for teachers

A big part of research on affordances relates to the additional and foreign language teachers’ education, enrichment and language teachers’ experiences. The study by Zeng (2018) concentrated on affordances in teacher learning that serve student teachers improving their teaching competence. These affordances emerge from language teaching practice and include books, videos, journals, or internet for teacher learning. Zeng points out that language teaching affordances are not the same for every learner and that different places of habitat may have different affordances (2018: 6).

2.2.5 Media and technology

In the context of Technology Enhanced Learning (TEL), educational affordances are associated with properties of an environment which in interaction with a user enhance the learning potential. Kirschner (2002: 14) defines educational affordances “as the relationships between the properties of an educational intervention and the characteristics of the learner that enable particular kinds of learning by him/her” (Kirschner 2002: 14). This author does not see technological affordances in isolation; rather, he studies them along with educational and social ones.

Within the educational field, technology enhanced learning is a matter of intense interest (Hammond 2010; Luzón et al 2010; Wood 2015). Scholars aspire to maximise ICT¹ affordances and expand the accessibility of e-learning technologies to learners of diverse backgrounds with regard to disabilities, geographical location or social circumstances. Nightingale (2016) dedicated his thesis to the effect of new media contact on language attitudes in multilingual adolescents and has exposed the societal-technological affordances for multiple languages. He found that Web 2.0 search engines, social networks, internet forums, video games, online multiplayer games, and instant messaging play a substantial role in providing an assortment of unique language learning affordances, and resources for communication. For instance, textmaking coupled with technological affordances allow engaging in multilingual practices and by this acquiring new literacy practices and enhancing social language competence.

Additionally, affordances in technology use are explored as a perspective on teacher development. Heines (2017: 11) focused on “experienced modern language teachers using new technologies as they learned to perceive and implement learning affordances of several new tools in their individual classroom contexts, including Second Life and Wimba”.

Overall, affordances referring to education and to the use and acquisition of languages are numerous, multimodal and diverse. Both societal and individual language affordances unfold on a number of levels, from global, national and area- or district-based, to the very local such as school, class and family. They are furnished on a wide array of dimensions, from the biological-physiological, such as the human language apparatus; the linguistic, such as the particular features of languages used in a community to the affordances provided by political, historical, religious, and ethnic situations (Aronin 2017).

Often affordances are too fuzzy to distinguish between them and are also extremely fluid: arising, disappearing and reappearing as teaching and learning go on. An additional challenge is that affordances for multilingualism increase exponentially, multiplying the challenges of uncertainty, super-diversity and accelerating change. Therefore, simply knowing about affordances in education is not sufficient today to face the challenges in education, language policy and multiple language use and acquisition. Rather, there is a need to deal with these affordances in a more focused and efficient way in order to select and realise those that can be beneficially used for education and to avoid “defordances” and constraints.

To give more structure and precision to the use of notoriously hazy concept of affordances *streamlining of affordances* is proposed. Streamlining affordances means sifting through a multitude of various affordances and selecting those (a) appropriate for particular settings and time and (b) sufficient for the particular goal or task of any scope set for particular learners, users or teachers. Being a unit of languages organised in a pattern which works in a particular time and space, a DLC serves as a framework instrumental in targeting various sociolinguistic situations where actual languages, multilingual contexts and learners are intermixed.

In order to understand how exactly the DLC model can support and direct the streamlining of affordances, let us consider what DLC is. The important features of Dominant Language

¹ICT – information and communications technology

Constellation that are especially conducive for streamlining affordances is the topic of the second part of this chapter.

3. Dominant Language Constellations and affordances

3.1 Dominant Language Constellations

3.1.1 What are Dominant Language Constellations?

In today's globalised world a single named language, no matter how "big" it is (English, Norwegian or Spanish) can hardly suffice for all the needs of communication, cooperation, business, education or any other area of human life. Neither is the entire language repertoire plausible for everyday use simply because it is impossible and also excessive to use too many languages on a daily basis. The contemporary linguistic "unit of circulation" is a Dominant Language Constellation (DLC) (Aronin, 2006, 2016, 2019: 21). The term DLC denotes the set of the person's most expedient languages, functioning as an entire unit and enabling an individual to meet all their needs in a multilingual environment. Dominant Language Constellation also refers to groups and communities and consists of languages enabling them to persist in a multilingual environment. A DLC includes only the most crucial for a person or a community, rather than all the languages known to a person as would be the case for language repertoire, or existing in a country.

