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Sociocultural source of thinking and its relevance for second language acquisition

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Introduction

Second language acquisition research is coming to recognize the influence of the sociocultural environment in the L2 learning. For example, beginning with the early work of Frawley and Lantolf (1985), a group of L2 researchers have been exploring the implications of L. S. Vygotsky's (1978, 1986) sociocultural theory of mind (henceforth, SCT) for the learning and teaching of languages beyond the first. Similarly, scholars working within the Conversational Analysis tradition, stimulated in large part by the seminal article of Firth and Wagner (1997), have also been investigating the impact of conversation on L2 development. It should come as no real surprise that researchers interested in dynamic systems theory (henceforth DST), and its variants (emergentism, chaos and complexity theory) have also shown an interest in the implications of their theoretical stance for SLA. Larsen-Freeman (1997, 2002), to my knowledge, the first researcher to make a case for the potential relevance of chaos and complexity theory for L2 acquisition, argues for the need to expand the scope of factors impacting on L2 learning to consider more than what goes on inside of a learner's head. In addition to Larsen-Freeman's publications, a special issue of *Applied Linguistics* (N. Ellis and Larsen-Freeman, 2006) and an invited colloquium at the 2006 Annual Conference of the American Association for Applied Linguistics (De Bot, 2006) have been devoted to the topic. The contribution by De Bot, Lowie and Verspoor (henceforth, DBL&V) represents a significant continuation of this trend.

As new theories of SLA appear on scene, it is important to interrogate their foundational principles with a special eye toward L2 development. R. Ellis (1997, 2003), and Mitchell and Myles (1998), for instance, have played important roles in raising questions and challenges to the SCT L2 research. I believe that their commentaries and critiques have had a positive effect on work currently underway within this framework (see, for example, Lantolf and Throne, 2006). In this same spirit, I would like to explore and offer a few critiques and challenges to some of the arguments raised by DBL&V.

I will focus on three general issues, each of which I believe emerges from DBL&V's claim that "because DST takes into account both cognitive and social aspects of language development, it can provide a coherent approach to various issues in SLA" (p. 7). The first is to point to another theory, which not only takes into account social forces in psychological development but in fact argues that human mental activity is primarily organized and mediated by social processes and culturally constructed artifacts. The second is that even though DBLV see the interaction between cognitive and social factors as the "strongest point of a DST approach to SLA" (pp. 18–19), they do not provide a mechanism to account for how this occurs. The third issue, related to the second, is the implication that cognition takes place exclusively in the domain of the individual; that is, inside of the head. In what follows, I will address each of these in turn.

Sociocultural theory of mind

SCT makes an even stronger claim than DST with regard to the role of social processes in cognitive and linguistic development. Vygotsky's argument is that specifically human mental activity emerges as a result of the internalization of social relationships, culturally organized activity and symbolic artifacts, in particular language (Vygotsky, 1986; Lantolf & Thorne, 2006). The culturally organized mind is, of course, built on the foundation of the mental capacities with which the physical organ of thinking, our brain, is endowed. However, these, in and of themselves, do not allow humans to intentionally organize and control their memory, attention, planning, rational thought, and learning. This capacity comes from our sociocultural environment, a matter that leads to my discussion of the second issue.

Is the claim accurate?

DBL&V's claim that DST is the only theory that takes account of the cognitive and social aspects of development is too strong. SCT is a theory specifically designed to take account of not only the interaction but the organic unity of mental and social processes. In fact, Vygotsky's argument is that specifically human mental activity arises as a result of the internalization of social relationships, culturally organized activity and symbolic and physical artifacts, in particular language (Vygotsky, 1986; Lantolf and Thorne, 2006). The culturally organized mind is, of course, built on the foundation of the mental capacities with which the physical organ of thinking, our brain, is endowed. However, these, in and of themselves, do not allow humans to intentionally control their memory, attention, planning, rational thought, and learning. This control comes from

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our sociocultural environment, which leads directly to my discussion of the second issue.

