

ISSN 1799-2591

Theory and Practice in Language Studies, Vol. 7, No. 12, pp. 1171-1177, December 2017

DOI: <http://dx.doi.org/10.17507/tpls.0712.03>

# Unifying Constructionist Intercultural Competence through a Complex Systems Perspective

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**Abstract**—Research on intercultural education very often falls short of its expectations in the ways it strives to correlate different variables affecting the elements of intercultural competence with learning outcomes. In this article, we discuss intercultural competence from a constructionist perspective, where intercultural competence is viewed from a complex systems approach, i.e. its understanding is constructed by learners influenced by context. Thus, our aim is to define shared meanings between intercultural competence and complex systems peculiar to both paradigms. The article first describes the notion of meaning construction in intercultural competence, pointing to the affinities of intercultural competence and complex systems theory. Then, we demonstrate how constructionist intercultural competence and the theory of complex systems can be applied to research in an educational setting.

**Index Terms**—intercultural competence, constructionism, complex systems theory, complex adaptive system

## I. INTRODUCTION

Although the concept of intercultural competence has been explored from many angles (language education, communication, intercultural education, psychology, anthropology), literature in this respect does not offer any clear theoretical and methodological approach (Dervin, 2011, p. 37), which has resulted in the existence of a plethora of definitions and models of the concept. In fact recent studies in the field of intercultural communication and language education (e.g. Garrett-Rucks, 2012; Peckenpaugh, 2012; Foncha, 2014; Moeller and Nugent, 2014; Rygg, 2014; McBride and Gu, 2015) with their inconclusive and scattered findings pointing to the instability and variability in the development of intercultural competence engender that it might be profitable both to re-conceptualise the epistemological positioning of intercultural competence and to establish a sound theoretical and methodological framework for examining the concept. The studies cited above emphasize the importance of meaning construction, which entails unpredictability, aperiodicity, and non-linearity in intercultural research. Yet, despite these developments, very few theoretical and exploratory papers have considered these descriptors to analyze the development of intercultural competence in a classroom environment. In this paper, intercultural competence is understood as a result of meaning negotiation and construction by individuals influenced by the interaction of prior and actual situational context constantly in flow and changing over time. Thus, context and adaptability are central in the construction of intercultural competence.

In this article we aim to explore the potential of a critical and a constructionist approach to intercultural competence stemming from the works of Papert and Harel (1991) in psychology, and Larsen and Freeman (2008) in applied linguistics to generate a new direction in thinking about intercultural competence from the perspective of complex systems theory. Thus, we are going to argue that categorical and linear description of both intercultural competence and the development of this competence, as proposed in Byram's (1997) most adopted framework for acquiring intercultural competence, does not account for its dynamic and complex nature. Nor does it explain the transfer from intercultural competence (cognition) to intercultural performance (action). Instead, we are going to demonstrate that intercultural competence emerges from constructing and reconstructing experience subjected to variations, i.e. mental and social context, interacting and fluctuating in a reciprocal manner rather than in a cause and effect link. In presenting this model we draw on complex systems theory, which stretches beyond the conceptualization of intercultural competence as the interplay of three elements, i.e. knowledge, skills and attitudes, and views the concept as the convergence of variables (understood here as context) adapting dynamically, tending towards aperiodicity and influencing the construction of intercultural competence by a group of individuals.

In line with this reasoning, in the context of intercultural education, we reject a classroom where activity is supplied and input provided by a teacher leading to intake processing and output generation as a space for the development of intercultural competence. Instead, following complex systems theory, which is in line with social, constructivist

(Vygotskian) and cultural approaches to a classroom (Kramsch, 1993; Lantolf, 2000; Senior, 2006), we are going to embrace a view of a classroom as a complex adaptive system, i.e. as a 'third space' comprising context in terms of institutional, pedagogical, personal and physical aspects constantly interacting, permeating each other and adapting to different variables (Burns and Knox, 2005, 2011). This interaction, causing instability and change, allows constant meaning negotiation, construction and reconstruction to take place. Therefore, the features of the complex adaptive system are connection, co-adaptation, change, interaction, aperiodicity, and dynamicity (Larsen-Freeman and Cameron, 2008). Next, we make suggestions concerning the applying of a complex systems perspective within a constructionist framework of intercultural competence to educational research.