A well-known concept of *language repertoire* describes our linguistic assets, all "what we have" in terms of language skills. A Dominant Language Constellation is the way we use these language assets and describes "what we actually do" with our languages. Compared to the language repertoire, which embraces all language resources that an individual or a group possesses, a Dominant Language Constellation is its active part. The concepts of language repertoire and Dominant Language Constellation are closely related. In addition to similarities, there are a number of significant differences between the two (Aronin, 2016, 2019; Aronin and Singleton, 2012, p. 59-75; for a more nuanced theoretical distinction see Aronin forthcoming), but these are not discussed in the present chapter. In order to visualise the languages of DLC, language of one's repertoire and the languages of the environment, the so-called DLC- maps are frequently used (see Figures 1.a, 1.b, 1.c).

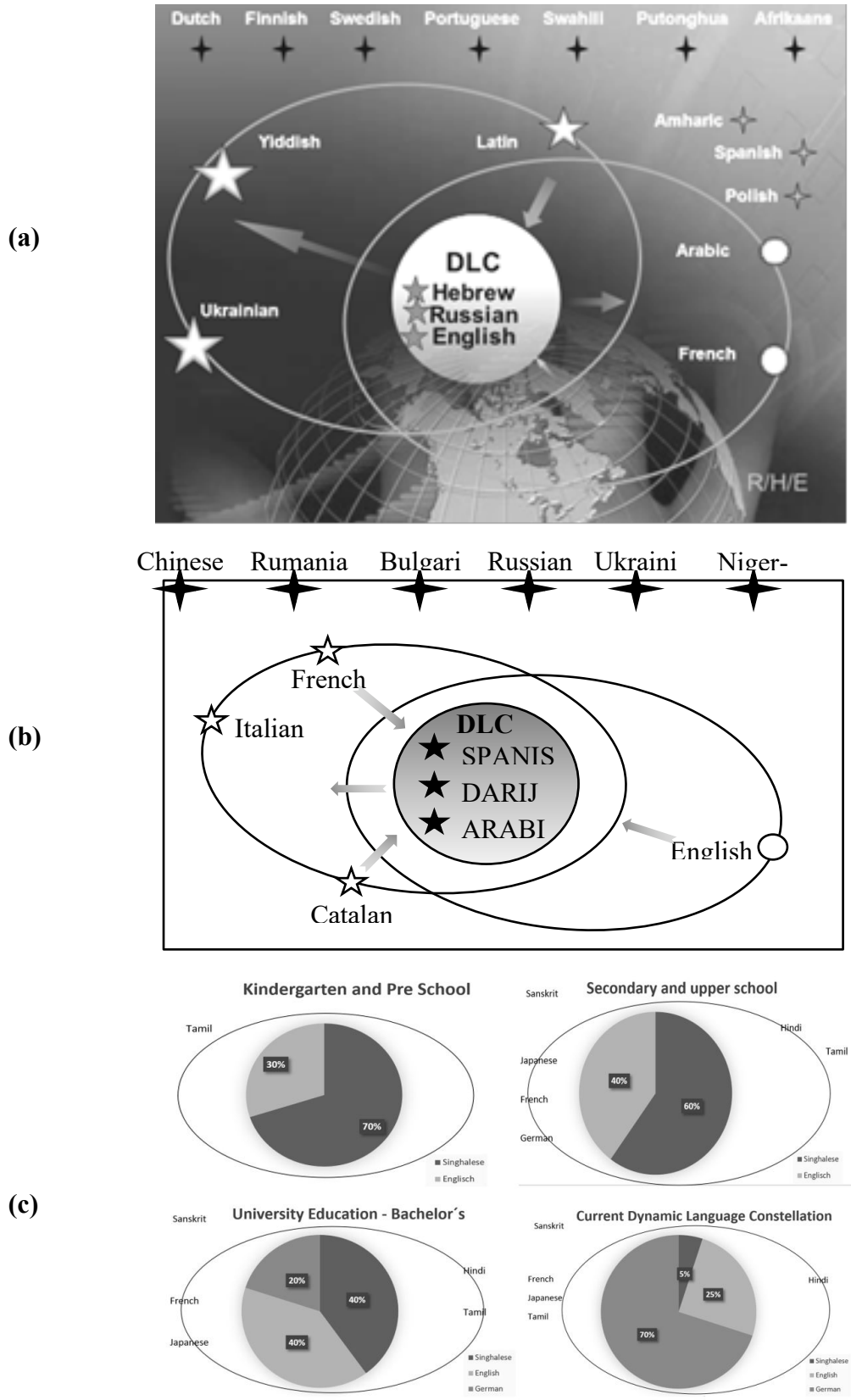


Figure 1: DLC-maps after (a) Aronin (2016); (b) Nightingale (forthcoming); (c) Kannangara (forthcoming)

Most of the features characteristic to a DLC are consistent with the complexity perspective. CDST is the unifying term suitably suggested by De Bot (2017) for Complexity and Dynamic Systems Theory, which is increasingly employed in the fields of Second Language Acquisition and multilingualism in recent decades. The works of Larsen-Freeman and her colleagues connecting complexity vision with the domain of SLA were launched in 1997 by the seminal paper *Chaos/Complexity Science and Second Language Acquisition* published in *Applied Linguistics*. The studies developing complexity thinking continued through decades and tackled syntax and discourse (Cameron and Deignan 2006); multilingual lexicons (Meara 2006), fluency and accuracy in L2 oral and written production (Larsen-Freeman 2006) grammar and language education (Larsen-Freeman and Cameron 2008). Considerations on the complexity of multilingual contact in times of globalisation were offered by Aronin and Singleton in 2008 and 2012. Examples of DCT-methodology-driven studies in the field of bilingualism and SLA would be studies on individual variability in development in learners of English by Verspoor, Lowie and Van Dijk (2008), Larsen-Freeman (2016) on classroom-oriented research from a complex systems perspective, and more recently the volume by Ortega and Han (2017).