Interaction between the cognitive and the social

According to DBL&V, development from a DST perspective entails the interaction between internal cognitive "ecosystems" and external social "ecosystems". If it can be shown precisely how the two ecosystems interact to promote language development, their claim would be quite powerful and would have significant implications for how SLA is understood. In their article, however, the lion's share of attention is squarely on the cognitive side of things, which in my view, leaves the impression that the individual/social dualism that DST seeks to overcome is still intact. They do point out that the external system entails interaction and provides input for the internal system to act upon. Precisely how this occurs is underspecified. What is more, in their conclusion, DBL&V seem to separate the external system into two subcomponents, the social and the environment (p. 19). They need to make clear what the nature of this distinction is. From the SCT perspective, the natural environment for humans is comprised of society and culture and nothing more. As I have mentioned, this includes not only social relationships and activities, but also artifacts. And artifacts include not only symbols, but also physical objects such as books, computers, furniture, buildings, gardens, even cities. These are all socially constructed artifacts that impact how we live and think.

DBL&V do include an interesting, though brief, discussion of the concept of PERACTION, described by Thompson and Valsiner (2002) as the ability to dialectically engage other individuals as tools to achieve a particular, hopefully mutually agreed upon, goal. As DBL&V point out, peraction is a concept very much in line with SCT principles, which is not surprising, given that Valsiner is one of the leading figures in SCT informed research. On the other hand, DBL&V state that Thompson and Valsiner "strongly support the use of DST" (p. 9), which, again in my view is somewhat surprising, given Valsiner's theoretical orientation. In my reading of Thompson and Valsiner I do not detect the same strong support for DST. The following comment, for example, does not seem to cast DST in a favorable light: "Their [the authors whose work Thompson and Valsiner are critiquing] reliance on dynamic systems theory obscures the contribution of *agency* [italics in original] to the phenomenon they are trying to explain" (Thompson and Valsiner, 2002, p. 641).

Perhaps DBL&V's most significant claim with regard to SLA is that while at the group level, L2 development may appear to be gradual, and even to pass through developmental sequences, in the domain of the individual it manifests a great deal of variation and instability. This clearly represents a profound challenge to one of the most widely held views within the information-processing approach to SLA and its experimentally grounded research which statistically averages out the variable performance of individuals. Once the aggregate is disentangled, a great deal of systematic variation in developmental trajectories emerges. This view of development is very much in line with what Vygotsky (1986) proposed, when he characterized development as a revolutionary process that occurs in fits and starts and that can move in unpredictable directions, including previous stages.

The one difficulty I have with DBL&V's account of development is that they focus heavily on system internal factors carried out by the individual seemingly acting alone. Given their claim on the relationship between cognition and social resources, I encourage them to demonstrate empirically how the social is concretely implicated in the development process. Here is where SCT makes a significant contribution to the overall enterprise of integrating social interaction and cognition. Vygotsky's core claim is that individuals are fundamentally socially organized entities and that therefore the very source of human development resides in the environment. This perspective rejects the encapsulated and autonomous individual privileged in information processing and innatist theories of development. According to SCT, the development of the individual always passes through (i.e. is mediated by) others, whether they are immediately present as in the case of parents guiding children or teachers guiding students, or displaced in time and space, as when we read texts produced by others, or participate in activities such as work, organized in specific ways by a culture (see Newman, Griffin and Cole, 1989 for details).

Vygotsky proposed his well known, but often misunderstood, concept of the zone of proximal development to explain dialectical unity of individuals that results in development. It is in the ZPD that individuals are able to perform at higher levels of ability than they can alone, and in so doing eventually internalize the mediation provided by their con-specifics, which results in enhanced development (see Vygotsky 1986, especially chapters 6 & 7). Aljaafreh and Lantolf (1994) document L2 development in the ZPD. I am aware of at least one proponent of DST who has explored ways of incorporating the ZPD into DST (Van Geert, 1998, 1997). It would have been worthwhile if DBL&V had incorporated discussion of this work in their article. It holds great potential for making much more explicit the function of social interaction in the development of dynamic systems.

Is cognition only in the head?

The final issue I would like to address is the site of cognition. Even though DBL&V argue that the internal

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and external are "interlinked", they view the external system as a resource that is available to the learner, and not a source of development, as is argued in SCT. Growth in the individual's "informational resources" leads to changes in "interaction with the environment through a demand for more demanding tasks and environments" (p. 12). This type of interconnectedness with the environment is clearly important for development; however, in their general discussion DBL&V seem to assume that the exclusive domain of cognition is inside the head.