We base our consideration on empirical research (see Strugielska and Piątkowska, 2017 for details) which demonstrates that intercultural competence cannot be reduced to either psychological or social aspects. Instead, it has to be analyzed by an approach unifying the cognitive and the social through a complex systems perspective with constructionism as an encompassing framework. The study carried out by Strugielska and Piątkowska (2017) was based on a qualitative analysis of data obtained from students participating in the international summer school 'Developing Intercultural Competence of European Teachers of English' (DICETE). The aim of the research was to examine the validity of a complex systems approach within the constructionist perspective to developing intercultural communicative competence in educational contexts. The researchers demonstrated how the students' meaning construction of intercultural competence changed as a result of the interplay of prior and actual situational contexts (Kecskes, 2014) consisting of institutional, pedagogical, personal and physical factors which constituted a constellation of unpredictable, dynamic, aperiodic and adaptable features. The data showed that intercultural competence cannot be defined merely in terms of the input-output interplay. Instead, the system, i.e. intercultural competence, and its subsystems, i.e. institutional, pedagogical, personal and physical factors, were in constant interaction, the result of which the researchers discussed in terms of configurations of attractors constraining meaning. The findings revealed that while the students' initial construct of intercultural competence was unstable, fluctuating between static and dynamic, autonomous and imposed, modular and blended, the ICC meaning emerging from the interplay of the aforementioned subsystems lacked this clear polarity and constituted a blend of the static and the dynamic, the autonomous and the imposed, the modular and the blended. Thus, the participants' construction of intercultural competence before the course was affected by prior contexts in their minds, which created an actual situational context comprising institutional, pedagogical, personal and physical factors. Permeating each other in a reciprocal rather than cause and effect link, the two types of context intermingled, i.e. prior contexts became an actual situational context and vice versa. Therefore, the research demonstrated that the two aforementioned contexts are in constant interaction in an educational setting, creating a hybrid of mental and social aspects, which leads to the creation of a third space, producing unpredictable results. Consequently, the researchers conclude that intercultural competence is always context-dependent and can be constructed as a meaning which is a configuration bearing the features of stable and dynamic, universal and relative. Therefore, Strugielska and Piątkowska's (2017) findings clearly suggest that intercultural competence requires an approach which defines the concept in a holistic way and reconciles the social and the mental in educational settings. It appears that a complex systems perspective bridges this gap by providing shared meanings for the concepts of intercultural competence on the constructionist framework.

## II. CONSTRUCTIONIST INTERCULTURAL COMPETENCE

Although theoretical and exploratory considerations of intercultural competence in education over the last twenty years have resulted in various definitions and models of the phenomenon (e.g. Meyer, 1991; Kordes, 1991; Byram, 1997; Heyward, 2002; Anderson, Lawton, Rexeisen and Hubbard, 2006), the mainstream approach tends towards the understanding of intercultural competence with regards to cognitive and affective domains with three elements, knowledge, skills and attitude as typical constituents. Thus, the most influential view, best reflected in Byram's (1997) model of intercultural competence, perceives intercultural competence as the interplay of these three descriptors. However, it has to be clearly emphasized that these elements are treated as autonomous entities in the human mind, which is the result of the body and mind distinction. Affective states are considered the most essential as they can either enhance (positive states) or impede (negative states) the development of intercultural competence. Arising from so called solid interculturality (Dervin, 2011), which categorizes cultures on the opposite sides of a continuum on the basis of fixed categories, Byram's (1997) model represents a reductionist view of intercultural competence. As a consequence, asserting that the interaction of cognition and affect leads to intercultural competence (i.e. intercultural behaviour or action) and the construction of what Kramsch (1993) calls the 'third space', Byram's (1997) model constitutes a cognitive perspective which is reminiscent of the Chomskyan competence and performance dichotomy (i.e. knowledge vs. intercultural action). Therefore, the underlying assumption is that awareness of cultural constructs leads to intercultural competence. (Castiglioni, 2013) This approach is consistent with a view of culture as a dichotomous polarized phenomenon (explicit vs. implicit culture), encapsulated in a culture as an iceberg metaphor, whose consequence is a psychological praxis of (inter)cultural competence, i.e. the belief that cultural elements influence psychological constructs and action as a consequence.