In multilingualism the DST approach has been heralded by the works of Ulrike Jessner and her colleagues (Herdina and Jessner 2002; Jessner 2013a, 2013b ; Aronin and Jessner 2015). CDCT is applied to multilingual acquisition and use. Basing on DCT principles, Herdina and Jessner (2002) underlined that multilingual systems, being adaptive and dynamic, are able to change depending on the perceived communicative needs of multilingual individuals. Gabrys Barker (2005) takes the complexity of multilingualism and the fuzziness of multilingual lexicon as points of departure in analysing quantitative studies on multilingual development, lexical storage, processing and retrieval. CDST has become a highly fertile perspective for the study of second and additional language acquisition, and multilingual education. The main postulates of complexity outlook are also reflected in the DLC approach: the whole is more than the sum of its parts. A new quality not found in any of the parts of the whole emerges from the *interaction* between the constituents of a complex system and with the environment (Capra 2005; Capra and Luisi 2014).

In the following section, I will refer to a number of DLC features which make streamlining of affordances in educational settings possible.

3.2 DLC features enabling streamlining of affordances

(a) *DLC is a complex emergent unit*

From the CDST point of view, each individual Dominant Language Constellation is a complex unit of a unique quality and a high level of complexity. It is a result of continuous multifarious interactions between actual languages, users/learners, their skills, always changing environments (constituents of a DLC), but not a sum of all these. A DLC is more than just the knowledge and use of three languages, it is a complex phenomenon, including attitudes and emotions towards the languages, the timings of their use, the order and reasons for their use, heightened metalinguistic awareness, agendas of communications with people and organisations that use these same languages of a DLC, and also cultures, related to

languages of a DLC and their interactions and interfusions, cross-linguistic interactions and the resulting but all the time changing linguistic identity (multilinguality) of a DLC –owner.

It is then, clear that searching only for affordances which arise for separate languages of a DLC (e.g. teachers, classes and whiteboards, courseware for each language of a DLC), or even for affordances that emerge from cross-linguistic interactions of these languages (e.g. textbooks that employ the novel methodology of third language teaching not repeating the same for each language) does not suffice to reflect and manage the real situation in which these three languages are used and learned.

In order to be sufficient to cater to the needs of multilingual education, a carefully selected set of various multimodal affordances that is *associated with the entire unit of DLC*, the contemporary “unit of linguistic circulation” has to be furnished.