Vygotsky proposes a wider view of cognition. Indeed, his argument that the environment is the source of development entails that the environment itself takes on psychological status and this in turn underlies internalization. More recently, Gibbs (1999) cautions that "psychologists and linguists should be very careful not to assume that (a) cognitive models must be exclusively represented in people's heads" (p. 154) and argues for recognition that "what is cognitive (and embodied) is inherently cultural" (p. 156).

Gibbs (1999, p. 157) provides an interesting example to illustrate the psychological value of cultural artifacts. He points out that studies of children who learn to do math with an abacus compared to children who learn math with paper and pencil reveal that when doing math mentally each group does so in accordance with the constraints and affordances of the artifacts with which they learned how to calculate. This shows up especially in the type of mistakes each group makes (e.g. mistakes in borrowing vs. losing track of 5s). Thus, according to Gibbs (p. 157), it is clearly incorrect to assume that "a child's mistakes in doing mental arithmetic are solely due to errors in internal cognitive processes". This is because, as I have argued, cultural artifacts can have psychological status.

A final comment

DST is in position to make an important contribution to SLA theorizing and to how empirical research is conducted on L2 development. Nevertheless, I believe it is necessary for DST proponents, such as DBL&V, to more fully explore the relevant principles and constructs of SCT, in particular with regard to the organic unity between the sociocultural environment and cognitive processes.

References

Aljaafreh, A. & Lantolf, J. P. (1994). Negative feedback as regulation and second language learning in the zone of proximal development. *The Modern Language Journal*, 78, 465–483.

De Bot, K. (2006). A Language Learning round table discussion. Dynamic aspects of language development. Invited Colloquium. Annual Conference of the American Association for Applied Linguistics. 20 June, Montreal.

Ellis, N. & Larsen-Freeman, D. (2006). Language emergence: Implications for applied linguistics 9 (introduction to the special issue). *Applied Linguistics*, 27, 558–589.

Ellis, R. (1997). *SLA research and language teaching*. Oxford: Oxford University Press.

Ellis, R. (2003). *Task-based language learning and teaching*. Oxford: Oxford University Press.

Firth, A. & Wagner, J. (1997). On discourse, communication and (some) fundamental concepts in SLA research. *The Modern Language Journal*, 81, 285–300.

Frawley, W. & Lantolf, J. P. (1985). Second language discourse: A Vygotskyan perspective. *Applied Linguistics*, 6, 19–44.

Gibbs, R. W., Jr. (1999). Taking metaphor out of our heads and putting into the cultural world. In R. W. Gibbs, Jr. & G. J. Steen (eds.), *Metaphor in cognitive linguistics*, 145–166. Amsterdam: John Benjamins.

Lantolf, J. P. & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development*. Oxford: Oxford University Press.

Larsen-Freeman, D. (1997). Chaos/complexity science and second language acquisition. *Applied Linguistics*, 18, 141–165.

Larsen-Freeman, D. (2002). Language acquisition and language use from a chaos/complexity theory perspective. In C. Kramsch (ed.), *Language acquisition and language socialization: Ecological perspectives*, pp. 33–46. London: Continuum.

Mitchell, R. & Myles, F. (1998). *Second language learning theories*. London: Edward Arnold.

Newman, D., Griffin, P. & Cole, M. (1989). *The Construction Zone: Working for cognitive change in school*. Cambridge: Cambridge University Press.

Thompson, N. & Valsiner, J. (2002). Doesn't a dance require dancers? *Behavioral and Brain Sciences*, 25, 641–642.

Van Geert, P. (1997). Vygotsky's dynamic systems. In P. Lloyd & C. Fernyhough (eds.), *Lev Vygotsky: Critical assessments*, vol. IV: *Future directions*, 3–21. London: Routledge.

Van Geert, P. (1998). A dynamic systems model of basic developmental mechanisms: Piaget, Vygotsky and beyond. *Psychological Review*, 105, 634–677.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1986). *Thought and language*. Cambridge, MA: MIT Press.

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