However, in a recent criticism of current intercultural models researchers (Dervin, 2011; Castiglioni, 2013) notice that the approaches do not account for the process of adaptation, i.e. how the transfer from cognition and affect to

intercultural behaviour takes place. The only element linking the two phenomena is attitude, which appears to be an encompassing framework for all the elements of intercultural competence (Castiglioni, 2013). Still, a major limitation of Byram's (1997) approach is that it does not explain how attitude contributes to the process of transferring thought into action. Therefore, presupposing an automatic transfer of skills, Byram's model has some affinities with acculturation models in this respect. Although he replaces assimilation and adjustment to a new culture (which is typical of acculturation models) with the construction of the 'third space' (Kramsch, 1993), Byram (1997) does not preclude the comparing and contrasting of cultures. In fact, the acquisition of intercultural competence in his model is based on comparing one's own and the target culture. Implying a universal route of developing intercultural competence, without taking into consideration the role of context, Byram's (1997) model is in line with a positivist stance in cultural studies. Consequently, assuming that the development of intercultural competence takes place within one's cognitive system where cognitive invariants (i.e. knowledge, skills and attitudes) are treated as regularities subjected to change, Byram (1997) takes a Piagetian viewpoint, where meaning, even if constructed, is not affected by variables other than one's inner cognitive stabilities. Thus, the goal of any model of intercultural competence from this perspective is to distinguish universal variables which constitute this competence (Bennett, 2005).

Similarly, Kordes' (1991) model of intercultural competence in an educational setting is built on the assumption that the acquisition of this competence proceeds in a linear way from a monocultural through intercultural to a transcultural level, with the last one marking the creation of the 'third space'. Yet, if the goal of intercultural competence is the creation of the 'third space' through the process of interaction with representatives of other cultures, a relativistic approach to intercultural competence which simply presents it as a hybrid of various perspectives (one's own and the interlocutors') in interaction does not explain the complexity of intercultural competence, affected not only by one's cognitive system and cultural constituents, but also by other variables such as one's interlocutors, their action or their perception of intercultural interaction.

Theories of both education and communication, including intercultural communication and intercultural education, strive to explain how people are affected by context (Castiglioni, 2013; Bennett, 2005) to construct their meaning. Furthermore, if assuming the 'third space' as central in intercultural competence, the assumption that individuals do not have a worldview but constantly construct it, interacting with others (Bennett, 2005), becomes a natural consequence. Thus, rejected are both objective and subjective perspectives of culture with the former viewing it as a set of facts individuals are provided with on their way to develop cultural competence and the latter assuming a one-way linear construction of a new worldview from one's cultural viewpoint (i.e. cultural constructs subsumed under their cognitive system). Instead, we argue that individuals construct the meaning of intercultural competence based on etic cultural constructs (i.e. from meta level), which allow for cultural contrasts, moving to emic ones (Bennett, 2005). This shift, which lies at the core of intercultural competence, is possible through self-reflexive consciousness and interaction with other individuals, which generates the 'third space'. Thus, culture and intercultural competence are both the result of the experience of social interaction. (Bennett, 2005) Experience in turn entails language, which plays an essential part in meaning construction, negotiation and, what Bennett (2005) calls, languaging about culture. Language is a representation of an individual's constructs (Gee, 2005) including (inter)cultural constructs. Consequently, culture and intercultural competence are constructs created in the process of meaning construction through social interaction and experience with linguistic negotiation lying at the heart of this process. Therefore, if intercultural competence results from interaction based on individuals' experience, it cannot be reduced to either psychological or social aspects as such a perspective does not account for the nature of intercultural competence and intercultural interaction. Instead, intercultural competence has to be viewed in a holistic way where the psychological and the social are reconciled and unified under a common denominator. Thus, we postulate a sociocognitive approach to intercultural competence.