(b) *DLC is a pattern*

It is important to bear in mind that on the one hand, Dominant Language Constellations are real and tangible phenomena of human life, with languages that we hear and see and people using languages in physical environment. On the other hand, DLC also exists as an abstract construct which represents multilingual reality. In its second facet a DLC is appropriate for modelling sociolinguistic and educational situations of various scopes and for paradigmatic analysis of each concrete DLC. Abstract modelling and analysis of Dominant Language Constellations is possible due to their *patterned nature*. All the patterns are characterised by a regularity in which their elements repeat in a predictable manner. Patterns are found in our surrounding world in abundance. Some, such as waves, seashells, trees, designs, and also ornaments, architecture shapes, geometric figures are immediately obvious. Morning exercises, language learning drills are patterns too, but they as well as patterns in science, mathematics and language, may not be immediately evident; one can reveal them by analysis. Patterns of all kinds organise information and enable inquisitive minds to see relationships between the elements of a system as well as the general picture.

Each Dominant Language Constellation is a pattern. As a general pattern of language acquisition and use, DLC exhibits systematic relationships between its component parts. For example, language users experience patterning, a tendency to think and behave in a particular way. It is often the case that among the languages of a DLC one is a lingua franca or an international language, the other is regional and the third one is local, lesser used or any other kind of minority language. Other DLC patterns may include two international or regionally important languages, and a minority language. Patterning in DLC involves all the aspects of language use and acquisition (See more on this in Aronin under review). Bearing in mind consistent patterns, and the constant elements of the DLC pattern – language, people and environment – it is easier to streamline affordances in contemporary super-diverse educational settings.

One more point in favour of DLC as a framework facilitating the streamlining of affordances is that the CDST methodology encourages researchers of complex multilingual reality to look for patterns. Whereas the aim of the investigation carried out in traditional methodologies is to deduce rules and deliver exact predictions, the scholars in complexity perspective highlight variability and unpredictability in the surrounding world. The methodology of CDST

prioritises examining trends and patterns, emerging from irregular behaviour and subject to change. DLCs which are generally relatively “stable” patterns of language use on the one hand, and are ceaselessly changing, on the other hand, are exactly the patterns to be investigated in the complex and unstable settings of the multilingual education. The “stable” elements and interactions of a DLC pattern serve a common denominator for diverse affordances which arise for DLC units consisting of actual languages, speakers and settings.

Space and time aspects that are inherent for a DLC of any configuration are among the stable elements. They are essential for streamlining of affordances since according to Gibson (1986/1979) affordances refer to functionally significant properties of the environment. Dominant Language Constellation is functional within a certain time slot; its affordances are always time- and space-specific (Aronin 2017). Therefore, considering affordances for languages, without specifying time and space, in which a user employs their languages, will not be efficient.

Time, not less than space implies specific political, historical and other qualities of this particular society. With time, some affordances may be gone while other affordances may already not be relevant; still others could be better realised at a later stage. Unlike “space”, the dimension of time is scarcely researched in relation to multilingualism (Blommaert 2010; Singleton, Aronin and Carson 2013), except for linguistic studies dealing with grammatical tenses, expression of temporality in the lexicon and in discourse (Klein 1994; Porter 2006). This is regrettable, since the additional dimension of time categorically delineates the temporal borders of a segment of reality and brings it into a sharp focus. Investigating the time aspect in social situations, Zerubavel (1979, 1989) noticed that time is not defined by the clock, but by intensity and rhythms. For multilingual contexts, this idea entails the realisation that each concrete DLC possesses affordances pertinent to its specific time and place.

(c) *DLC is multimodal*

One more important feature of DLC is *multimodality*. Common sense and experience tell us that using human language is never detached from activities, feelings, social aims and personal needs. Indeed, using a language means not only employing its morphology, phonetics, semantics and syntax; rather, concomitantly cognitive, psychological, cultural and physical dimensions are necessarily involved. Therefore speaking about languages of a DLC we should imply that brain, body, material environment, culture and milieu are included in the “language” concept. From this follows that the term “language” in the context of DLC expands its meaning from just a linguistic phenomenon to social, physiological, cultural and material dimensions of its use.

