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Symposium: Dynamic systems/Complexity theory as a new approach to second language development

Presented at the 16th World Congress of Applied Linguistics (AILA), Beijing Foreign Studies University, China, 24 August 2011.

The goal of the symposium was to show that a Dynamic systems/Complexity theory (DST) perspective will provide important insights into the L2 developmental process. Kees de Bot (University of Groningen) introduced the symposium by outlining the basic characteristics of a dynamic system: all factors or variables involved in language development are interconnected, interact with each other over time, and affect each other differently over time on different time scales. Initial conditions such as the learner's L1, motivation or level of proficiency are crucial and systems self-organize over time. Development is not linear and learners are not all the same, so variability and variation are the norm.

Wang Chuming (Guangdong University of Foreign Studies) and Wang Min (Xi'an Jiaotong University) addressed initial conditions and the interaction between L1 and L2. They argue that the language in which a task is explained can be considered an initial condition. If the L1 is activated, L1 transfer is more likely to occur. Their experiments showed that the L2 English of Chinese EFL learners was more idiomatic if the instructions had been given in English rather than in Chinese. These results suggest that the immediate context interacts with the use of the L2.

Marjolijn Verspoor and Hana Smiskova (University of Groningen) argued that variability is a precursor of change in L2 development; its presence indicates that the learner explores and tries out new strategies or modes of behavior that are not always successful and may therefore alternate with old strategies or modes of behavior. They presented a longitudinal study of the development of formulaic sequences (chunks) in Dutch learners of English to show how learners show an almost random variability in their use of chunks over time, but then suddenly show a spurt, clearly suggesting non-linear development.

Lieve Verheyden (University of Leuven) argued that variation between learners is the norm. When she tested three different multilevel growth models against the writing development of thirty L2 learners, she found that a dynamic model in which no growth curve was imposed at all worked significantly better than two models that did impose such a growth curve on the data. This implies that these young (L2) writers each follow their own changeable developmental path, as one would expect from a DST perspective.

Peter D. MacIntyre (Cape Breton University) and Richard Clément (University of Ottawa) examined the variability and interaction of willingness to communicate and L2 language use by means of their 'idiodynamic method'. The method includes videotaped interviews, question-and-answer exercises and conversations among L2 learners. Using a form of stimulated recall, learners review the video recording in order to rate their fluctuating

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affective reactions. Learner ratings are graphed as a continuous curve, printed immediately, and reviewed by the learner and a research assistant. The transcripts of each learner's L2 speech can thus be linked to peaks and valleys observed on the graph, for example to study verbal or non-verbal markers of changing affective states.

Kimberley Noels (University of Alberta) focused on the self-organization of affective variables over the course of one semester. Her longitudinal study of French learners examined, three times during the semester, the emergence of the motivational system over time and the ability of feelings of autonomy, competence and relatedness to predict the internalization of motivation and changes in identity. Structural equation modeling of the data collected at each wave showed that a model that provided a good fit to the relations between variables emerged only in the third wave, consistent with the idea that the motivational system reorganizes and settles into a semi-stable state – an attractor state – over time.

Albert Weideman (University of the Free State), in the final paper, took a critical look at DST and its application to the field of applied linguistics. He argued that a complex systems approach is unique, not because it takes a singular (organic) view of language change, but because it bundles together a more than usual number of aspects and makes change the essence of what we survey. However, he warned that as time passes the theory will reveal its own theoretical blind spots, and should be treated with the same critical circumspection as the linguistic paradigms it will soon replace. It will take experimenting, meta-analyses and results (with their associated degrees of variation and variability) before DST finds a stable theoretical framework.

Diane Larsen-Freeman (University of Michigan), as discussant, began by pointing to some of the problems in L2 development research: the depiction of language as a static, homogeneous system, a reductionist approach to studying development, a failure to acknowledge the interaction of a multiplying number of factors, the increasingly fractious nature of the field, and the drawing of spurious inferences from experiments. In her view, Complexity theory/Dynamic systems theory offers a new set of concepts. Based on the papers in the symposium, she offered the following as examples:

1. Change is not unidirectional.
2. Context is not a backdrop to the main scene.
3. The focus is not on variables, but rather on system change.
4. Each learner makes an individual path.
5. Variability is intrinsic.

She concluded by paraphrasing Watson-Gegeo (2004): what we should be seeking is not to maintain old walls, or to construct new ones, but instead to open up new spaces.

References

Watson-Gegeo, K. A. (2004). Mind, language, and epistemology: Toward a language socialization paradigm for SLA. *The Modern Language Journal* 88, 331–350.

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