This perspective thus contrasts with Byram's (1997) model, where although interaction and language are included, the former is rather conceived of as the final outcome while the latter is treated as an autonomous element of intercultural competence with the result that intercultural competence is constructed in an individual's mind. Hence, rather than an interplay of knowledge, skills and attitude, intercultural competence is to be understood as the constructing and reconstructing of experience in interaction (the role of the collective mind) and in context. This view is consistent with the Papertian constructionist paradigm and Vygotskian constructivism, according to which building competence is contextual, i.e. it takes place not only within an individual's mind but also through active construction within a specific context (i.e. environment), which means meaning is socially (re)constructed (Stager 2001, 2002, 2005). Consequently, adaptation, which presupposes the role of context, is a central process. Similarly, if the goal of intercultural competence is the ability to interact effectively across cultures with the creation of alternative culture (Bennett, 2005) or the 'third space' (Byram, 1997; Dearsorff, 2009; Bennett, 2014), shared meaning in interaction emerges as a natural consequence. However, contemporary perspectives on intercultural competence have fallen short of their expectations in explaining this aspect of intercultural competence and the process (i.e. transformation of knowledge into intercultural behaviour mentioned above) individuals go through on their way to become interculturally competent.

In a recent criticism voiced against interculturalists, Bennett (2014) emphasizes that some researchers bring aspects of global culture(s) to the surface at the expense of local diversities, suggesting that any attempt to seek patterns in individual cultures leads to stereotyping and ignoring variations among and between cultures. At the same time, reifying

cultural attributes in such a way that the dynamicity and contextuality of cultural interactions are both excluded from intercultural research distorts the nature of these interactions and brings the effect of essentializing cultures which are presented as a set of fixed categories (Chirkov, 2009a; Jack, 2009; Dervin, 2011; Bennett, 2014). However, while contemporary approaches to intercultural competence are based on the view of culture as immutable bounded entities composed of various dimensions allowing individuals to fully engaged in the target culture and create the 'third space', Bennett (2014) in his recent commentary on the most fundamental issues in intercultural competence emphasizes that social constructivist research confirms that patterns are to be sought in context rather than in stable and normative reality. Nevertheless, intercultural competence research does not reflect this tendency. At the same time, a social constructivist perspective considers the role of variables influencing existing patterns, i.e. the situation and the individuals in the process of shared meaning construction in interaction through negotiation. In other words, research on intercultural competence through the constructionist prism focuses on the dynamics of change in the intersubjective meaning individuals construct (Chirkov, 2009b).

Therefore, we argue that individuals construct their intercultural competence through interaction with others. Following Vygotskian and Papertian paradigms, we consider intercultural competence as a concept emerging from the interplay of a set of mental and social factors, constituting context, which is either prior or actual situational (Kecskes, 2014). Prior context refers to the individuals' mental representation of intercultural competence they bring to an educational setting while an actual situational context is a sociocognitive disposition at a given time and a place. In other words, prior context represents an individual's certain cognitive stability or a fixed pattern resulting from past experience, knowledge, beliefs, values etc. Following Kecskes (2014), we postulate that when trying to construct their understanding of intercultural competence, individuals are affected by both prior and actual situational context. Depending on a situation, i.e. the role of the participants, the place of interaction etc., these two types of context undergo constant changes leading to unpredictable outcomes. Although these two types of context are equally important, the result of this interplay is strictly dependent upon the dynamic process of interaction, which can make one type of context become stronger in a given situation. Consequently, intercultural competence will be constructed as a stable and fixed concept, if prior context is dominant, as a negotiable notion if actual situational context is dominant or as a constellation bearing the features of a stable notion and a negotiated concept if prior context engages in interaction with and actual situational context. The two types of context not only are viewed through each other, leading to the creation of a third space (Kecskes, 2014, p. 134), but permeate each other forming complex systems, each of which constitutes a complex system and undergoes changes. We argue that these complex systems function as constraints on meaning viewed as a conceptualization constructed by individuals in interaction. Consequently, we postulate the existence of two types of interaction, off-line and on-line. If individuals interact with prior context, then we deal with on-line interaction. If individuals interact with actual situational context we deal with off-line interaction. Following Rizolatti and Craighero (2004), we postulate that human beings act as individuals and as social beings.