Theoretically, the extension of the “capacity” of a DLC was substantiated by the interdisciplinary studies that evidenced the indivisible connection of cognition, body, language, and material world. Cultural neuroscience, neurophilosophy and neuroarchaeology along with complexity research capitalised on the synthesis of archaeological and neuroscience data and together shaped a novel understanding of the natural fusion and multilateral relationships between the human brain, cognition, body and culture (Wolfe 2014; Neidich 2014; Malafouris 2009, 2013; Capra and Luisi 2014). A DLC embraces multiple modalities of virtually all possible aspects of language use and acquisition from physiological,

neurolinguistic and ethical, which are intangible, to tangible visual, auditory, tactile and even olfactory material ones.

Naturally, affordances pertaining to multidimensional DLCs are equally multimodal. They exist on a variety of scales and fields of reference and manifest themselves in both tangible and intangible forms. The intangible typically human attributes bring with them cognitive, evaluative, moral and intentional affordances. They are among the most crucial ones as they are directly connected with language learner success. In addition, linguistic affordances incorporate feelings and emotions, assumptions and common knowledge, curricula and knowledge of languages, skills and learning strategies. Individual affordances beneficial for a learner also have to do with the degree of language teacher professionalism, legal provisions and events. School buildings and museum objects in their tangible physical form afford language learning and teaching (Aronin 2014: 164).

In order to strengthen the position of a language the vitality of which causes concern or of a language that is deemed important for multilingual education, material culture affordances could be used more intensively and comprehensively. Intentional use of more objects relating to such languages is an additional resource of workable affordances. Among them not only culture and historical materialities, but also those that can be employed for contemporary daily tasks, such as medical brochures, home and public stores or kitchens utensils. The more modalities and affordances relating to these modalities are ensured, the more secure is each of the DLC languages.

(d) *Languages of a DLC are **not** arranged in any built-in hierarchy*

Due to one more important feature of a DLC, described below, streamlining of affordances related to a DLC can be hurred from any chosen point of departure. This feature can be defined as the lack of any mandatory hierarchy of languages that comprise a DLC. The “pecking order” of languages in a DLC is not arbitrary but rather is defined by the current needs and actual situation. Non-hierarchical structure of a DLC does not mean that each language has an equal role, or equivalent time of use or the same level of proficiency or enjoys the same emotional attachment on the part of its user. Some languages of an individual that meet in one DLC may be at the native or passing-for-a-native level; others can be characterised with incipient proficiency only. In different DLCs, languages are “arranged” in various configurations where numerous determinants such as proficiency in each language, time of its use or emotions currently experienced by a speaker towards a language may put one language to the fore and others to the backburner. This is to a great extent the outcome of the interaction of multiple affordances when *a unique set of language affordances* emerges for each particular DLC. For instance, there may be more affordances subserving one language and may exist no particular need for creating extra affordances for another.

The absence of arbitrarily inbuilt hierarchy of languages in DLC makes DLC framework very important for multilingual countries with an especially challenging choice of languages for education. It reinforces the view for involving languages of various standing on a country’s scene such as complementing the use of national and official languages with the African languages (Visser 2013). In general, the feature allows the stakeholders to focus on any of languages and skills that are deemed important as a starting point for examination and for policy.

For minority languages the DLC framework is advantageous in that it allows departing from default assumptions and beliefs that come out of the status of languages in society. A DLC does not prompt the user, teacher or researcher to label languages as “bigger” or “smaller”, more important or less important, and even does not overemphasise the nominations of mother tongue, L1 and L2, L3, or Ln. Consequently, when looking at affordances through DLC lens one realises that affordances do not automatically come with a language, depending on its status in the societal hierarchy. Although it is true that normally more affordances exist for international languages and less of them are realised for local and lesser-used languages of the world, the actual “taking” of affordances for both smaller and bigger languages depends on the stakeholders. For instance, while normally English has a high range of affordances globally, in a comparatively isolated village of Europe where the local language is traditionally used, it will not be as easily available. Oppositely, the local language will have more affordances. Working within a DLC framework language policy specialists as well as language enthusiasts can arrange as many or as few affordances they wish to ensure the priority in the acquisition and use of language(s) they deem currently important for their community.