Consequently, we agree with the theory of grounded cognition, which assumes the existence of universal human capacities and universal patterns in cognitive processes. Universality, however, refers to conceptual operations (based on embodiment) being performed by all human beings. Notwithstanding a certain degree of universality, the conceptual system varies across and within cultures just as individuals vary. There are thus two influences exerting pressure on a conceptualiser trying to conceptualize the world: their embodied experience and aforementioned context. Concurring or conflicting, these influences interact leading to an unpredictable outcome which depends on the force of a given influence in a particular situation. Thus, universal embodiment and non-universal context influence meaning making. If the construction of meaning is based on a basic human experience, the outcome may be close to a universal concept. (Kövecses, 2015) Therefore, the position we adopt is that meaning construction fluctuates between universal and relativistic, which is in line with a socio-cognitive approach represented by complex systems theory. Thus, in the following section we are going to show congruences between the constructionist nature of intercultural competence and complex systems theory.

To summarize, intercultural competence from a constructionist perspective is viewed as a concept which is emergent rather than imposed, context-dependent rather than autonomous, unpredictable rather than expected, and blended rather than modular.

### III. CONSTRUCTIONIST INTERCULTURAL COMPETENCE AND COMPLEX SYSTEMS THEORY

Unlike a universalist paradigm, which tries to impose universal rules to explain or predict human action, complex systems theory assumes a relativistic (Einsteinian) and contextual (Papertian) position and strives to explain how variables interact as complex systems to evoke a certain action (Bennett, 2005). Interaction in turn implies dynamicity and change (i.e. explains systems in change), which are some of the most essential features of complex systems. Intercultural competence research, as discussed above, describes how individuals influenced by prior and actual situational context, construct meaning through the process of negotiation to create a third space. Complex systems theory runs counter to a universalist perspective in that it does not seek to explain the correlation between a given variable and an outcome. (Bennett, 2005) On the contrary, complex systems theory presupposes discontinuities of meaning stemming from the divergence of cultural elements. Thus, a complex systems perspective with its attempt to explain how meaning is constructed in the process of interaction in a given context is likely to maintain relevance to

intercultural competence. As opposed to a universalist model such as Byram's (1997) model, which assumes a linear development of intercultural competence, a constructionist intercultural competence perspective will try to account for intercultural meaning created in the mutual interaction of the elements in the system (i.e. context). Thus, rejected is the correlation between variables and outcomes. Instead, intercultural competence research through the complex systems perspective explains how cross-cultural context affects the construction of meaning. Another consequence of the constructionist stance is the rejection of shifting cultural perspectives. Instead, it is believed that one's cultural perspective organizes and influences the construction of a new cultural perspective (Bennett, 2005). In other words, the cultural perspectives individuals bring to the process of interaction are some of the elements of context. Thus, bringing constructionist intercultural competence and complex systems theory together, we postulate that meaning is constructed by an individual in interaction within some boundary conditions, i.e. prior and actual situational context, which may function as a constraint, i.e. an attractor<sup>1</sup>, on the process. Consequently, we assume that the process of intercultural meaning construction oscillates between variation and stability, with the former stemming from the lack of inherent meaning, which is constructed in interaction, and the latter from attractors at play, i.e. context.

#### IV. CONSTRUCTIONIST INTERCULTURAL COMPETENCE IN EDUCATION: A CLASSROOM AS A COADAPTIVE COMPLEX SYSTEM

Based on research which points to instability and variability in the process of learning (Burns and Knox, 2011), the constructionist perspective views learning as a dynamic process influenced by context defined as both an environment and experience which encourage students to construct knowledge through interaction and engagement in meaningful project work (Stager, 2005). Thus, the process is determined by the interplay of various factors which make meaning construction possible. The variables comprising context in complex adaptive systems can be categorized with reference to institutional factors (e.g. time tabling, course aims or syllabus requirements), pedagogical elements (e.g. previous lesson(s), student skills, student age, or teacher-student relationships), personal aspects (e.g. theories of learning, recent or current study commitments, personal lives and relationships), and physical factors (e.g. heat, physical size and layout of class, changes of rooms, or student movement in and out of class) (Burns and Knox, 2005, p. 254). The theory of complex adaptive systems views the relationship between these variables as relational, dynamic, aperiodic, and non-linear, which implies a lack of a cause-effect relationship between input and learning outcomes. It is acknowledged that factors comprising context are in constant flow, affecting one another and distorting the input, intake and output order. As a result, a classroom is seen as a convergence of the elements of context which tend to adapt to one another (Burns and Knox, 2011).