(e) *Propensity to visualisations*

Finally, a DLC feature that considerably empowers affordances streamlining is the propensity to visualisations. Every individual and communal Dominant Language Constellation can be represented as a pattern, be it in the form of description, table, image, or material model and thus may offer visual clues to whatever we wish to understand. Streamlining of affordances viz-a-viz the common pattern of DLC is possible due to the above features. We will discuss how to approach it in the next section.

3.3 Streamlining affordances: the beginning

Streamlining is a notion widely used in aerodynamics. It describes a design that increases speed and ease of movement. A similar result is desirable in other than engineering and industry branches of human activity. A broader understanding of streamlining embraces the social world as well and means making a system, such as business or healthcare, more efficient and smooth-running by employing faster, simpler and more reasonable working methods. In education, the purpose of affordances streamlining is to make the realisation of affordances as systematic, orderly, quick and simple as possible. It is easier to say than to do; the work on how to streamline affordances in education is only starting. The ways to streamline affordances in education can be many.

Björklund and Björklund: Institutional DLCs

Björklund and Björklund (under review) employ the affordances perspective in their research on Dominant Language Constellations at the institutional level. The pioneering study is under way in Åbo Akademi University, Turku, the only Swedish-medium teacher education university in Finland. The researchers started with determining a common university DLC. For this they examined the perceptions of different individuals in different positions within the university. Björklund and Björklund used their own modification of the DLC- mapping method and asked the participants to draw their own DLC charts, in order to visually

represent the active languages of their current life. As the students and teachers were thinking aloud while drawing their charts, the researchers had the think-aloud protocols recorded. At this stage of the study, the researchers are comparing and superposing the individual DLC charts in order to derive the existing institutional DLC of the university.

Analogous work can be done in other educational institutions, such as schools (Vetter 2018) and kindergartens. The methodology of defining an institutional DLC offered by Björklund and Björklund (under review) in educational settings of the university might be beneficial in local and global companies as well. In case a discovered common DLC matches a university's agenda, it may be "legitimised" for this institution by being openly recognised in official documents of a university, including those posted on the internet. Having a particular defined set of languages in circulation will strengthen university, college or school language policies both with regard to teaching in English and through the medium of other community languages, will improve the students and employee's proficiency in all the languages of the institutional DLC. A university DLC, comprising languages other than English might stimulate academic discourse in other languages that are traditionally underrepresented in academic writing and publishing. Maintaining an institutional DLC tightens the community bonds, delivers a message to the students and teachers and employees as well as to the future students and wider community about the university or school agenda. Notably, a minority or lesser used language(s) if included in an institutional DLC receive(s) considerably more realisable affordances.

In case the derived institutional DLC is not fully desirable, a more appropriate DLC can be designed instead and matching it affordances created. For educational practices social stabilisation of affordances associated with particular, e.g. minority, indigenous languages may be desired. Ensuring and if necessary furnishing prerequisite canonical, sure-fire and goal affordances for these languages would be the first step for their successful acquisition and use. Including a language within an officially adopted Dominant Language Constellation may create 'green-light' affordances for the desired language in question. Streamlining institutional affordances amounts to social stabilisation of affordances that are deemed beneficial for education.

There can be various algorithms leading to systematising and organising desired affordances for educational and teaching situations. The rest of this paper offers a rather generalized, pilot algorithm for streamlining affordances via a DLC.

Streamlining affordances via a DLC

The DLC-bound form of planning differs from, say, the traditional pro-forma of a lesson in that the focus here is on the strict structure of the DLC situation which comprises typically three languages, rather than on the aims of the lesson for teaching one target language. Dominant Language Constellation framework brings not one language, but the entire multilingual situation to teacher's attention.

The suggested method of streamlining affordances through the DLC is based on *representation* of a particular Dominant Language Constellation engaged in the situation where one wishes to optimise affordances. *Visualisation* compels an educator planning to capitalise on suitable affordances to focus on the particular educational or learning situation:

all the crucial factors that need to be taken into consideration, their concrete configuration, and their interactions are exposed in front of a teacher's eyes. External representations enhance cognition by shortcutting analytic processes, saving internal memory, creating persistent referents and providing structures that can serve as a shareable object of thought (Danaher 2016; Kirsch 2010). Visual images and graphs are known to be helpful in evaluation of data and bear the potential of prompting solutions to commonly occurring problems (Elmqvist and Ji Soo Yi 2012). The DLC visualisations provide necessary prompts and basis for thinking on apposite affordances.

The exact form of *visualisation* depends on the cognitive preferences of a teacher or any other planner of educational or teaching process. It may be a DLC-map, a table, a clay model, or a computer-generated DLC figure. The suggested algorithm is based on using a DLC pattern as a visual and mental support for contemplating affordances optimal in a particular situation.

The following pilot algorithm can be used.

- (1) Choose the form of representation and visualisation of a DLC you like most: picture, plan, table, image, clay model. Prepare a fill-in form in which you will write down the important information about the DLC while performing the next steps of this algorithm.
- (2) Define and designate the main constituents of the DLC for which you wish to streamline affordances. Describe the details you consider important in these circumstances.
- (3) Outline the scope of the situation you wish to deal with and formulate the educational or learning/teaching task (e.g. broadening the metacognitive awareness of the students during the yearly course of teaching English teaching; teaching a grammar rule).
- (4) Put in writing the set of affordances that you perceive as available for this DLC starting from the most important one (from the angle of view that you have chosen) and to the less and less important without which you can still perform the task.
- (5) State the presence or absence of sure-fire and canonical affordances for each of the elements and particularities.
- (6) Inspect the modalities in which the affordances that you perceive appear.
- (7) Check the affordances that are present against redundancies, repetitions and affordances that you do not wish to be realised for the present task. Make sure you cleared negative affordances and defordances out of your way.
- (8) Check each element's affordances to see whether the interaction of elements and their affordances would not create defordances.
- (9) On your visualisation, mark the affordances that you feel are necessary for the task or the purpose that you have set. Decide whether you wish to add, increase, or improve the possibility of appearing of these affordances. Think of *how* you can do this in practice, given the particular situation that you described in the first steps.
- (10) Work with the form that you filled in regarding the aims of teaching, the settings, the participants (teachers and learners). Consider affordances that are present in this situation (given); affordances that you perceive as appropriate for this situation and plan your actions towards the desired set of affordances.
- (11) Mark on your visualisation and/or in your fill-in form the modalities that a given DLC involves. Choose one or several modalities that, in your opinion, provide the best available affordances for your class. Once a decision is made to "go for" affordances

that a teacher feels can be better and easier noticed and realised by the students, the set of affordances is selected as your preferred one.

Such an algorithm could also be useful for visually enhanced comparison of the affordances enacted for each language of a DLC – both in reference to an individual and to an entire community. In order to streamline the typical affordances for similar educational and learning situations it is sensible to pilot the algorithm a number of times in order to see how it works and improve it. Think whether you can use the social affordances present for the strong languages for the benefit of a minority language. Deliberate which other affordances for all the languages these settings can yield. Which affordances for other languages may disappear or diminish if you increase affordances for the minority language.

4. Conclusion

The proliferation of languages and their availability furthered by technology has led to the existence of a massive pool of educational affordances. Today the focus of affordances research has moved from their discovery and enumeration to their appropriate selection and managing. The notion of affordances streamlining is proposed in this chapter to denote the prediction, perception, analysis, selection, minimisation and optimization of affordances for real life situations by teachers and educational stakeholders.

In this chapter a tentative algorithm for streamlining through the visualisation of Dominant Language Constellation is suggested. It comes out of the understanding that providing affordances for each language separately does not work in a world where multiple languages operate alongside one another and sets of affordances are required to subserve each particular language situation. This algorithm looks at the entire DLC as a unit and therefore is aimed at streamlining activities towards a set of multimodal affordances specific for each DLC, particular context, in official or non-official mode of learning or acquisition, in-class or out-of-the-class, frontal or digital teaching. For all actual teaching and educational purposes, visualisation and analysis of the DLC helps to fine-tune sets of affordances.

Institutional DLCs enable focused streamlining of affordances that are perceived desirable for a particular purpose and their social stabilisation in the given institution. It is expected that affordances streamlining will make the efforts of educators and learners more trackable and efficient; might enable better forecast of educational results and better-informed and time-space-specific-tailored policies due to applying the DLC structure to particular educational settings. A nuanced and dynamic streamlining of educational language-related affordances enhances awareness of multiple languages surrounding teachers, learners and language users and in particular those languages that are actively employed.

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