If intercultural competence is developed through (re)constructing experience (which is contextual as presented above) in interaction, following Liu and Zang (2014), we recognize three elements of constructivist theory, namely, situation, collaboration and communication, as both capturing the fluid and unpredictable nature of the learning/teaching process and leading to meaning construction. With reference to fostering intercultural competence it implies creating authentic intercultural situations through situated, experiential and anchored learning (Liu and Zang, 2014).

#### V. CONSTRUCTIONIST INTERCULTURAL COMPETENCE – RESEARCH POTENTIAL

Adopting a complex systems perspective within a constructionist framework of intercultural competence in educational settings entails that the concept of intercultural competence be construed as a category fluctuating between the modular and the blended, the localized and the distributed, the static and the dynamic, the imposed and the negotiable, the autonomous and the dependent. Consequently, the state space of the system, i.e. possible interpretations of intercultural competence, oscillate, in an unpredictable, though constrained manner, between one set of attractors, involving standardized, universal competences firmly situated in individual minds, and the other, constituted by a mixture of capabilities, prone to change and influenced by the context, which emerge within the collective, ecological mind. Importantly, the above constraints, i.e. sets of attractors, are just potential influences acting upon construals of intercultural competence, and hence particular educational contexts may either conceal or highlight some of them as well as expand the state space of intercultural competence through the emergence of new attractors.

As argued above, meaning cannot be inferred from input and hence, defining intercultural competence in terms of clearly delineated learning outcomes seems an impossible task. Instead, the concept should be viewed as a meaning potential prone to contextually-induced, alternate construals. The interplay between the system and its context, inherent in the constructionist framework, means that the two can be separated only arbitrarily since elements of the former constitute and are constituted by aspects of the latter. Nevertheless, a particular research focus will always require that the system and its context are distinguished. Consequently, the concept of intercultural competence is taken as a complex system and the classroom, involving institutional, pedagogical, individual and physical elements, is seen as its context. Thus, we postulate that further research on intercultural competence focus on the identification of potential

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<sup>1</sup> There is a difference in the way context, a constraint and an attractor are understood in this paper. Context is used in a broad sense and refers to variables (institutional, pedagogical, personal and physical) that affect learners; constraint refers any factor which may hinder meaning construction; an attractor refers to a shift in meaning construction as a result of a non-linear nature of the process.

attractors within institutional, pedagogical, individual and physical elements and the quality as well as the extent to which they affect the process of intercultural meaning construction.

## VI. CONCLUSIONS

The aim of this paper was to generate a new way of thinking about constructionist intercultural competence by demonstrating a potential contribution the theory of complex systems can bring to the way the concept is approached in research and education. First, we demonstrated affinities between intercultural competence and a constructionist perspective by both emphasizing the inadequacy of a three-component and modular model of intercultural competence and pointing to the need to analyze the phenomenon as constructed by individuals in interaction bounded and constrained by context. Thus, we argued that intercultural competence should be viewed as a negotiable, blended, dynamic and context-sensitive notion, which explains the discrepancy between input and learning outcomes in a classroom environment where the focus is on developing intercultural competence. Therefore, to tackle the issue we suggested looking at constructionist intercultural competence from the perspective of the theory of complex systems, which with its focus on aperiodicity, non-linearity and unpredictability, explains the lack of input – output dependency in formal instruction. Consequently, following the perspective of complex systems we suggested viewing the experience of intercultural competence as a goal in itself rather than as a set of clearly defined in advance aims referring to knowledge, skills and attitude. Furthermore, we argued that the major contribution that the complex systems perspective can bring to research on constructionist intercultural competence is the concept of constraint, i.e. context, on meaning, which may introduce some order to a sometimes chaotic, aperiodic and unpredictable process of intercultural meaning construction. Consequently, by defining shared meanings between intercultural competence and a complex systems perspective, we proposed a more unified and holistic interpretation of intercultural competence.

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